



Show me yours, I'll show you mine...

- Weapons and riding gear in the first millennium

Resumé from an international seminar at the  
Fortress in Korsør.

8. September 2023.



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# Invitation

Weapons and riding gear from the first millennium in Denmark attract solid and widespread interest. This is partly caused by extensive excavations on large weapon-rich sites, and thorough research and publications to back them. Experimental approaches have further drawn interest to the subject. With an accumulation of archaeological material, especially detector-fund material in Denmark, along with a research environment in constant development, it is time to revisit weapons and riding gear from the first millennium.

With the seminar *Show me yours and I'll show you mine... – weapons and riding gear in the first millennium*, we wish to share and spread information on weapons and riding gear to make way for an understanding of social organisation and development in the first millennium that takes recent finds and research into account.

The seminar aims to elucidate and share information on evasive and disregarded fragments and artefacts; point to special characteristics and significant types; communicate specialized and original expertise, and thereby expand and nuance our knowledge on weapons, equipment, armour, harness, and riding gear. This seminar will focus on the empirical material, typology, parallels, proveniences, and chronologies. There will also be discussions on related topics like deposition, decomposition, production, and context.

The seminar language will be English.

Place: Korsør Fæstning, Magasinbygningen Søbatteriet 3, 4220 Korsør.

Date: 8.<sup>th</sup> of September 2023 kl. 9 -18.

Trine Borake, Museum Vestsjælland \*\*\* Mads Dengsø Jessen, Nationalmuseet

# Program

09:00 - 09:30 Welcome and coffee.

09:30 - 09:50 Introduction.

Trine Borake, Museum Vestsjælland and Mads Dengsø Jessen, Nationalmuseet

09:50 - 10:10 Weaponry, War Horses, and military organisation in the Roman Iron Age.

Xenia Pauli Jensen, Moesgaard Museum

10:10 - 10:30 Weapons, warrior equipment and a martial society in Germanic Iron Age.

Anne Nørgård Jørgensen, National Museum Denmark

10:30 - 10:50 Weapons and riding gear from Viking Age and Early Middle Ages.

Anne Pedersen, National Museum Denmark

10:50 - 11:20 Questions and coffee

11:20 - 11:40 Axes from the Middle Ages.

Gustav Hejlesen Solberg, Ph.d. -stud., Trelleborg, National Museum Denmark

11:40 - 12:00 A Slavic spur from Herslev and other Slavic weaponry and riding gear.

Leszek Gardela, Gerda Henkel Fellow, Poland.

12:00 - 12:20 The harness from Fregerslev II and parallels amongst the metal detecting finds.

Merethe Schifter Bagge, Museum Skanderborg

12:20 - 12:45 Questions and discussion

12:45 - 13:30 Lunch

13:30 - 14:00 The dance around the anvil – iron, stirrups, workshops and decomposition.

Arne Jouttiärv, Heimdal-archaeometry

Henriette Lyngstrøm, University of Copenhagen

14:00 - 14:20 Consecrated by water. Wetland weapon deposits in a temporal and regional perspective. What we learn from them that we do not learn from graves.

Rasmus Birch Iversen, Moesgaard Museum

14:20 - 14:40 The weapon deposits from Fæsted.

Lars Grundvad, Museet Sønderskov

14:40 - 15:00 Questions and coffee

15:00 - 15:20 The Germanic Flat Round Shield Tradition.

Rolf Fabricius Warming, PhD stud. Stockholms Universiteit. Society for Combat Archaeology

15:20 - 15:40 Mail armour from the first millennium: occurrence, visibility, and recognisability.

Dr. Martijn A. Wijnhoven, Archaeological Institute of the Czech Academy of Sciences

15:40 - 16:00 Iron age helmets.

Matthias Frisk, Bohusläns Museum

16:00 - 16:30 Discussion.

16:30 -18:00 Social event.

Guided tour at the fortress and tower. We will also serve a glass of wine to round off an exciting day!

# Organisers

Trine Louise Borake, curator  
Museum Vestsjælland  
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# Presenters

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# **Content**

# Weaponry, War Horses, and military organisation in the Roman Iron Age.

Xenia Pauli Jensen, Moesgaard Museum



# Weaponry, War Horses, and military organisation in the Roman Iron Age

Xenia Pauli Jensen  
Senior researcher, PhD  
Moesgaard Museum

# Pre-Roman Iron Age (500-1 BCE): weapon burials

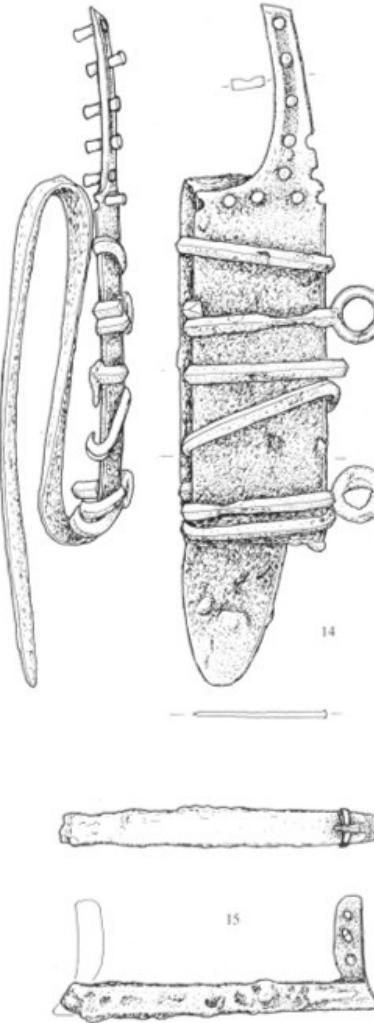
Kraghede



Tudvad

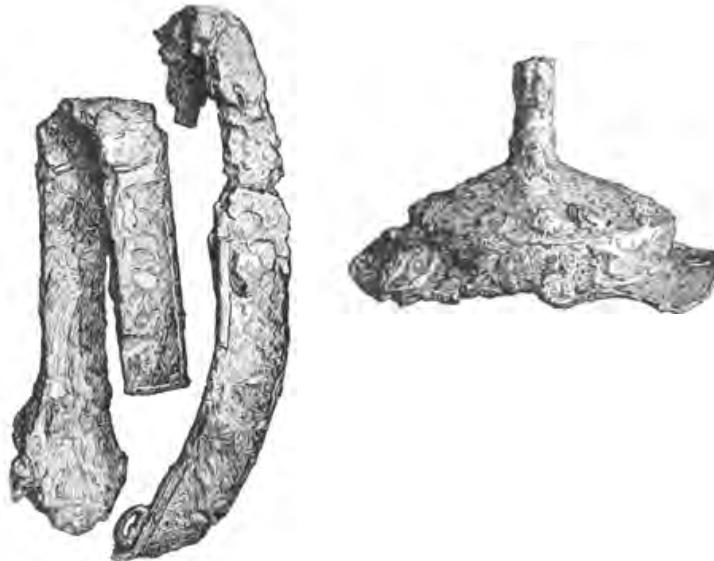


Övra Ålebäck



# Pre-Roman Iron Age (500-1 BCE): weapon finds

Borremose,  
midt 4th cent BCE



Fæsted,  
1st cent BCE

Lindholmgårds  
Mose, 1st cent BCE



Kildebæk Mose, PRI

# Early Roman Iron Age (1-150/60 CE): weapon burials

Hedegård, around BCE/CE

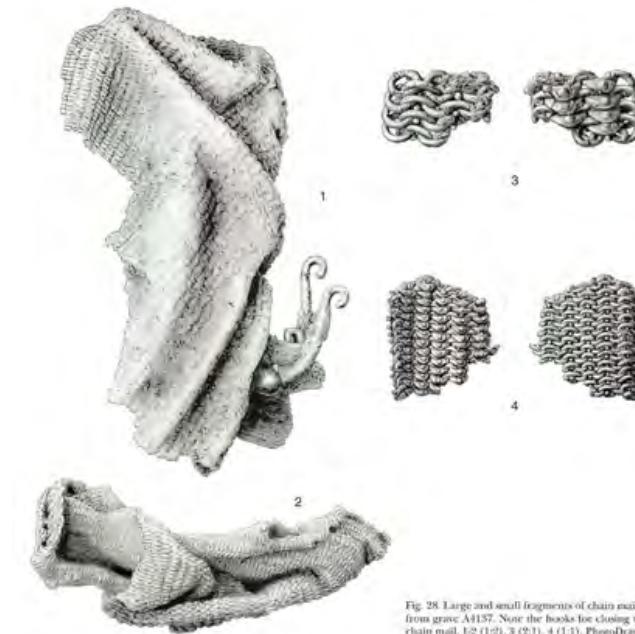
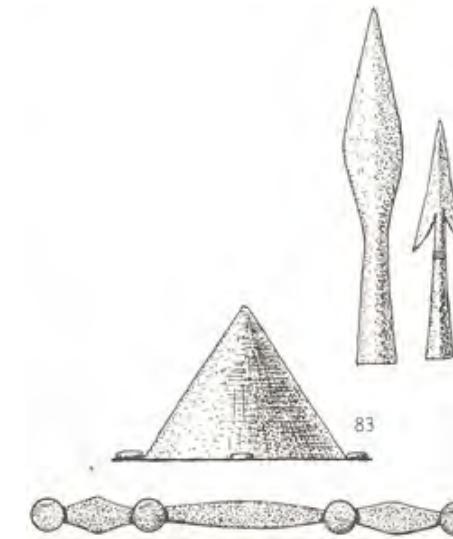


Fig. 28. Large and small fragments of chain mail from grave AH37. Note the hooks for closing the chain mail, 1:2 (1:2), 3 (2:1), 4 (1:1). PhotoDraw Steen Hennrichsen.

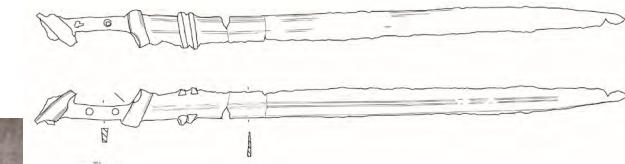
Møllerup, early 2nd cent. CE



Gålstad, 1st cent. CE



Hellegård, early 1st century CE



# Early Roman Iron Age (1-150/60 CE): weapon finds

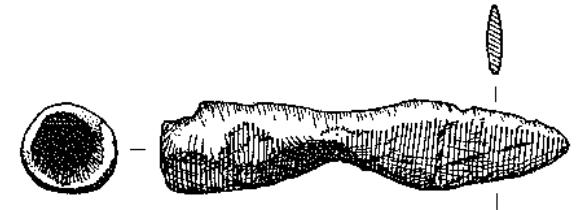
Vimose 0,  
early 1st century CE



Vimose 2a,  
early 2nd century CE



Hagendorup, 1st century CE

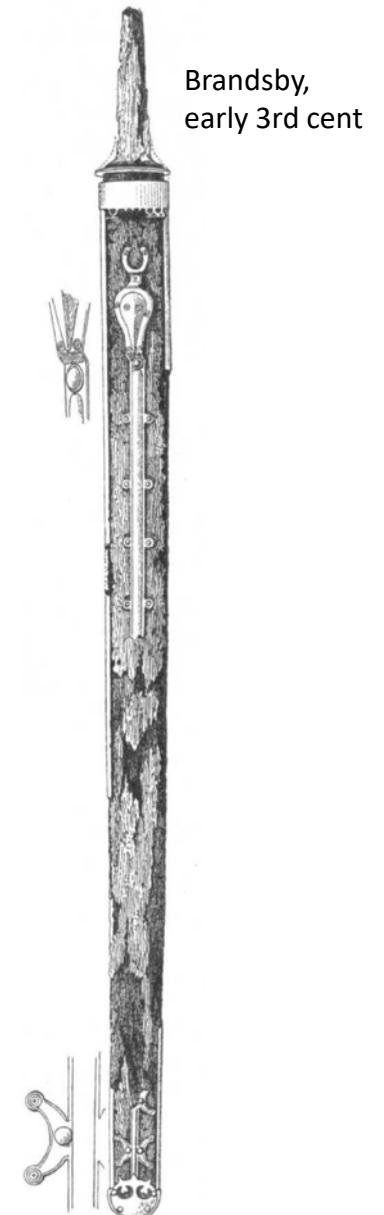


# Late Roman I A (150/60-375 CE): weapon burials

Svennum,  
3rd cent

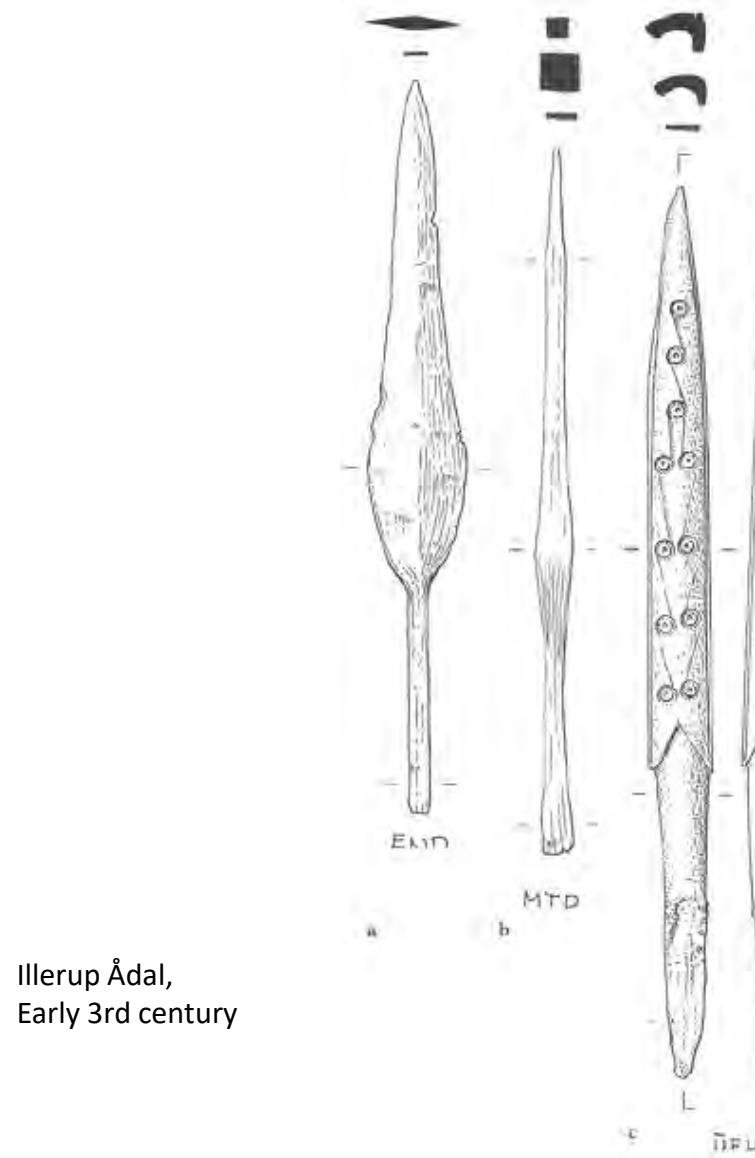


Veldbæk,  
mid 3rd cent



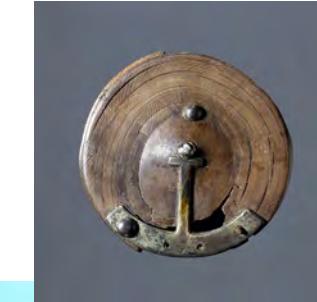
Brandsby,  
early 3rd cent

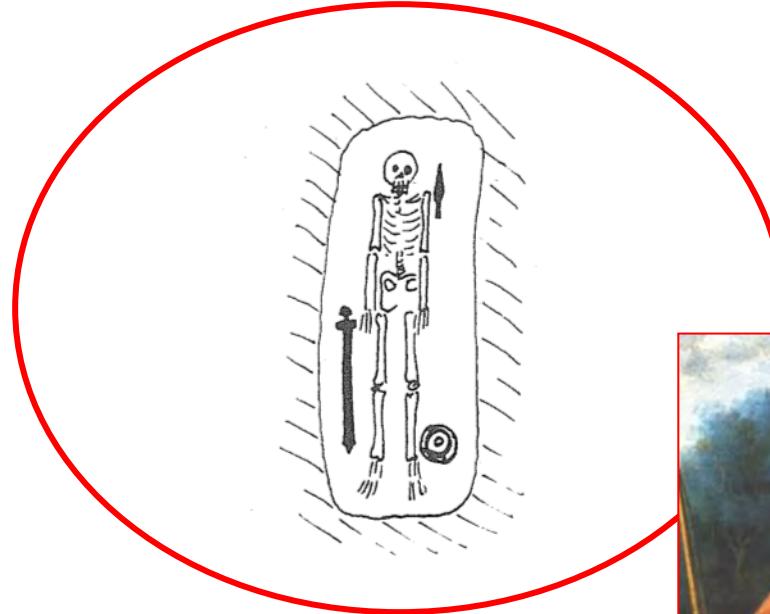
# Late Roman Iron Age (150/60-375 CE): weapon finds



Vimose,  
Early 3rd century

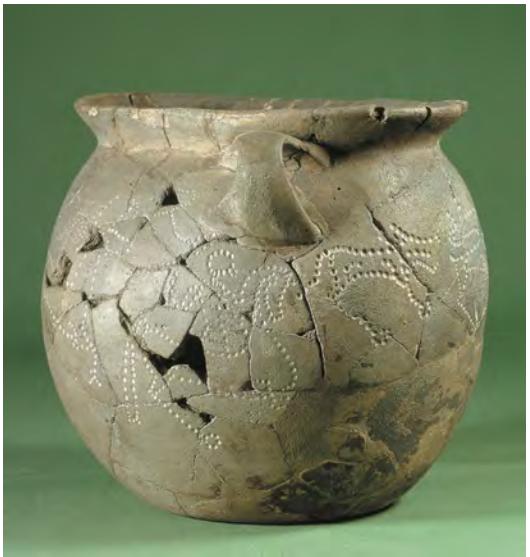
# Weapon finds 200 BCE – 375 CE





# From draught animal to horse back riding

Kraghede, late PRI



Rock Art from Halvorserod, Sweden, approx. 500 BC



Rock Art from Tegneby, Sweden

# Early metal bridles -> use of horses in warfare



Gudbjerg, Funen, 1s

Sundsvall, Sweden, Migration Period

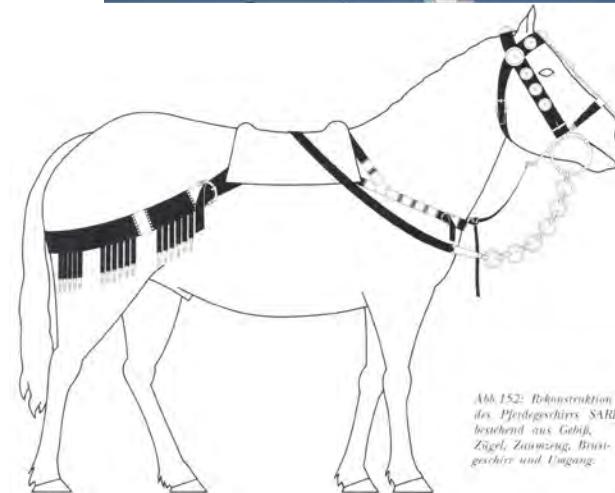
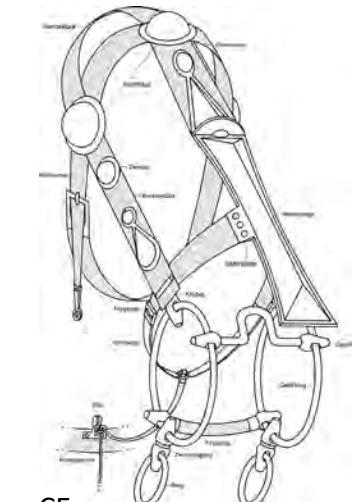


Abb. 152: Rekonstruktion des Pferdegeschirrs SAREF bestehend aus Gebiß, Zügel, Zaumzeug, Brustgeschirre und Umgang

Illerup Ådal, early 3rd century CE



# Prick-spurs, Early Roman Iron Age

Bjerregård,  
1st half 2nd century CE



Slåenkærgård,  
2nd century CE



Thisted,  
Early Roman Iron Age





Take-over

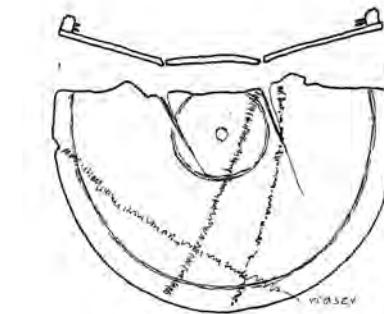


Imitation

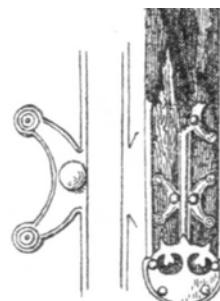


Roman militaria

Re-design



Transformation





# Under pressure...Hedegård revisited



# Weapons, warrior equipment and a martial society in Germanic Iron Age.

Anne Nørgård Jørgensen, National Museum  
Denmark

# Weapons, warrior equipment. A martial society 400-800 AD

*Anne Nørgård Jørgensen  
The National Museum - Denmark*



NSV K33 2014



Sorte Muld

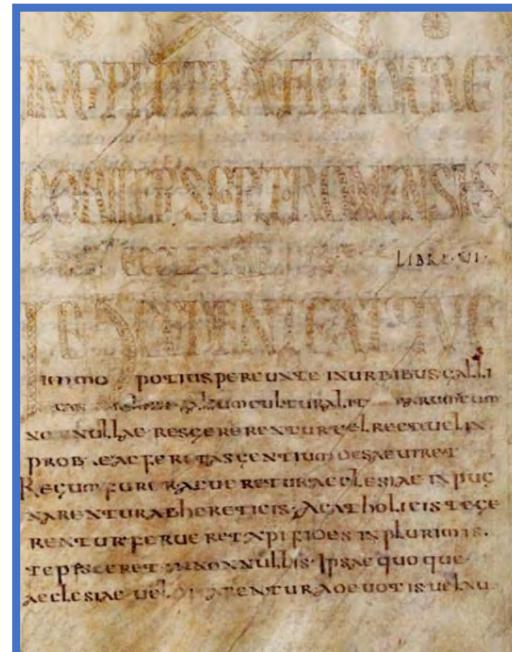


Krefeld Gellep 1782

# Chronological framework for the Germanic Iron Age

	ca. 380/400-	ca. 530/50-	ca. 780/800-ca. 1000/1050
Dänemark	Ältere Germanische Eisenzeit	Jüngere Germanische Eisenzeit	Wikingerzeit
Norwegen	Völkerwanderungszeit	Merowingerzeit	Wikingerzeit
Schweden	Völkerwanderungszeit	Vendelzeit	Wikingerzeit
Deutschland	Völkerwanderungszeit	Merowingerzeit	Karolingerzeit
	(380/400-450)	450/720)	(720-900)

- D1** 375/400-475
- D2a** 475-500
- D2b** 500-520/30
- Fase I** 520/30-560/70
- Fase II** 560/70-610/20
- Fase III** 610/20-680
- Fase IV** 680-740/50
- Fase V** 740/50-800



Gregor of Tour 538-593



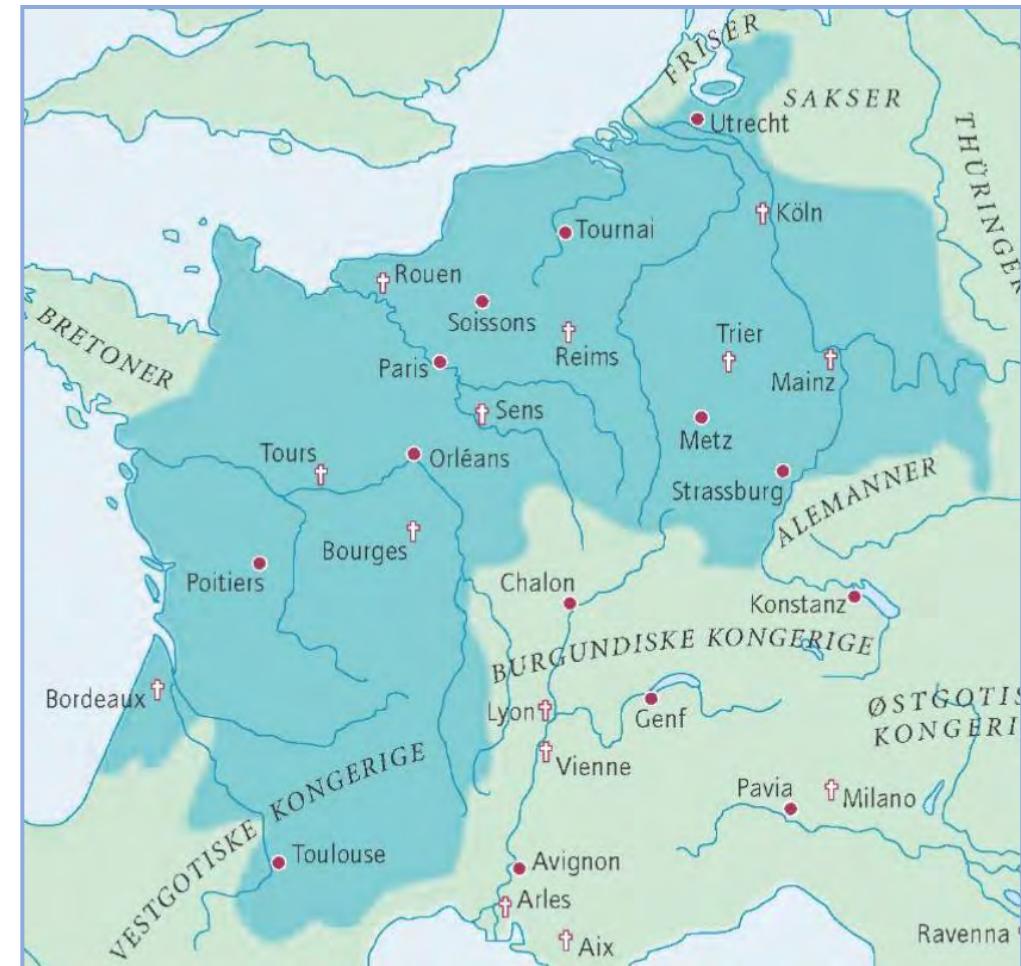
# The Merovingians – Early Medieval Age 450-1000



Childebert 481/482



Pactus Legis Salicae 507-511



Clovis, Klodvig, ca. 466-511

# 1<sup>st</sup> generation military elite graves - ca. 475-520 AD

Evebø, Norway



Lövö 3, Sweden



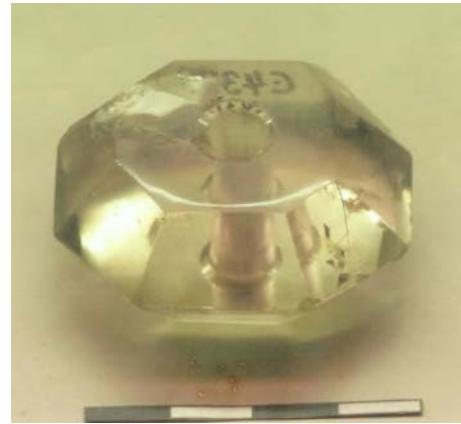
Högum, Sweden



Snartemo 5, Norway

Högum, Sweden

Porskjær scabbard mounts  
for 70 scabbards for  
double edged swords  
400-520 AD



Rosenlund, Herning



## 2. Generation militær elite 520/30-560/70 AD

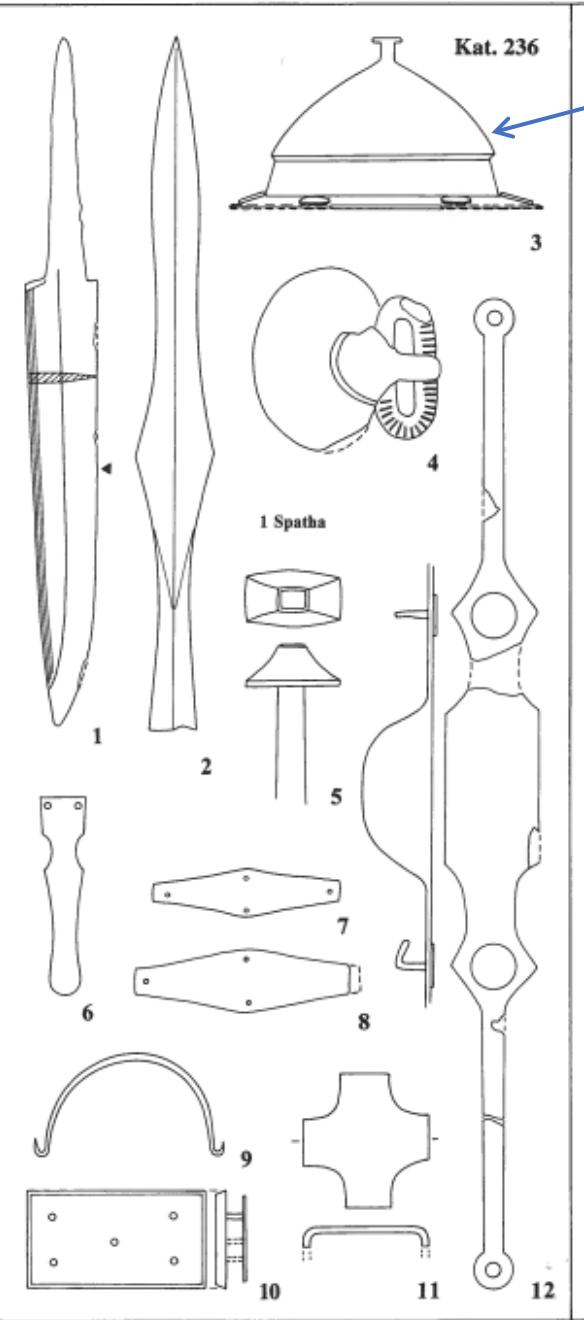


Grønbæksminde Herning (2014).



Photos: ANJ (Rosenlund NM) & Museum Midtjylland

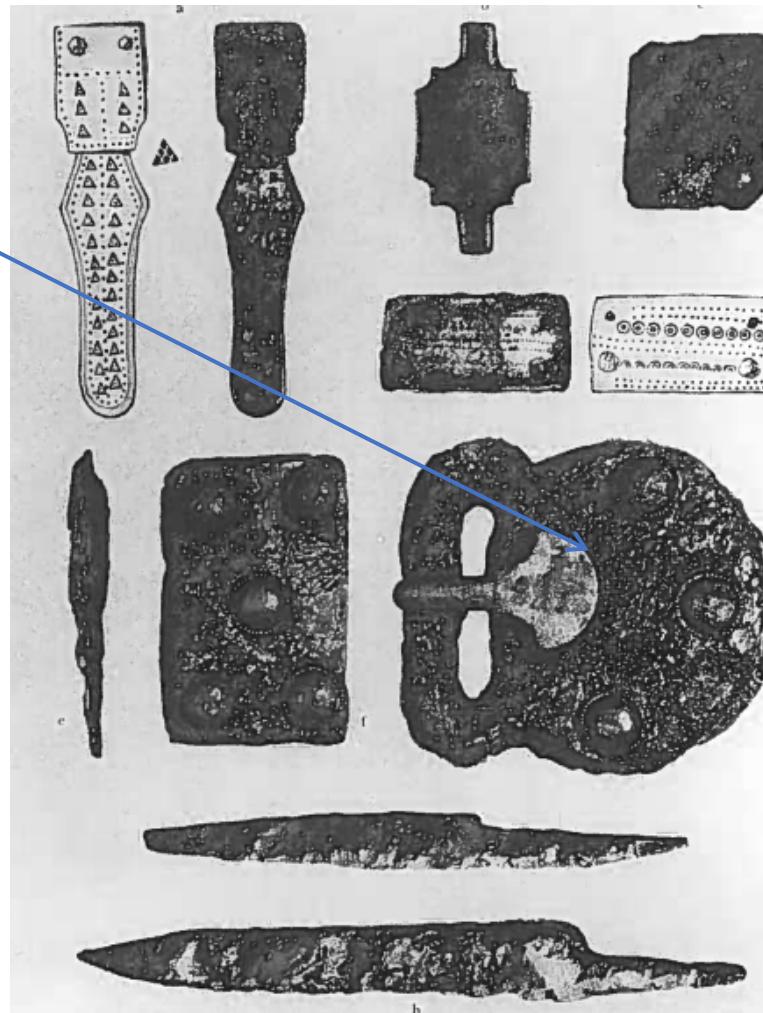




**Broa grav 27, Gotland  
Gudme - Løsfund, Fyn  
Skanderborg, Jylland  
Norup, Fyn**

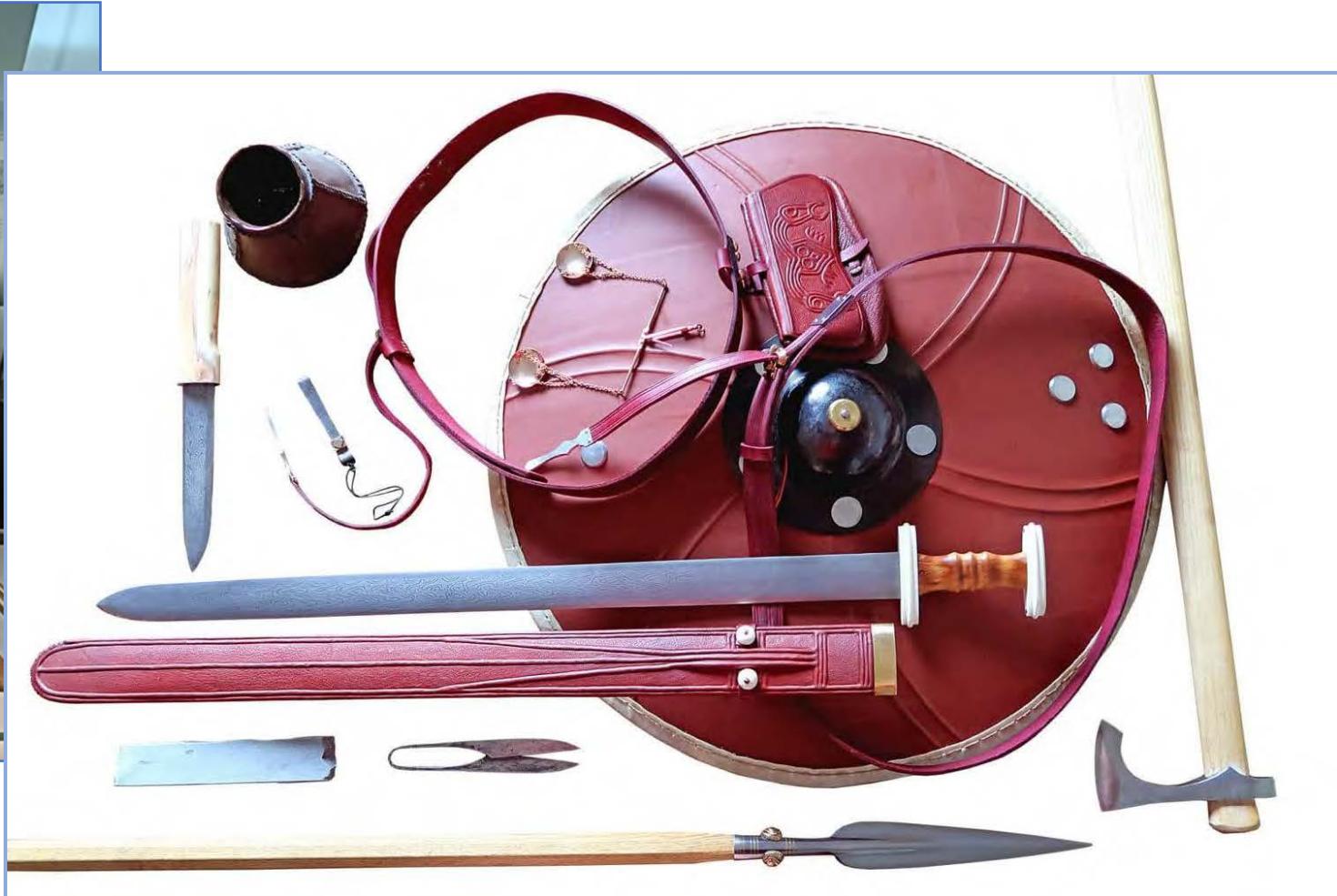
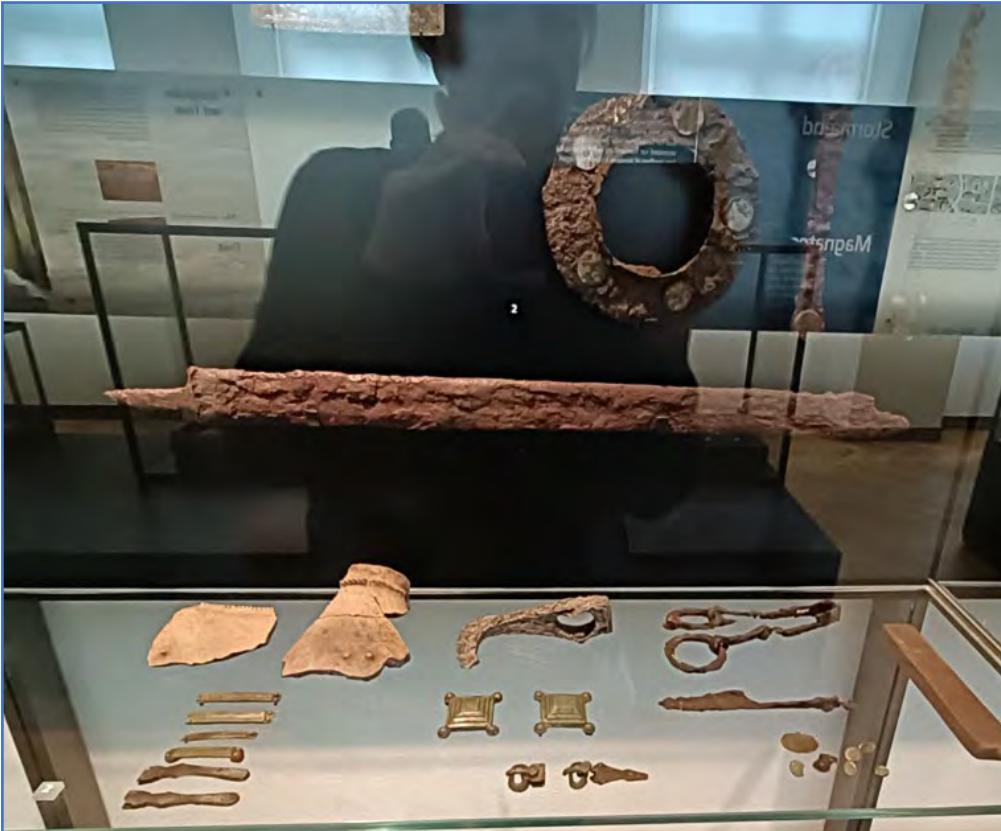
Short Seax, SBA1, L1, GU3, SP2

**520/30-560/70 AD**



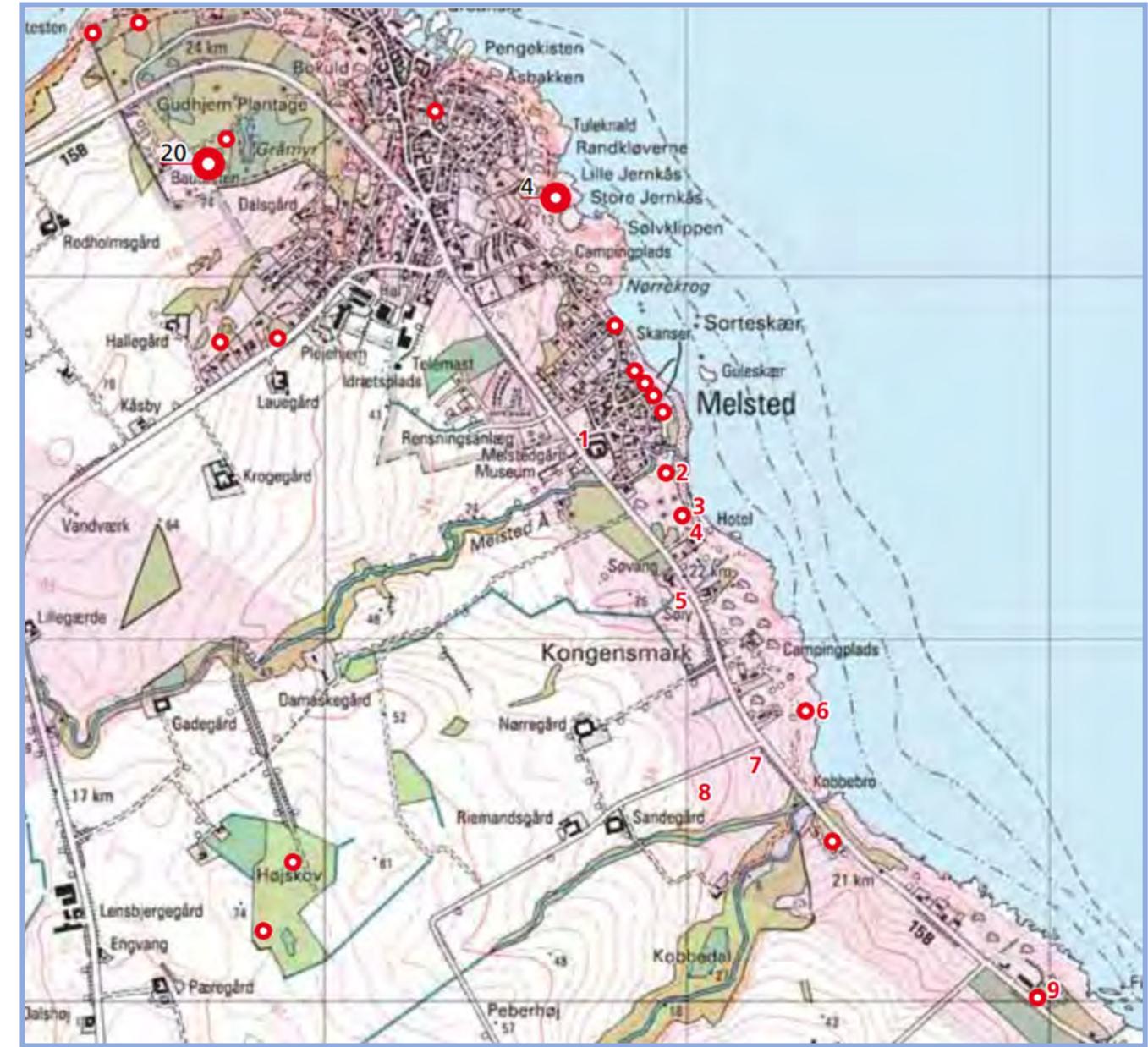
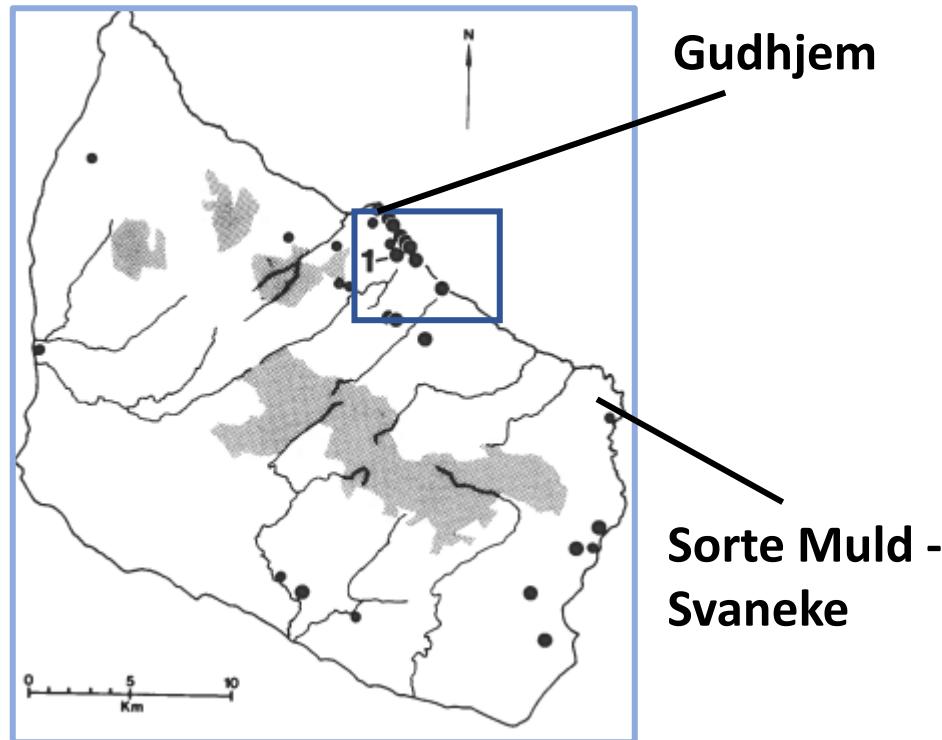
### 3. Generations militære elite 560/70-610/20 AD

Kobbeå 1, Bornholm

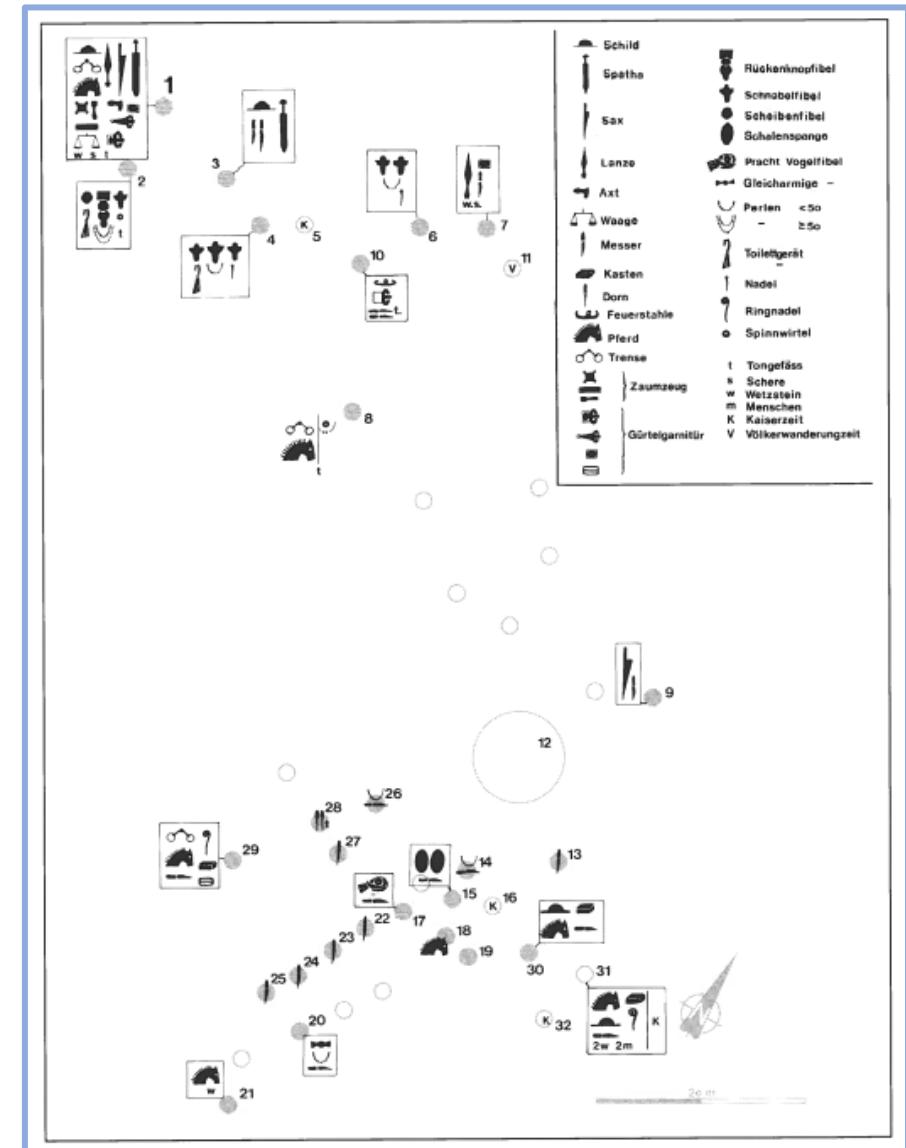
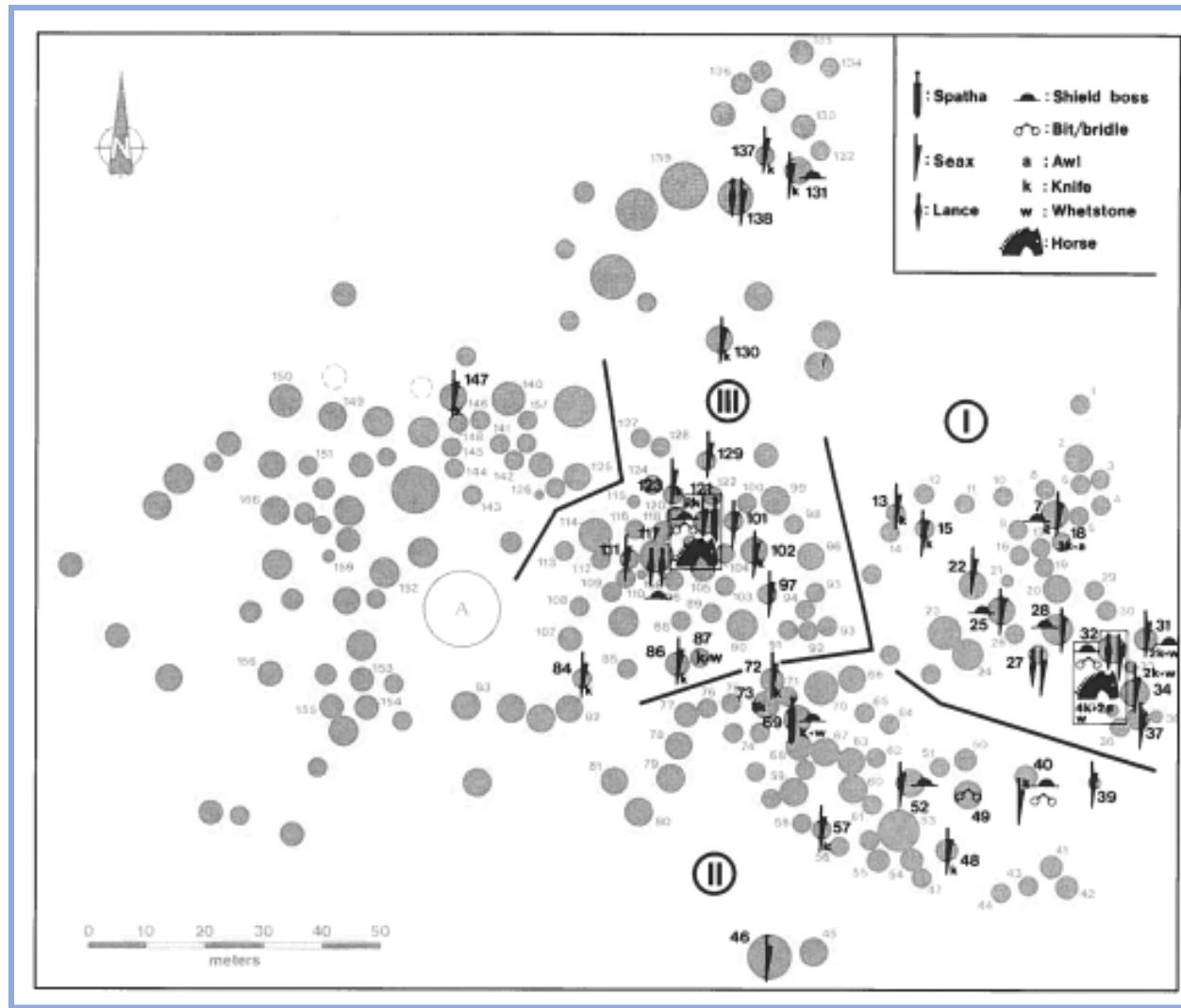


Photos: ANJ (Kobbeå 1 NM) & Ivan I. Schultz

# Cemeteries along the coast from **Gudhjem** to Svaneke (Sorte Muld)

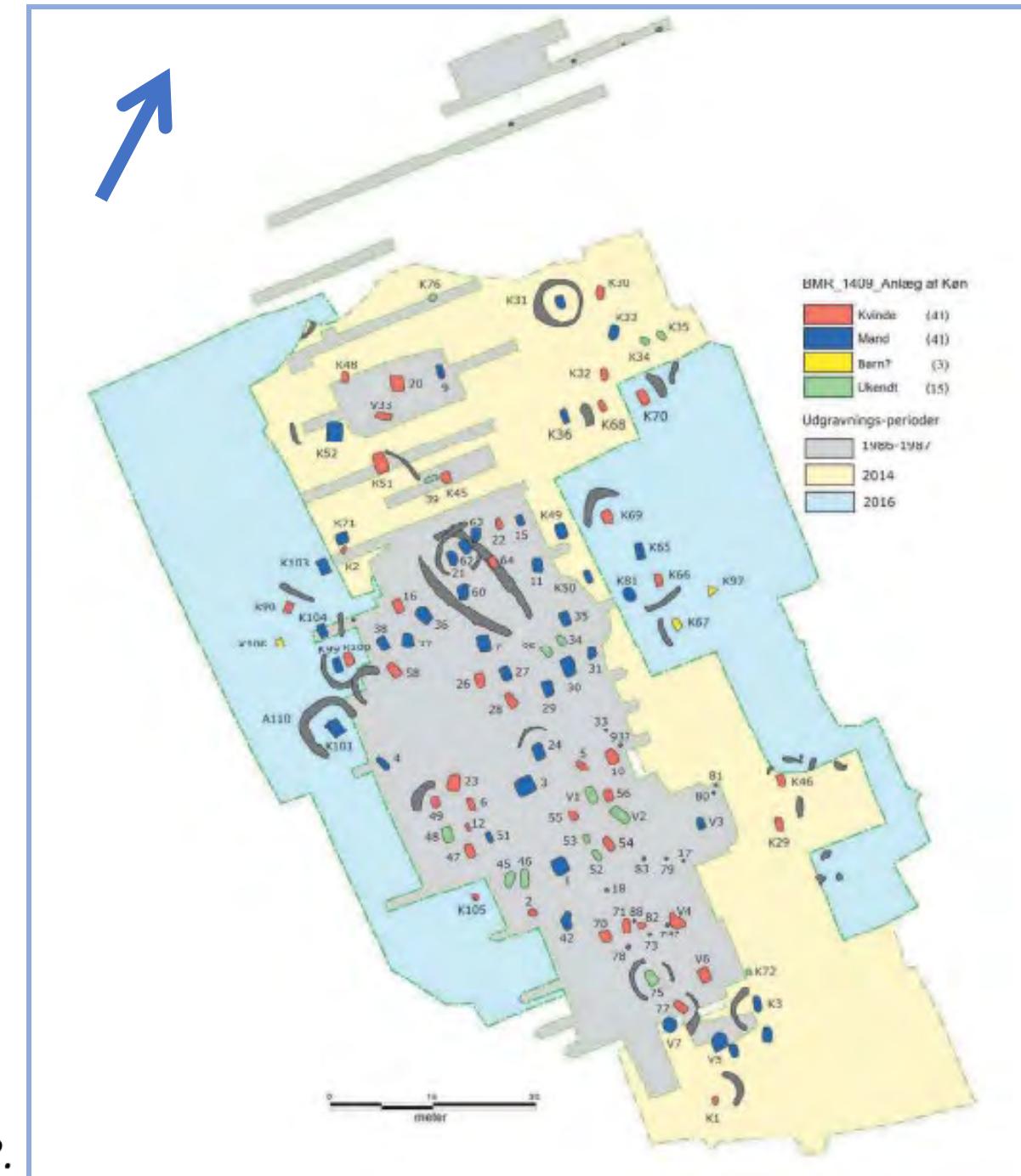


# Bækkegård and Kobbeå



# Nørre Sandegård Vest

Excavations: 1884, 1901, 1902, 1904  
1948-52, 1986-1987, 2013-2014, 2016  
In situ preservation 1997-2012  
(following)



Photos: Museum of Bornholm, Plan: Michael Thorsen BMR.

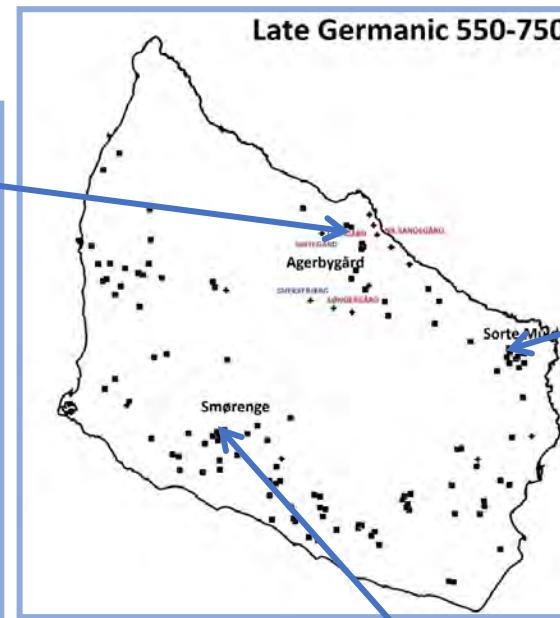
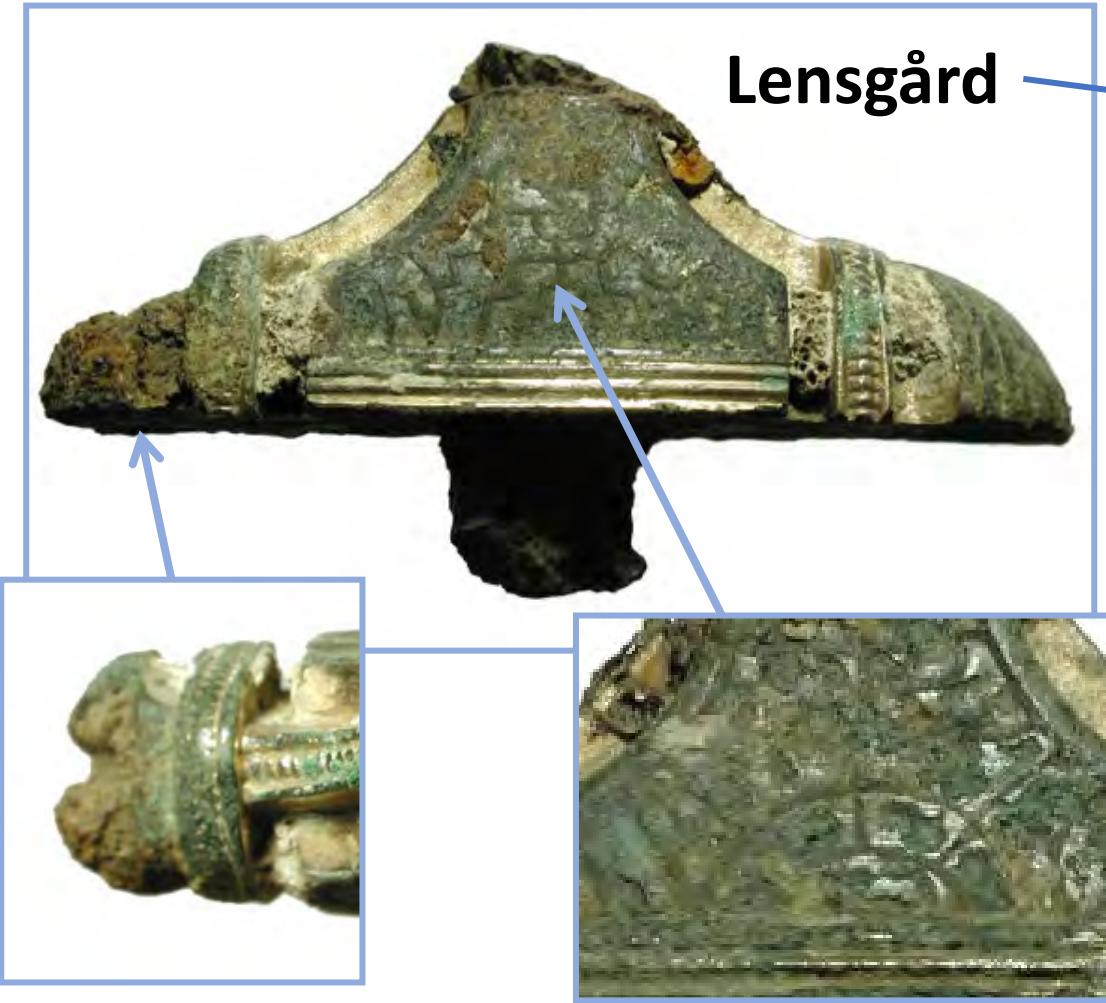
# Male grave with sword and shield boss, Nørre Sandegård Vest



NSV, K71 2014

*Photos: Museum of Bornholm.*

# Magnificent swords, Bornholm



**Guldhullet  
Smørønge**

Prepared for ring button?

Cells, Gilded.

*Photos: Museum of Bornholm.*

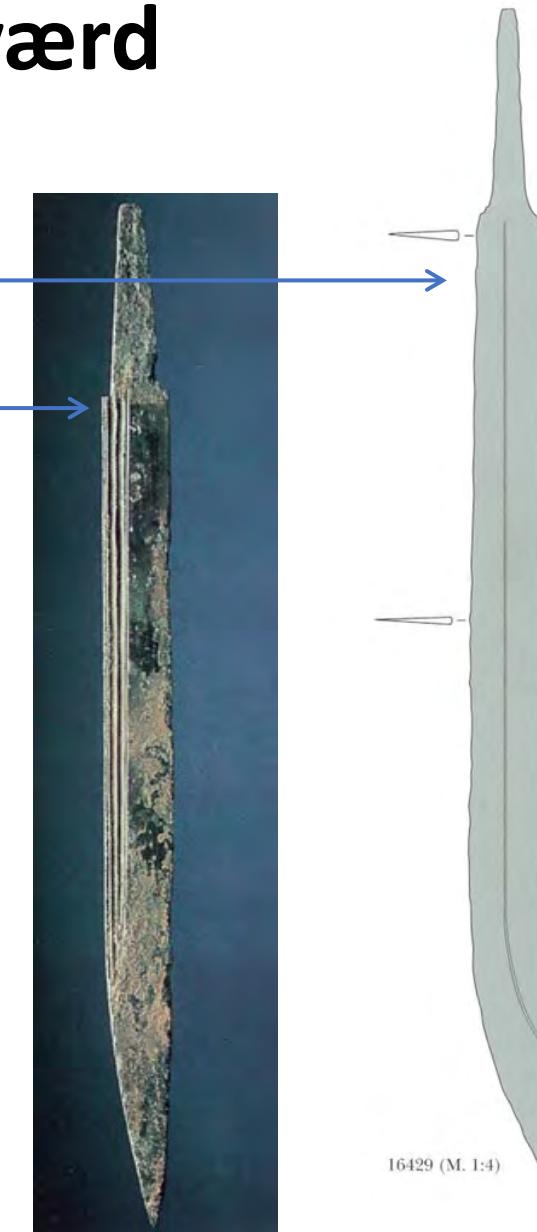
# Pragtvåben & enæggede sværd

7<sup>th</sup>-8<sup>th</sup> cent. AD

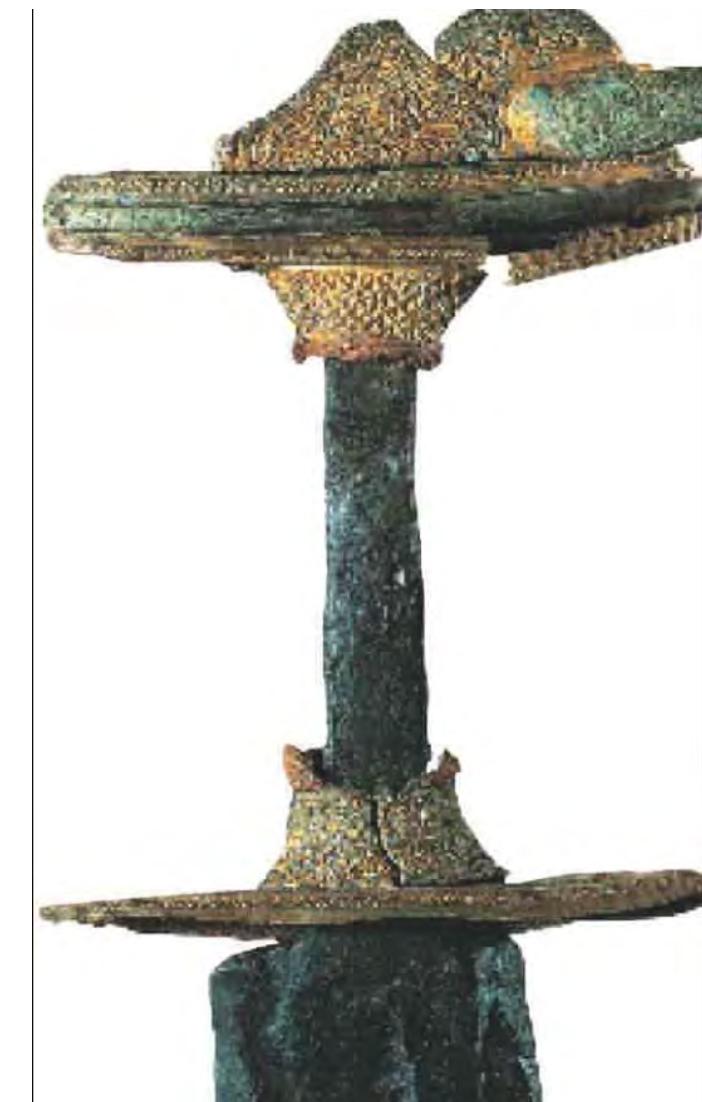
SAX4 Søborg Sø, Nordsjælland 740/50-800 AD

SAX3 Viborg Sø 680-740/50 AD

Bildsø, Vestsjælland ca. 650 AD



Kyndby, Nordsjælland  
ca. 650 AD



Photos: ANJ (Bildsø pommel) & The National Museum, Bildsø, Kyndby and Viborg Sø

# Weapons and riding gear from Viking Age and Early Middle Ages.

Anne Pedersen, National Museum Denmark



*Weapons and  
riding gear from  
the Viking Age and  
Early Middle Ages*

Anne Pedersen  
The National Museum





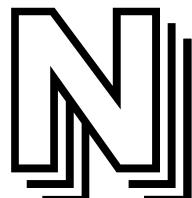
© Bibliothèque



N

## *A variety of sources*

- West European chronicles and annals
- Pictorial sources
- Old Norse poetry and rune stones
- Burials
- Single finds, wetland deposits and settlement finds
- Camps, fortifications / military structures
  - *exercitus, equitatus regni, duces copiarum* and the *primores Danorum*
  - *comes vici* (Hedeby), *praefectus vici* and *consiliarius* to the king (Birka)
  - *thegn, dreng, sven* (rune stones)
  - *thegn, earl* (the English laws of Cnut the Great)



*What dream was that,  
said Odin,  
when I thought before dawn  
I was clearing Valholl  
for a slaughtered army?  
I roused my great champions,  
bade the valkyries wake,  
Strew the benches,  
wash out the beer-mugs,  
Bring out the wine  
for a prince who was coming.  
From the world I await  
such noble fighting-men  
As will make my heart rejoice.*

*(Eíriksmál)*



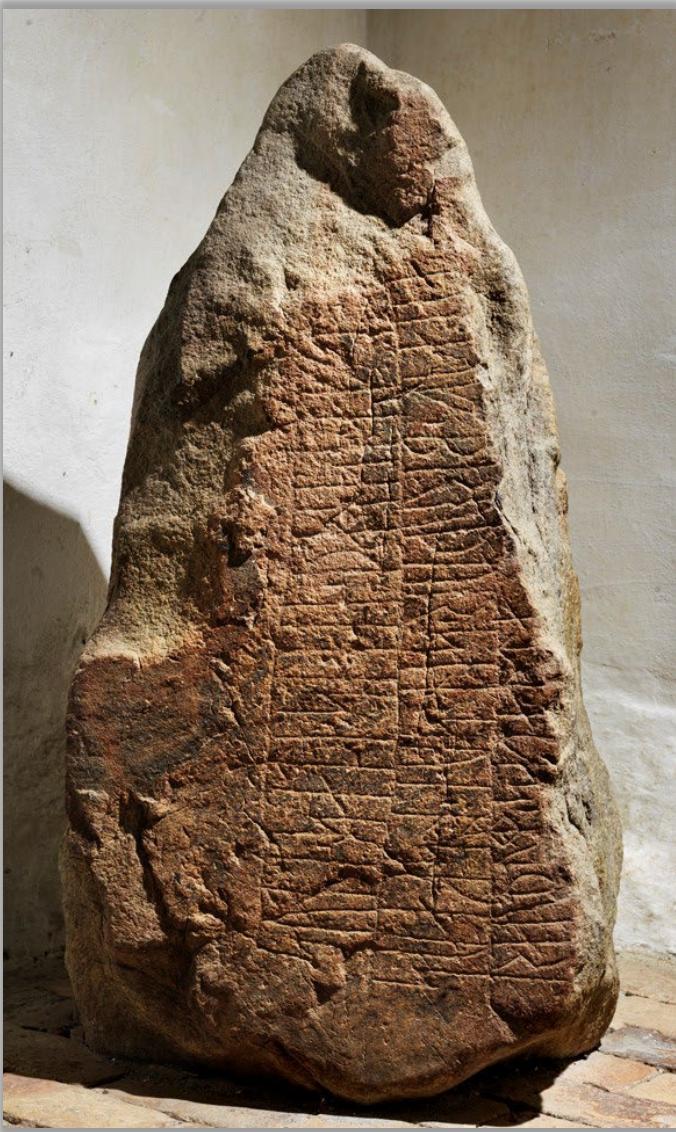


Photo Roberto Fortuna

Sote placed this stone in memory  
of his brother Elev, son of Asgot of  
the red shield  
*Rønninge, Fyn*

Torkel placed this stone in memory of  
Gunne, his son. He met death in battle  
when the kings fought  
*Råda, Västergötland*

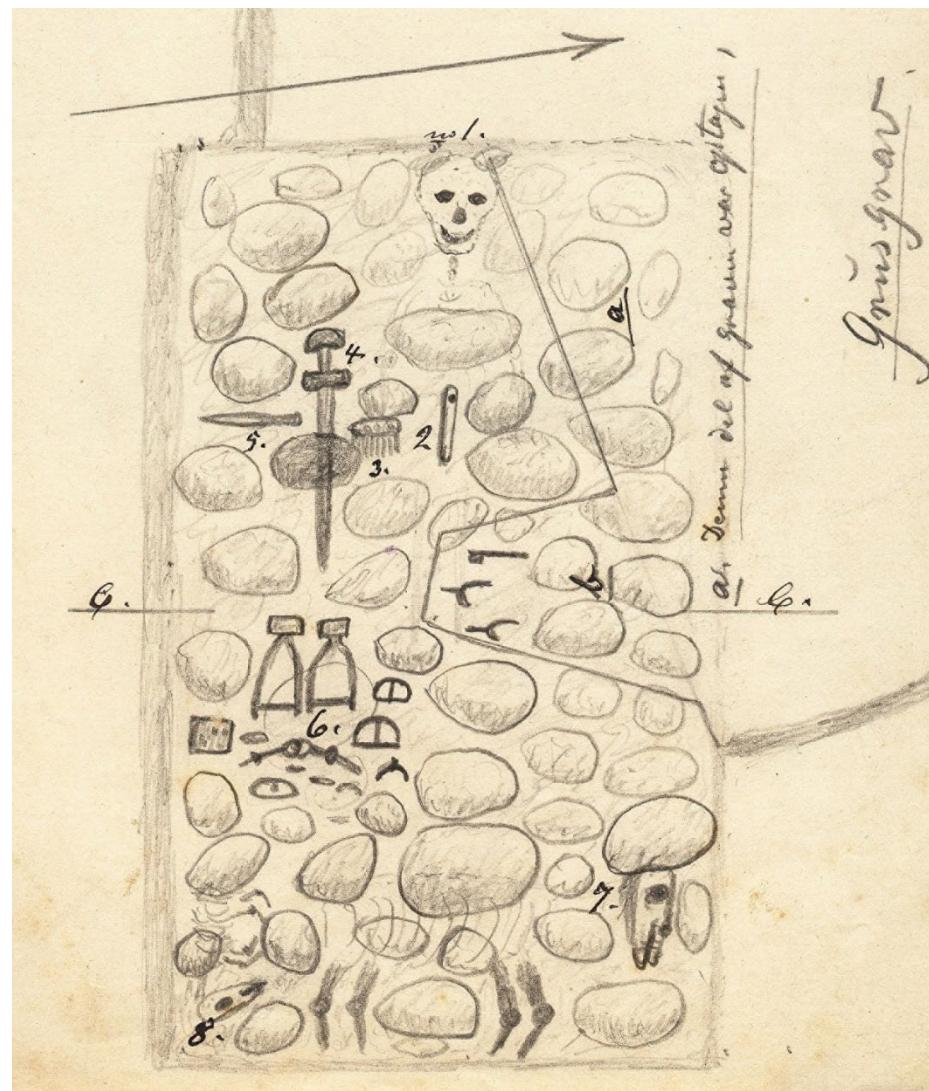


# Burials and their contents

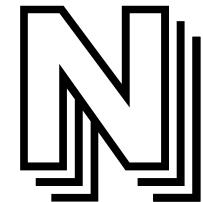


Store Kongshøj, Mors (1873)  
J. Magnus-Petersen

6

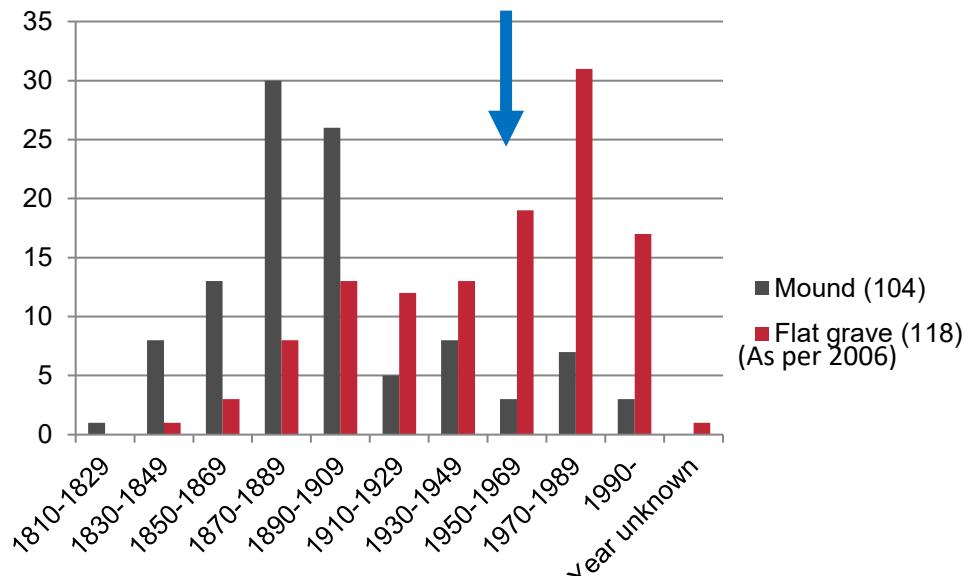


Errindlev, Lolland (1896)  
Custodian J. Olsen

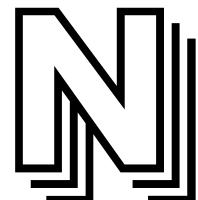
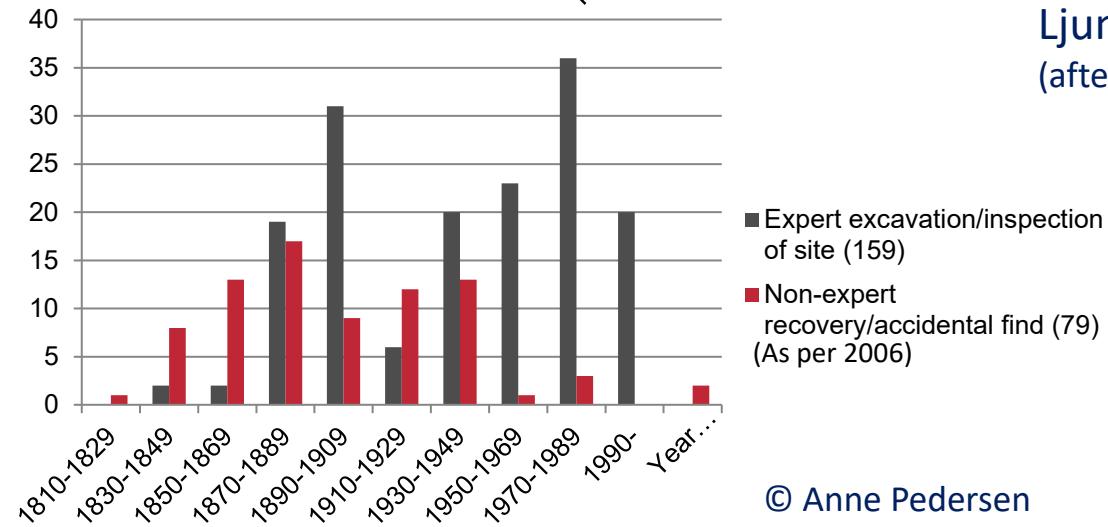


# Burials with weapons and/or horse equipment

## Mound graves versus flat graves

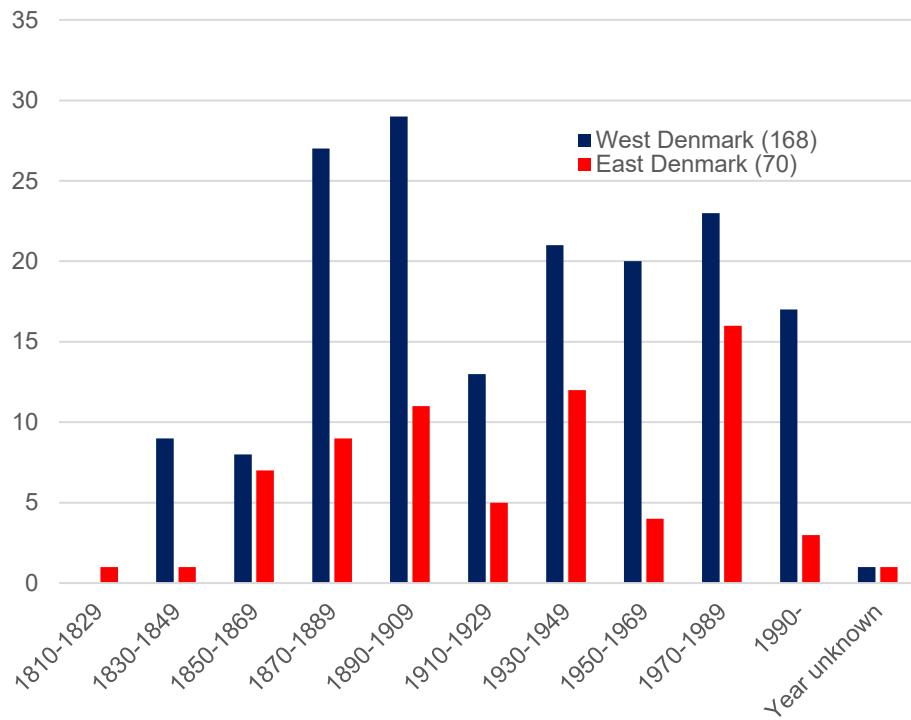


Ljungbacka, Scania, graves 18 and 23  
(after *Vikingarna* 1989)



# Burials with weapons and/or horse equipment

## Geographical distribution



© Anne Pedersen



Hårupgård, Linå, Jylland  
© Silkeborg Museum

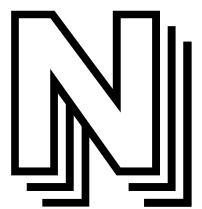
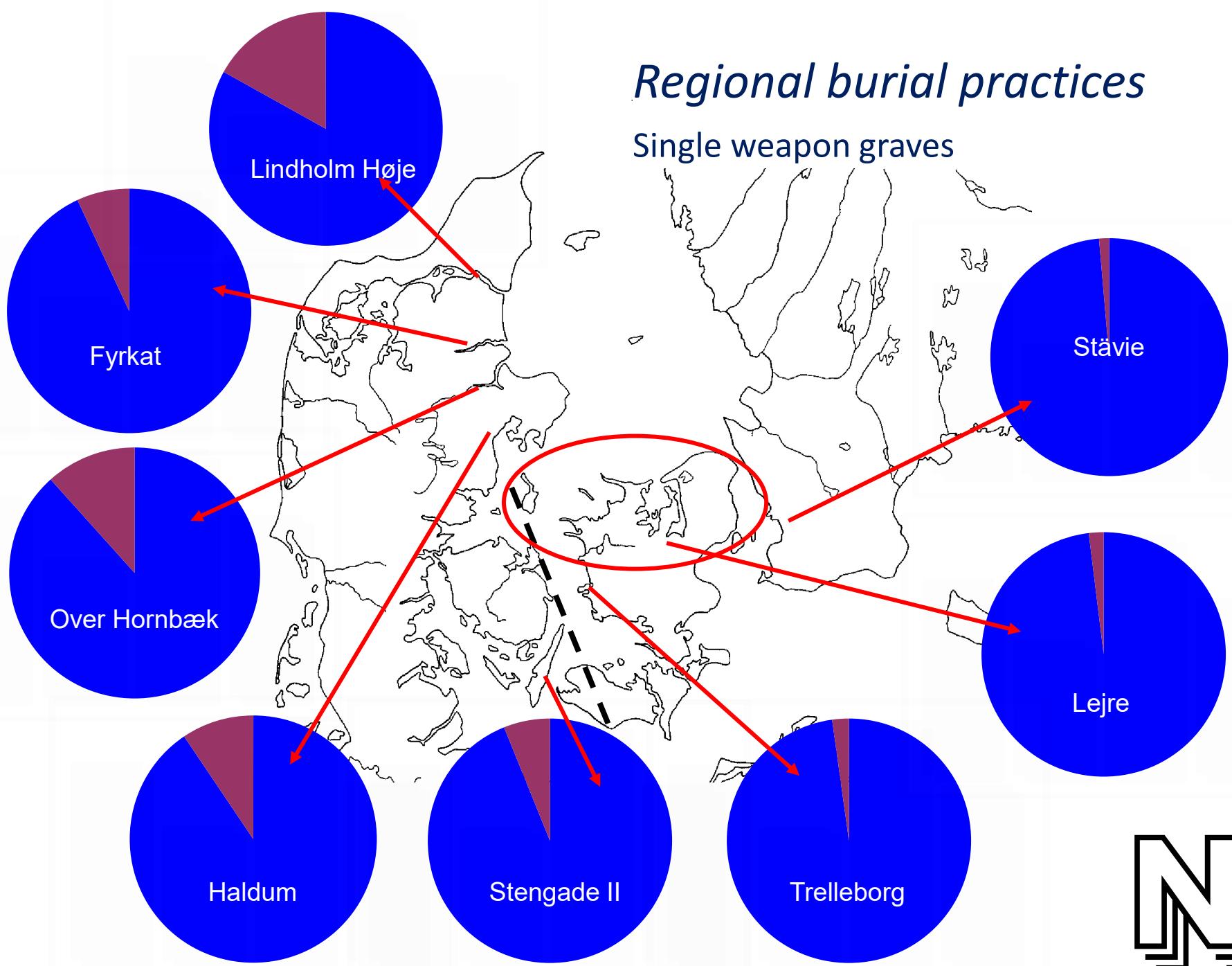


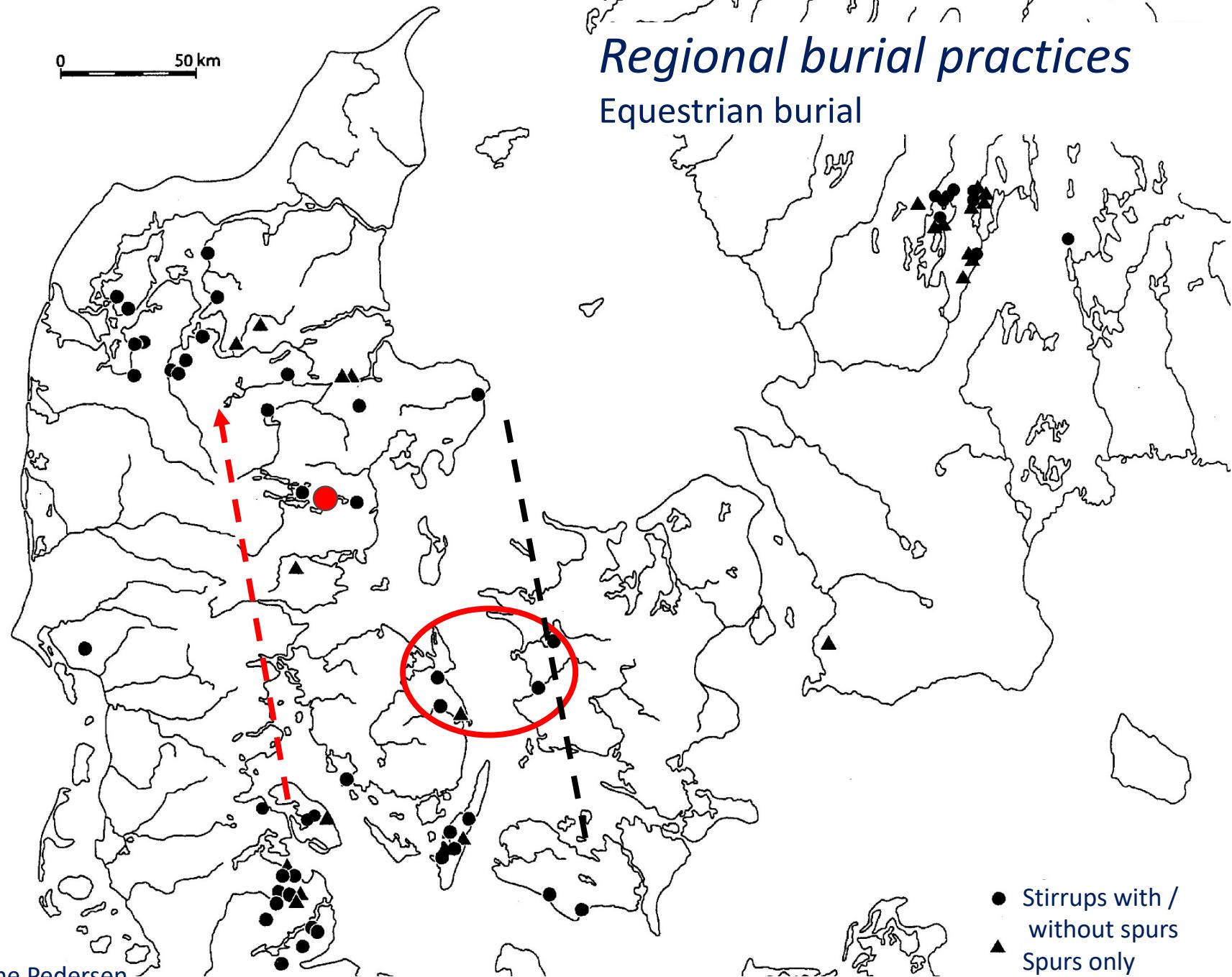
Landevejen, Svinninge, Sjælland  
© Museum Vestsjælland



# *Regional burial practices*

## Single weapon graves

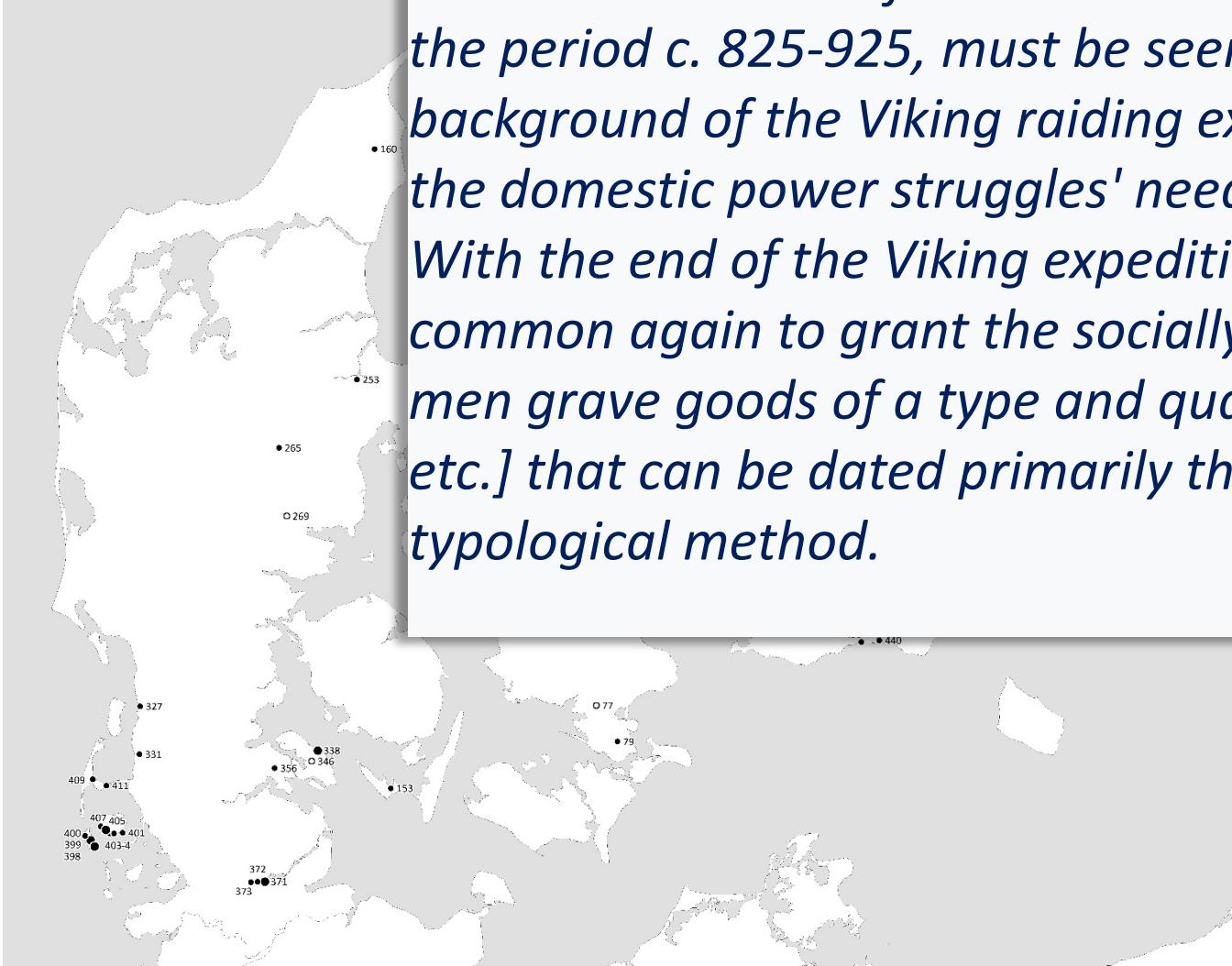




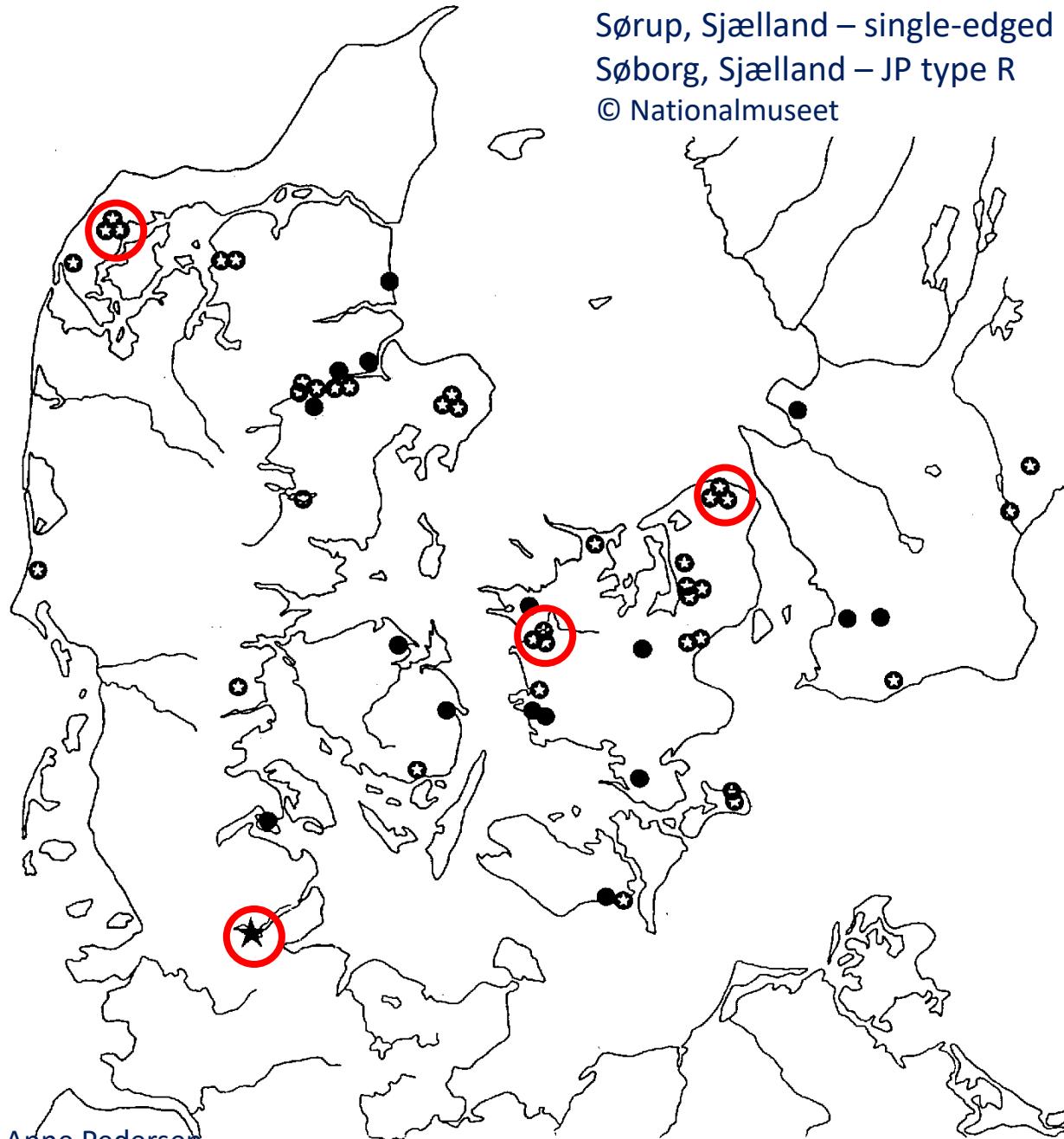
# *Weapons and weapon deposition*

*... the obvious lack of datable male graves from the period c. 825-925, must be seen against the background of the Viking raiding expeditions and the domestic power struggles' need for weapons ... With the end of the Viking expeditions, it became common again to grant the socially high-ranking men grave goods of a type and quality [weapons etc.] that can be dated primarily through the typological method.*

Leif Chr. Nielsen 1991



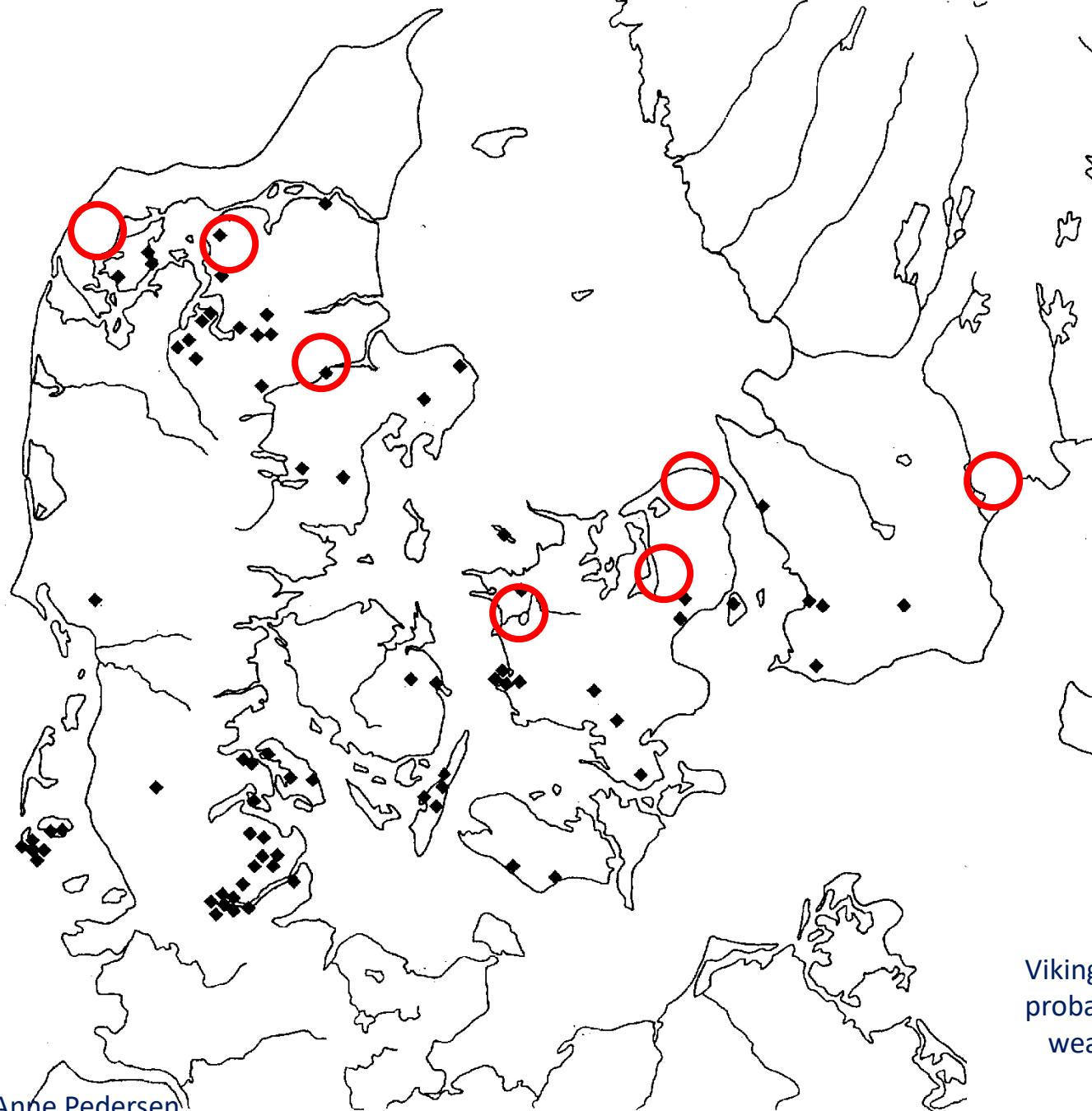
Sjørring, Thy – Mannheim  
Sørup, Sjælland – single-edged  
Søborg, Sjælland – JP type R  
© Nationalmuseet



© Anne Pedersen



Viking Age swords  
● Single finds  
★ Single finds – wetlands

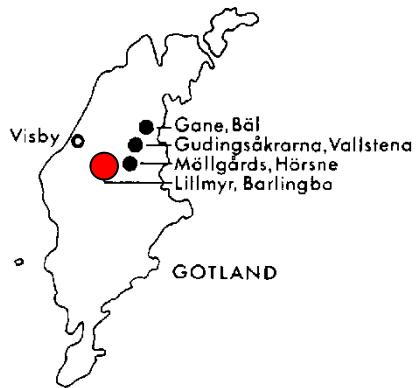


© Anne Pedersen

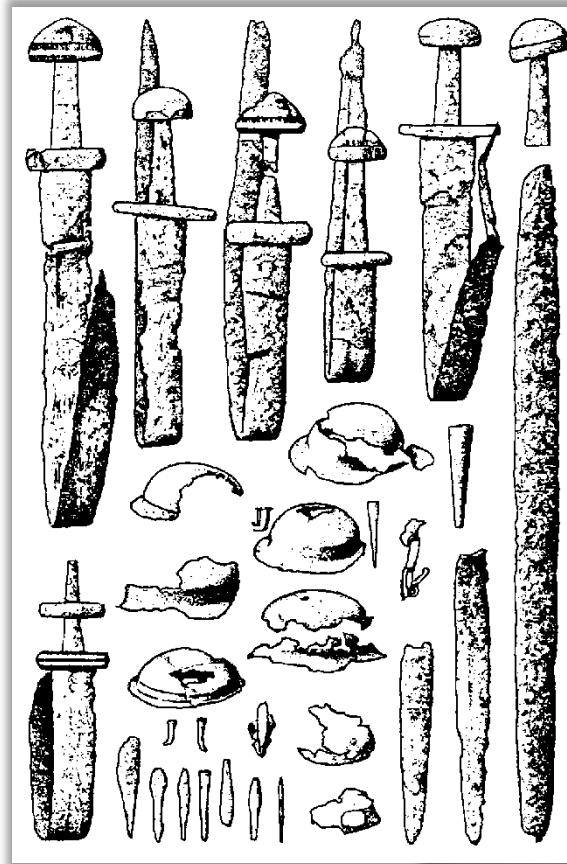


Dybäck, Scania  
© Statens historiska Museum

Viking Age swords from secure or  
probable *grave context*, including  
weapons no longer preserved

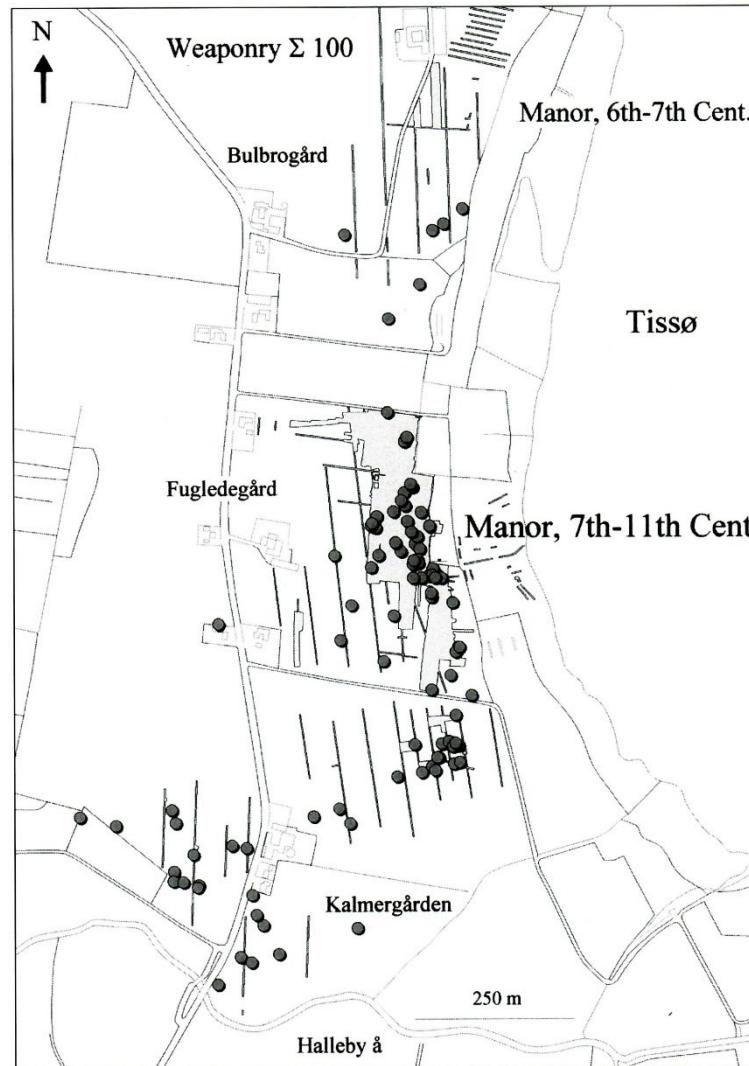


Lillmyr, Gotland  
8<sup>th</sup> to 10<sup>th</sup> centuries



Berg, Løten, Hedmark, Norway  
Vesterhaug, Løten, Hedmark  
10<sup>th</sup> century  
Photo: Arnold Mikkelsen

# *Weapons and weapon use / settlements*



Kalmergården, Sjælland

© Nationalmuseet; map Lars Jørgensen

Sjørring Volde, Thy

© Nationalmuseet



# *Weapons and weapon use / single finds*

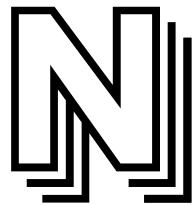


10 cm A



Hjermind Sø, Jylland  
Bjergby Mark, Sjælland  
Gråsand, Jylland

© Nationalmuseet



# *Weapons and weapon use / settlements*

	Fyrkat	Trelleborg	Aggersborg	Nonnebakken	Tissø	Toftegård	Lejre
Sword fragments			1		18		5
Spearheads	1	4			2		
Axes	1 (+ 2)	4 (+ 3)	1	3	3		
Arrowheads	1	66	25		> 50	43	> 7
Horse bits		2	1		> 18		
Spurs		3	2		8	4	
Stirrups		3					



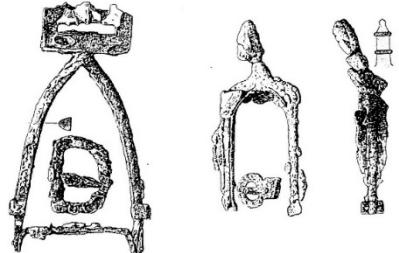
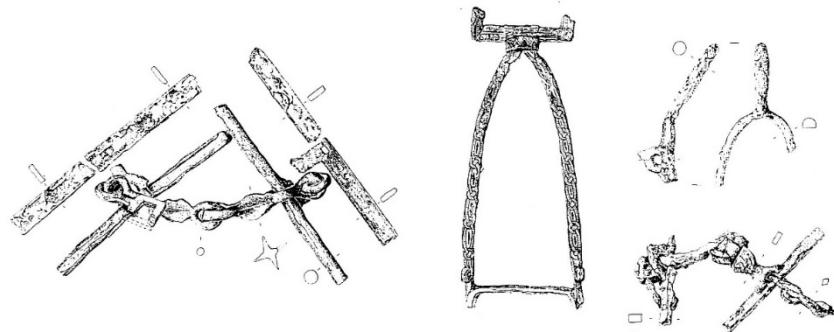
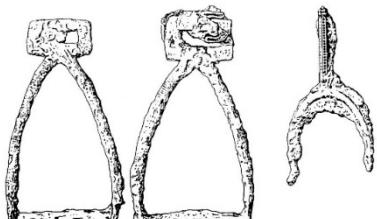
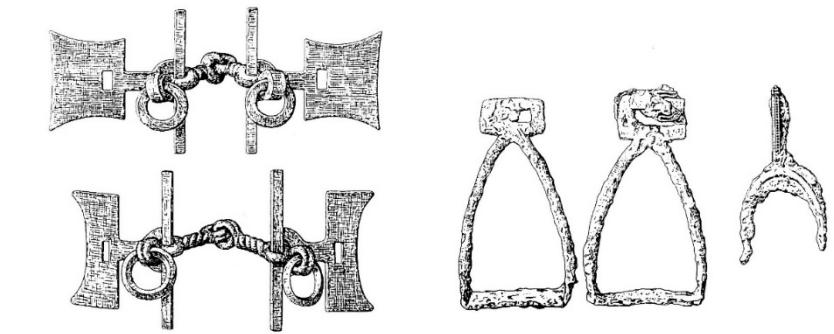
Sørup, Sjælland (burial or deposit?)

17

© Nationalmuseet



# Typology – the Late Viking Age



© A. Pedersen, 2014

Velds, Jylland  
© Nationalmuseet



Aggersborg, Jylland  
Skjern, Jylland



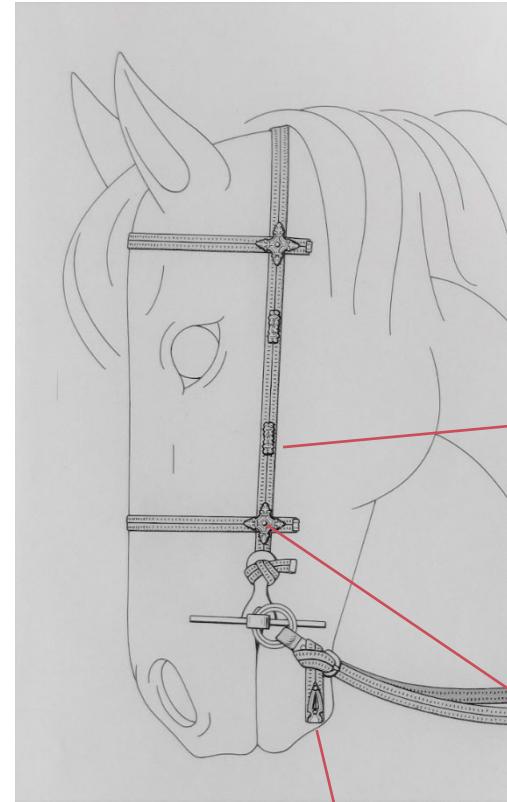


## *Grave finds – detector finds – classification ?*

Graphics Silke Eisenschmidt

Thumby-Bienebek 37A, Slesvig  
(after Michael Müller-Wille 1987)  
Karstoft, Sevel sogn

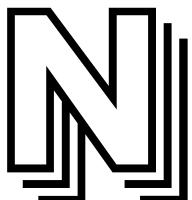
"Bogbeslag, spænde"  
Book mount, buckle

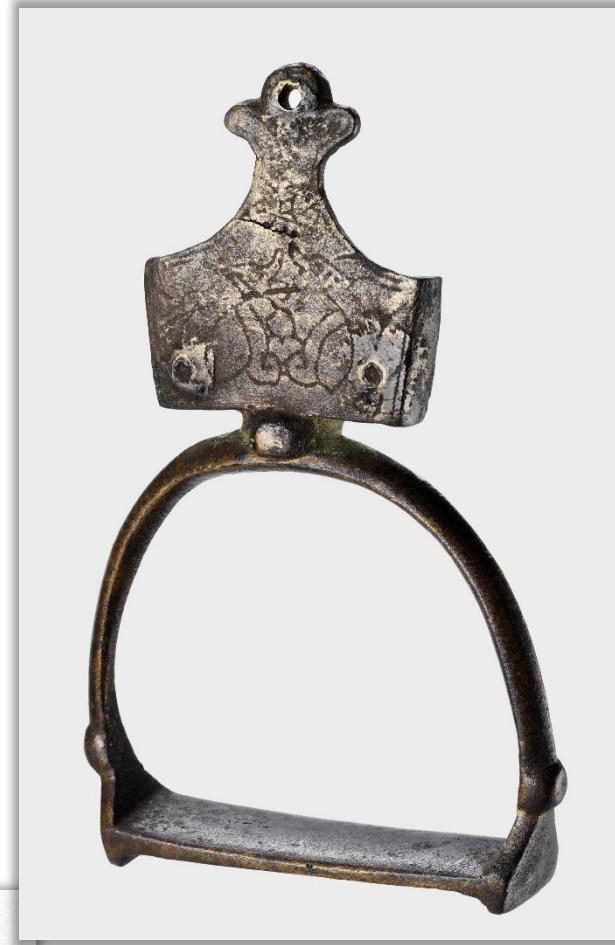


"Beslag, ukendt funktion"  
Mount, unknown function

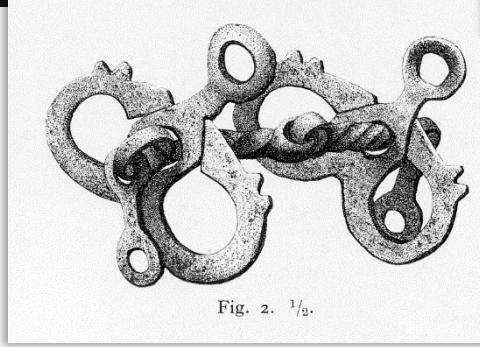


"Råhedefibbel"  
Brooch type Råhede

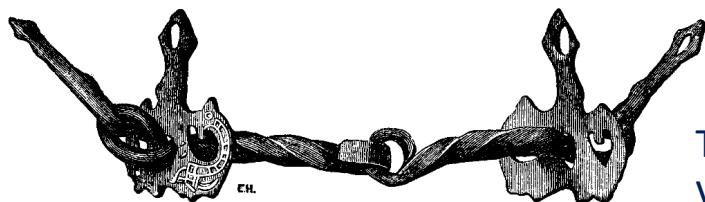




Bøgebjerg, Jutland  
Bavelse Mark, Sjælland



Tuna III in Alsike, Uppland, Sweden  
Vestby, Sørum, Akershus, Norway



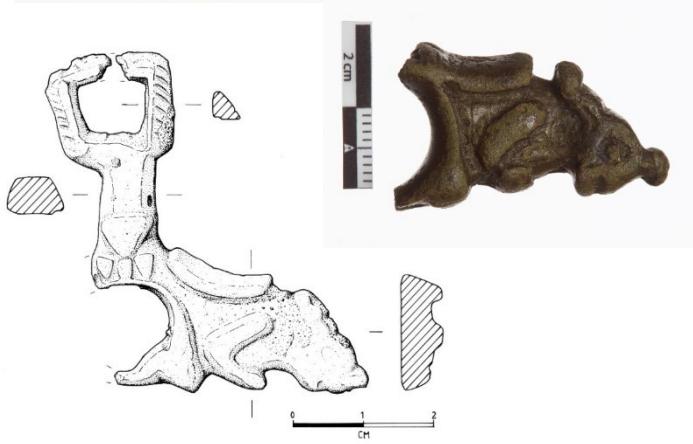
# Detector finds – identification and comparison



Smørkilde Bakke, Sjælland  
Gotland, Sweden



Tamdrup, Jylland  
Gl. Ullerupgaard, Sennel, Thy  
Hørbygaard, Hørby, Sjælland



Hillerslev II, Thy  
Thinggaard I, Næsborg, Jylland  
Stow Bedon Norfolk, © PAS\_NMS-72D344

## *The Laws of Canute, II, chapter 71 (1020-1023).*

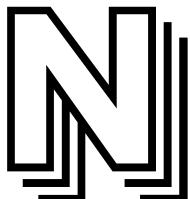
71a - *The heriot of an **earl** shall be eight horses, four saddled and four unsaddled, and four helmets and four mail shirts, eight spears and as many shields, and four swords and 200 mancuses of gold.*

§1 - *For a **king's thegn** in immediate relation to him shall be four horses, two saddled and two unsaddled, two swords and four spears and as many shields, helmets and mail shirts, and 50 mancuses of gold.*

§2 - *The heriot of **ordinary thegns** shall be a horse and its trappings and his weapons.*

§ 3 - *Among the Danes, the heriot of a **king's thegn** who possesses rights of jurisdiction shall be £4.*

§4 - *And if he stands in a more **intimate relationship** with the king, it shall be two horses, one saddled and one unsaddled, one sword, two spears and two shields, and 50 mancuses of gold.*





Tissø, Sjælland  
© Nationalmuseet



Skodsebølle, Lolland  
Hårby, Fyn  
Galgebakken, Jylland  
© Nationalmuseet



# Axes from the Middle Ages

Gustav Hejlesen Solberg, Ph.d. -stud.  
Trelleborg, National Museum Denmark

# Axes from Medieval Denmark. ... And beyond!

•••

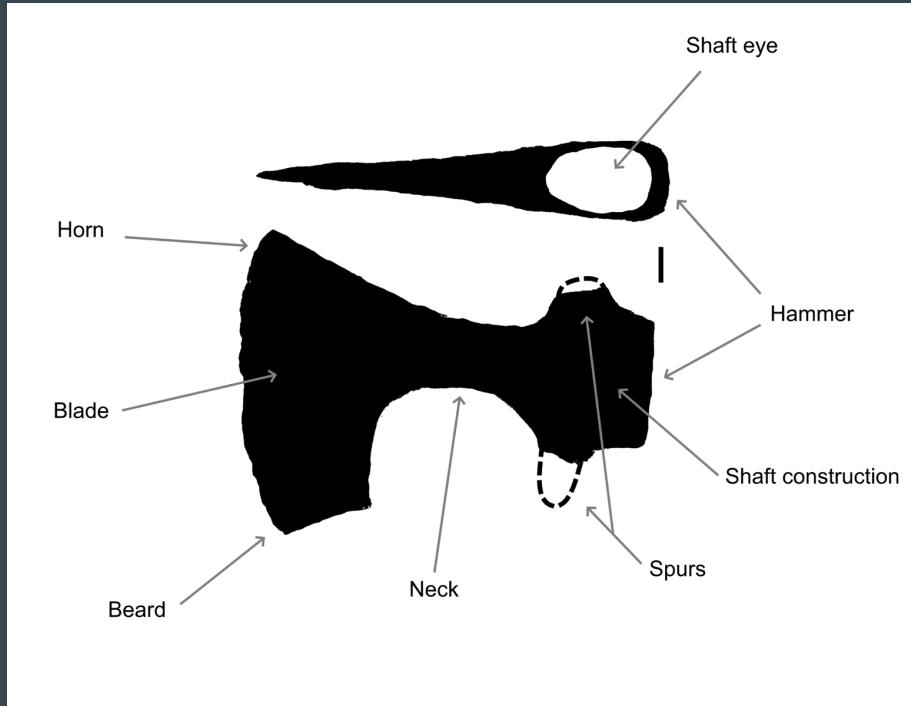
Gustav Hejlesen Solberg, PhD student, National Museum of  
Denmark and Trelleborg Viking Fortress.

# The Missing Axe Typology

- Roman Iron Age
  - Just look in the bog!
- Germanic Iron Age
  - Anne Nørgård Jørgensen (1999)
- Viking Age
  - Jan Petersen (1919)
- Middle Ages
  - ?

# Typology and Dating in 2023

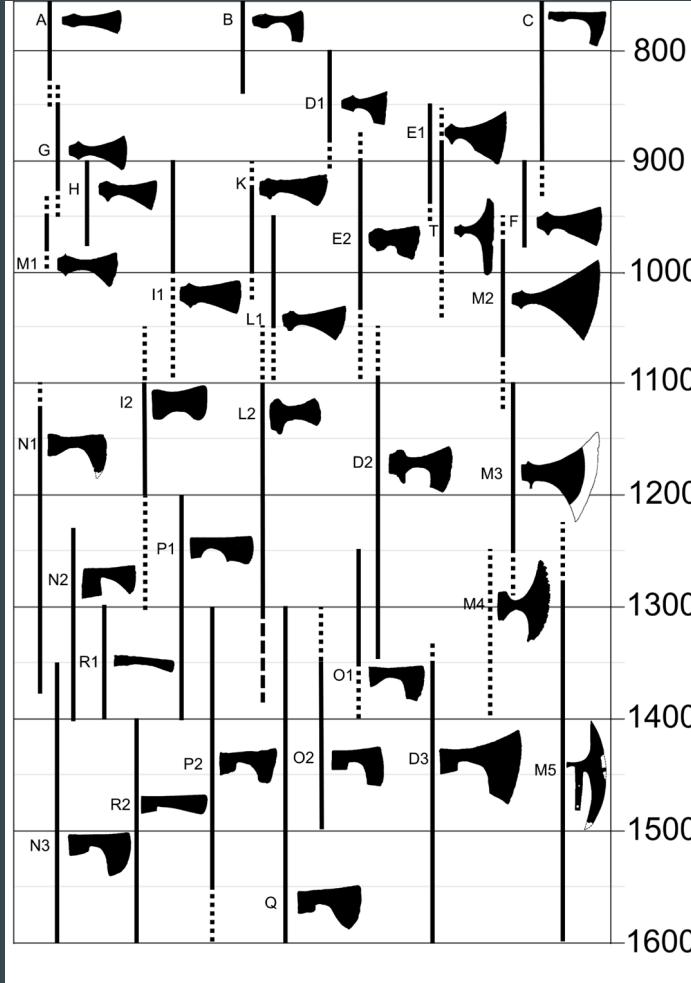
- The Purpose of Typology
  - Likeness in shape, likeness in use?
- Choosing the right aspects
  - Bladeshape?
  - Shaft construction?
  - Measurements?
- Dating
  - Seriation?
  - Sub-periods?
  - Kotowicz (2018)



(Solberg, *Forthcoming*)

# Typology of Danish Axes

- 300+ axes examined
- 18 types
- Continuation of traditions
- Imported types



*Viking Age types are by Petersen (1919), updated by Vike and Hjarder (2014). The axes are not to scale.*

*(Solberg, Forthcoming)*

# The Purpose of the Axe

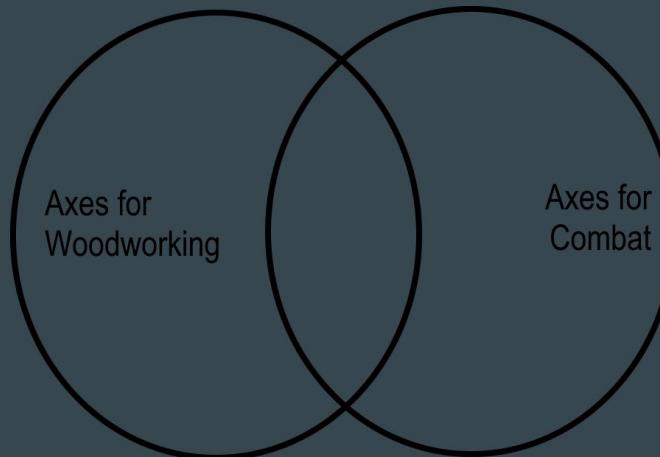
- The relationship between archaeologically developed “types” and historical sources
- Iconography



Axes for  
Woodworking

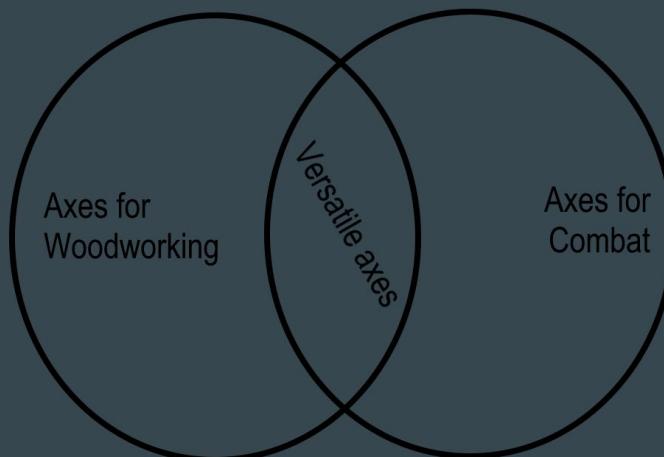
# The Purpose of the Axe

- The relationship between archaeologically developed “types” and historical sources
- Iconography



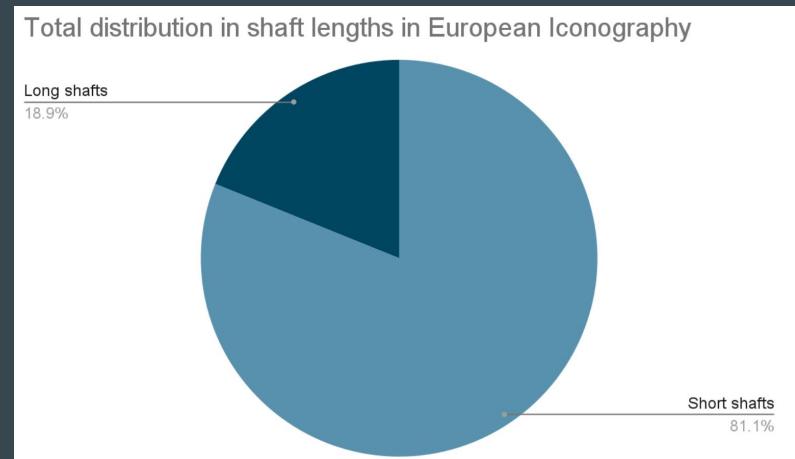
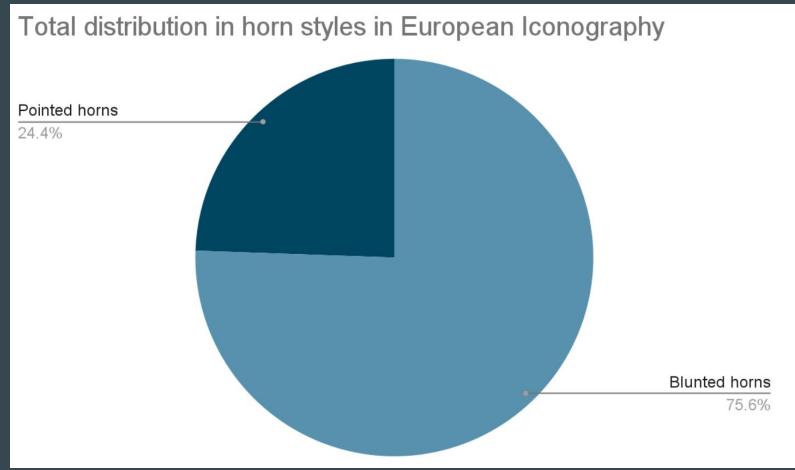
# The Purpose of the Axe

- The relationship between archaeologically developed “types” and historical sources
- Iconography



# Tool Axes

- Flat tops
- Short shafts



# Tool Axes

- Flat tops
- Short shafts



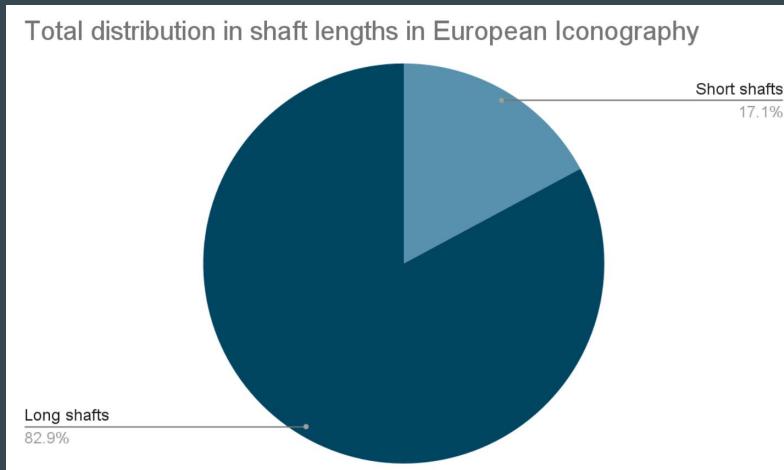
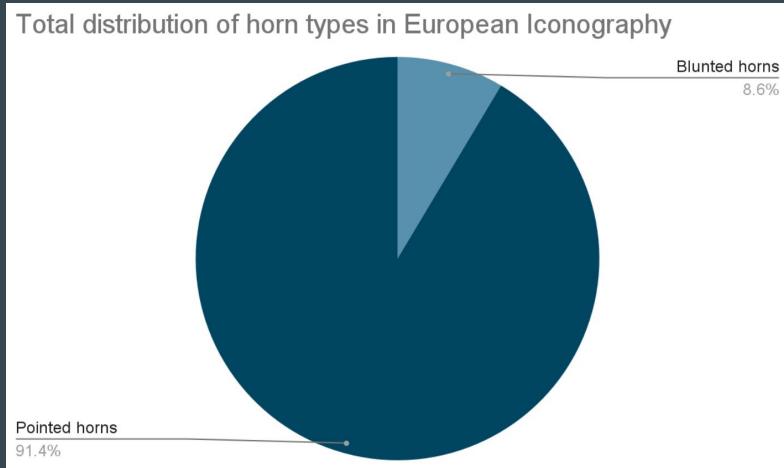
Type N2 from Trøborg (1300-1399)  
(HAM3550x000111)



Kirkerup Church ca. 1350  
(Finderup & Rensbro 2005)

# Weapon Axes

- Pointed horns
- Long shafts



# Weapon Axes

- Pointed horns
- Long shafts



Type M3 from Ribe (1100-1275)  
(ASR M71857185)



Sønder Nærå Church. C. 1175-1200 (Solberg 2022)

# Experiments



# Weapon Axe Test



# Tool Axe Test



# Versatile Axes



Keldby Kirke (1500-1525) -  
kalkmalerier.dk

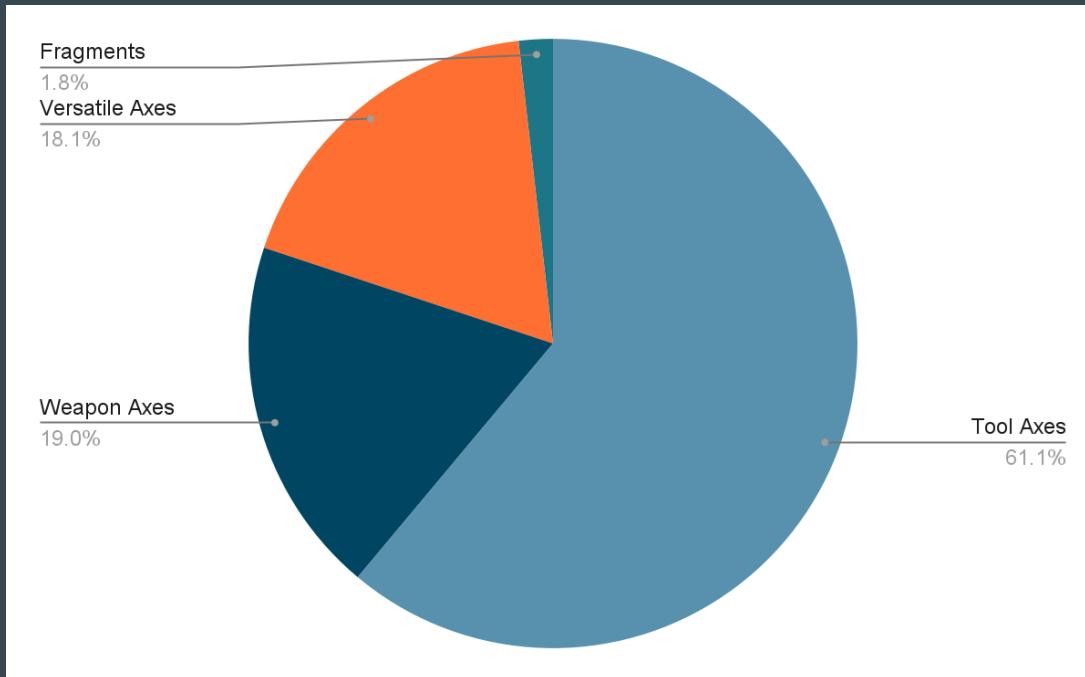


Sct. Mariæ Kirke (1500-tallet)  
(Flensborg 1999)

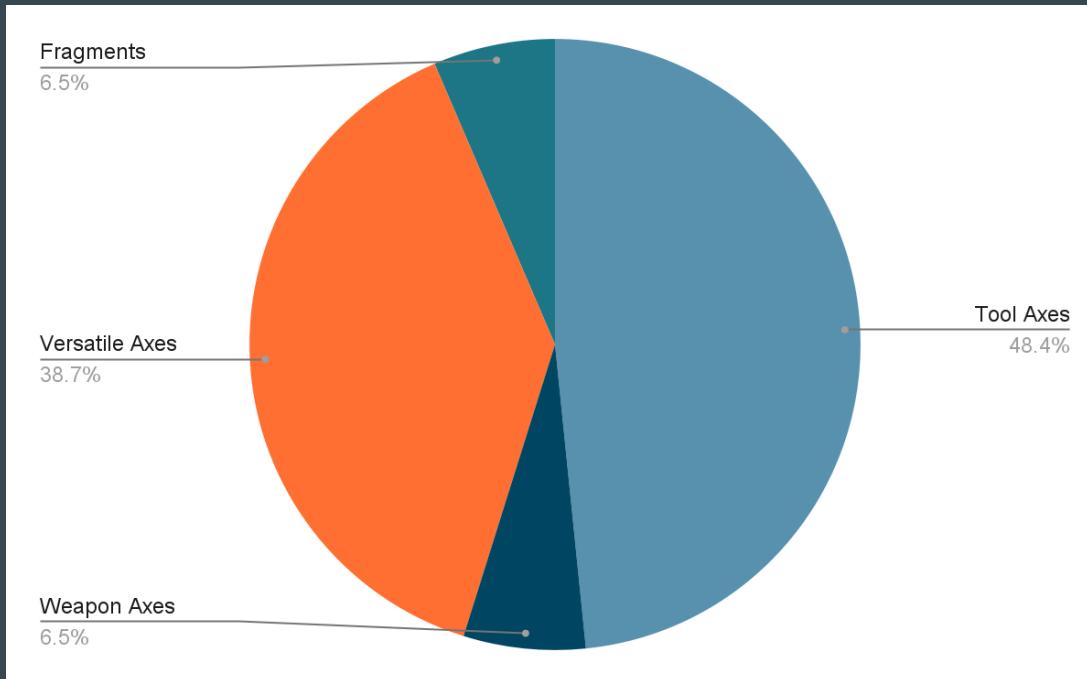


Type D3(1350-) (KMO/1908/62 -  
OBM 62/1908) from Odense Lake

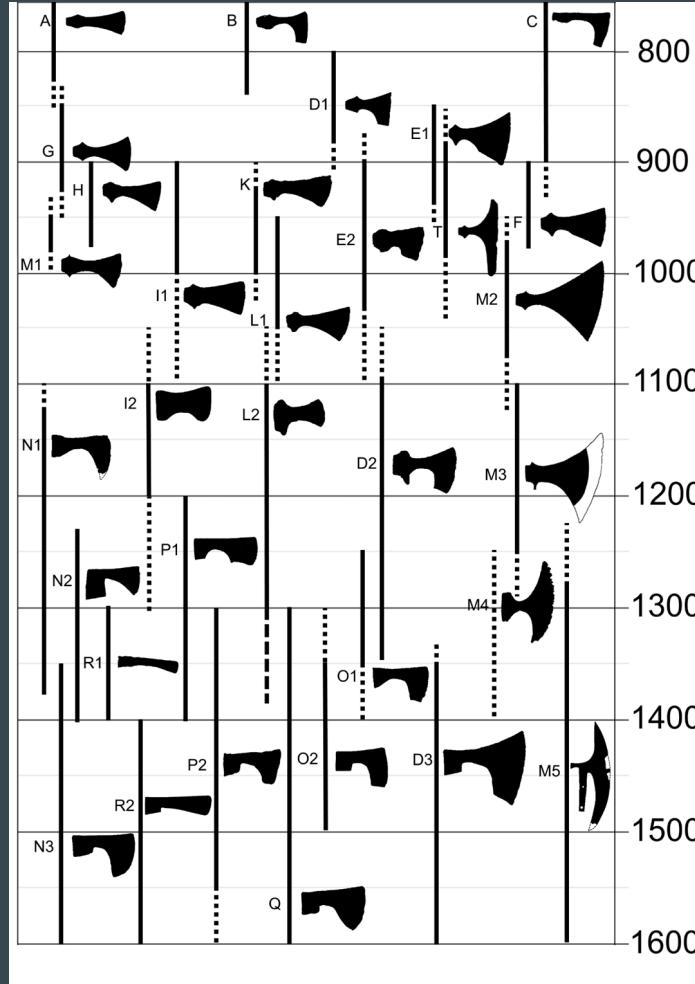
# Distribution - Total



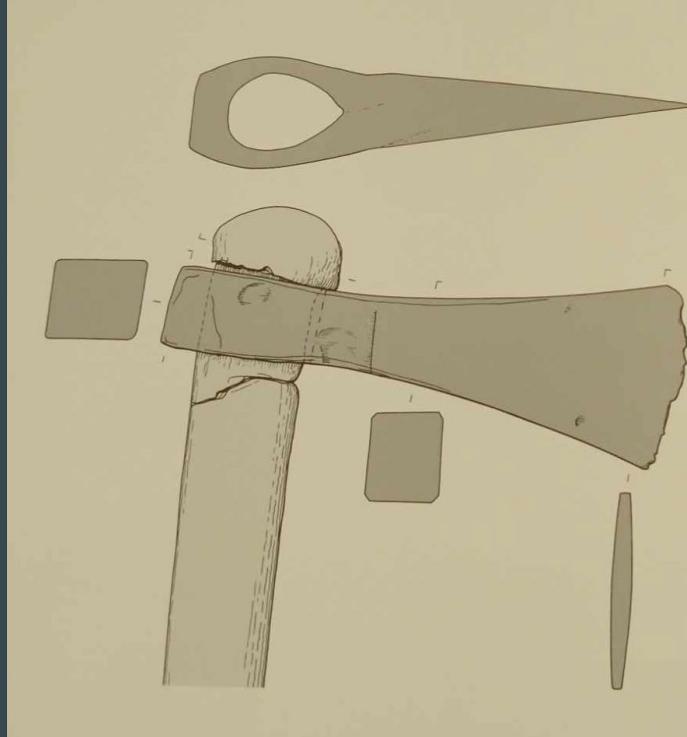
# Distribution - Castles



# Simpler typology?



# Simple typology - Roman Iron Age



(Pauli Jensen & Christian Nørbach 2009)

# Simple typology - Roman and Germanic Iron Age



# Simple typology - Viking Age



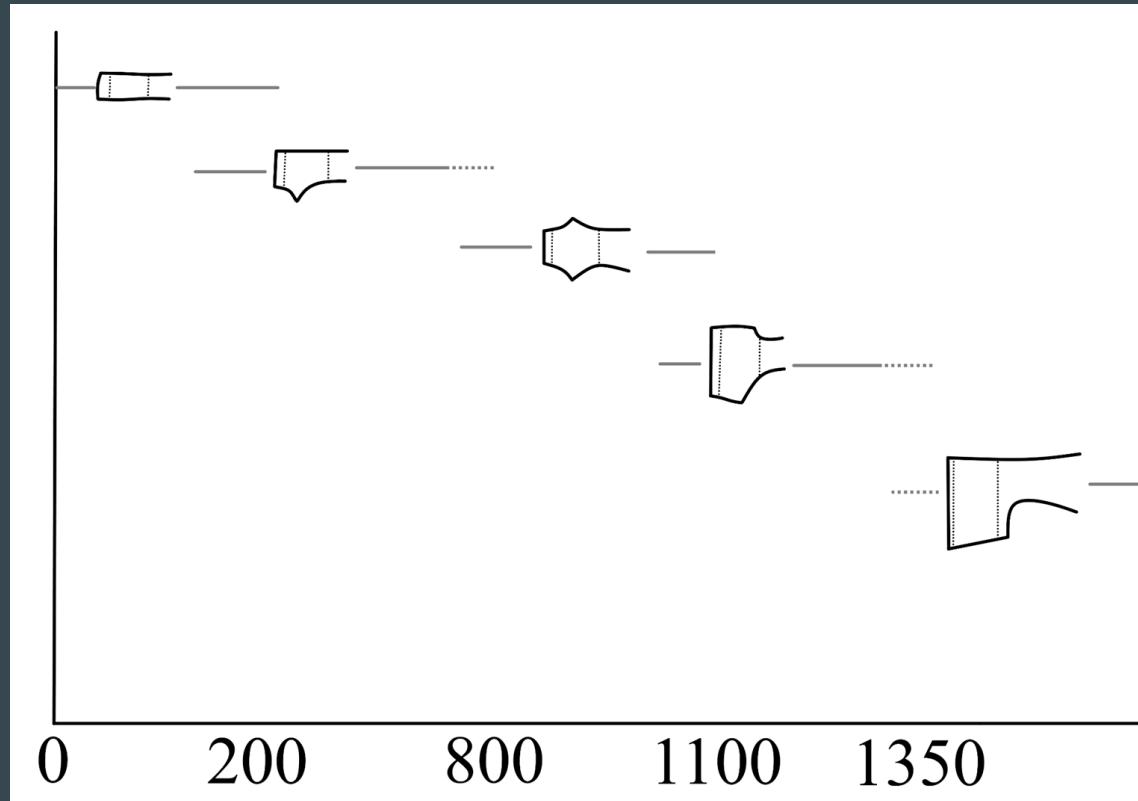
# Simple typology - Early Medieval



# Simple typology - Late Medieval



# Simple typology - Overview



# Thank you for listening!



Type M3 from Bølling Sø (1100-1275) (SIM397/1953)

Finderup, T. & H. Rensbro 2005: Træværket fra Stege Borg – Håndværk, teknologi og ressourcer i 1314. *Kuml* 2005. pp. 225-268.

Flensburg, J. 1999: *Kalkmalerierne i Sct. Mariæ Kirke og Vor Frue Kloster*.

Kotowicz, P. 2018: *Early Medieval Axes from the Territory of Poland*. Krakow

Nørgård Jørgensen, A. 1999: *Waffen Und Gräber*. København

Petersen, J. 1919: *De Norske Vikingesverd*. Kristiania

Pauli Jensen, X & L. Christian Nørnbach 2009: Illerup Ådal 13: Die Bögen, Pfeile und Äxte. Aarhus.

Solberg, G. H. *Forthcoming: Danish Axes*. Oxford.

Solberg, G. H. 2022: On the wings of an axe: Understanding a Unique Axe from Denmark Through Inter-object Citation. *Scandia Journal of Medieval Norse Studies*. pp. 163-190.

A Slavic spur from Herslev and other Slavic  
weaponry and riding gear.

Leszek Gardela, Gerda Henkel Fellow,  
Poland.

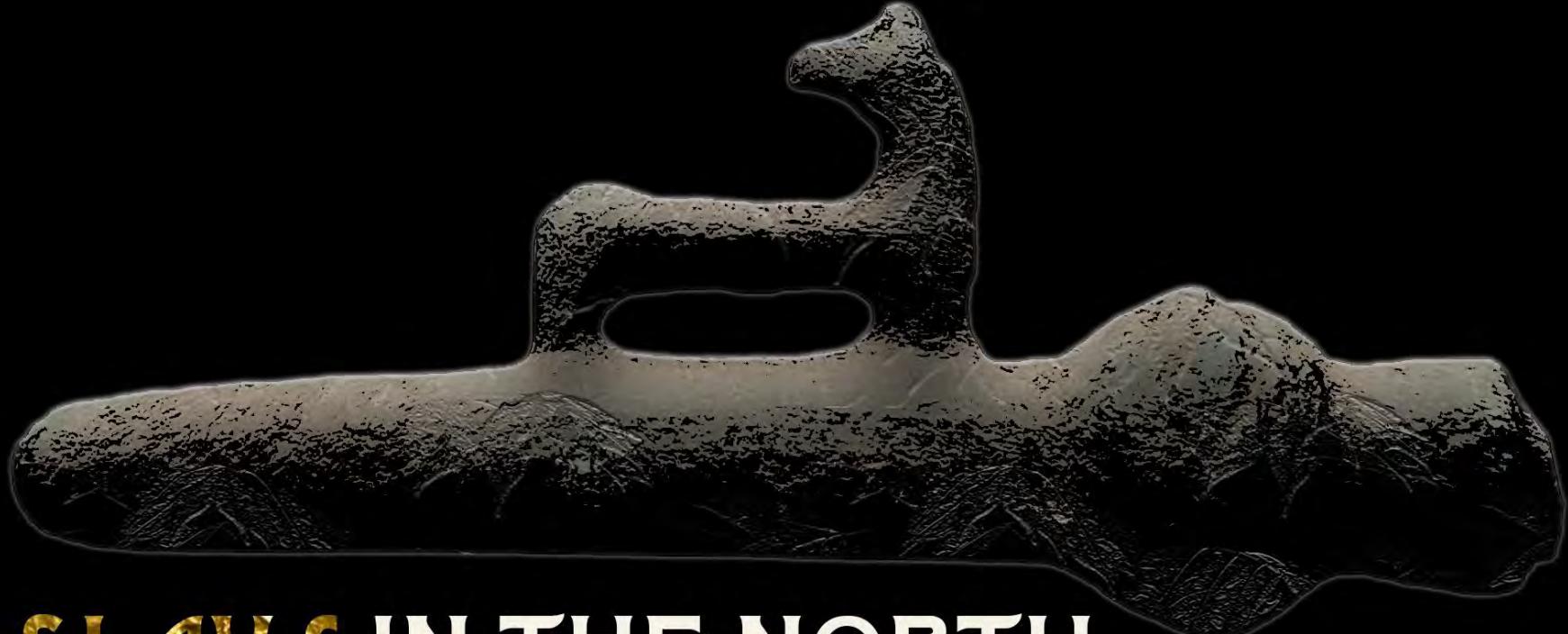
# A Slavic Spur from Herslev and Other Slavic Weaponry and Riding Gear in Denmark



GERDA HENKEL STIFTUNG

Leszek Gardeła  
*Gerda Henkel Fellow*

A prelude to a new 2-year research project...



# SLAVS IN THE NORTH: FOREIGN ELITES IN VIKING AGE SCANDINAVIA

*Led by Leszek Gardeła and funded by the Gerda Henkel Foundation in 2023-2025*



# The Hersley Goad

- *Discovered in April 2023 by Henrik Haure  
(photos courtesy of Henrik Haure and Flemming  
Fabriciusen Nielsen)*
- *Ca. 6.6 cm (length) x 2.3 cm (height)*
- *Copper alloy with an iron core*
- *Zoomorphic (horse figure with the head turned  
backwards)*

*Photos courtesy of Henrik Haure*

# Why is it important?

- Because of the foreign **provenance** of the item
  - Because of its **meaning-content/symbolism**
- Because of the specific **find-context/location** in Scandinavia
- Because of its wider implications for our understanding of Slavic-Scandinavian interactions in the Viking Age



*Photo courtesy of  
Flemming Fabriciusen Nielsen*



Provenance

# Western Slavic



0 + 5cm

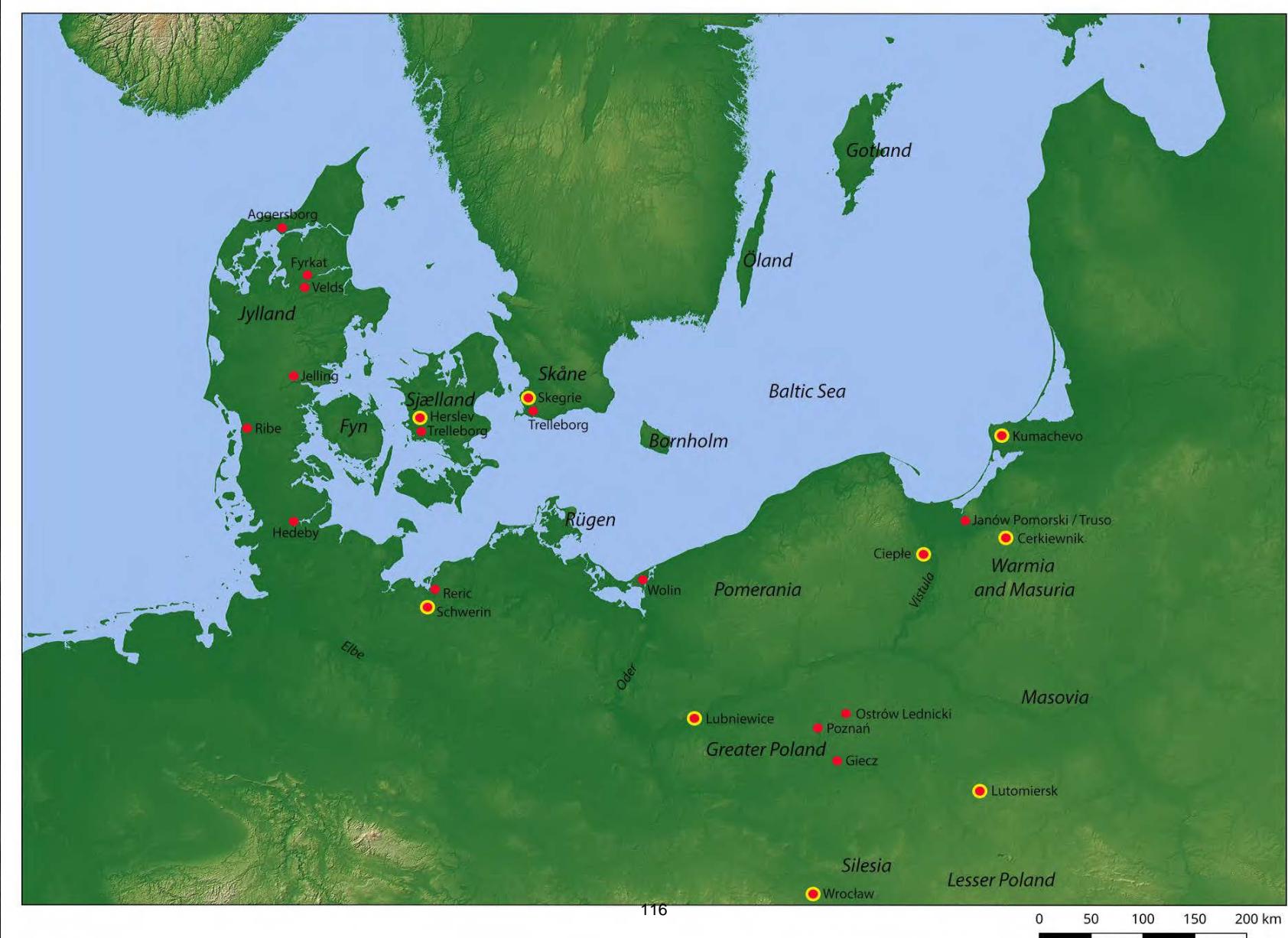
- Probably designed and manufactured in the Piast State (**late 10th-early 11th cent. Poland**)
- Part of a so-called „zoomorphic spur”/“spur of the Lutomiersk type”
- Extremely high-status, probably belonging to „the elite of the elite”
- Sophisticated technological features (*even today's artists struggle to make exact replicas!*)
- Infused with pre-Christian cosmological ideas

## Analogies:

- \* **Ciepłe**, Pomerania, Poland  
(1 complete set of spurs) (a-e)
- \* **Kumachovo**, Sambia Peninsula near Königsberg  
(1 spur goad) (f)
- \* **Lubniewice**, Greater Poland, Poland  
(1 spur goad) (g)
- \* **Skegrie**, Skåne, Sweden (1 spur goad) (h)

# The Polish context

# The distribution of zoomorphic spurs and their fragments (warriors on the move?)



# Lutomiersk, graves 5 (*cremation*) & 10 (*inhumation*)





## Grave 10 from Lutomiersk

(notice the artefacts decorated with snake motifs)



winged snake



Cheek pieces (riding equipment)



Strap distributor



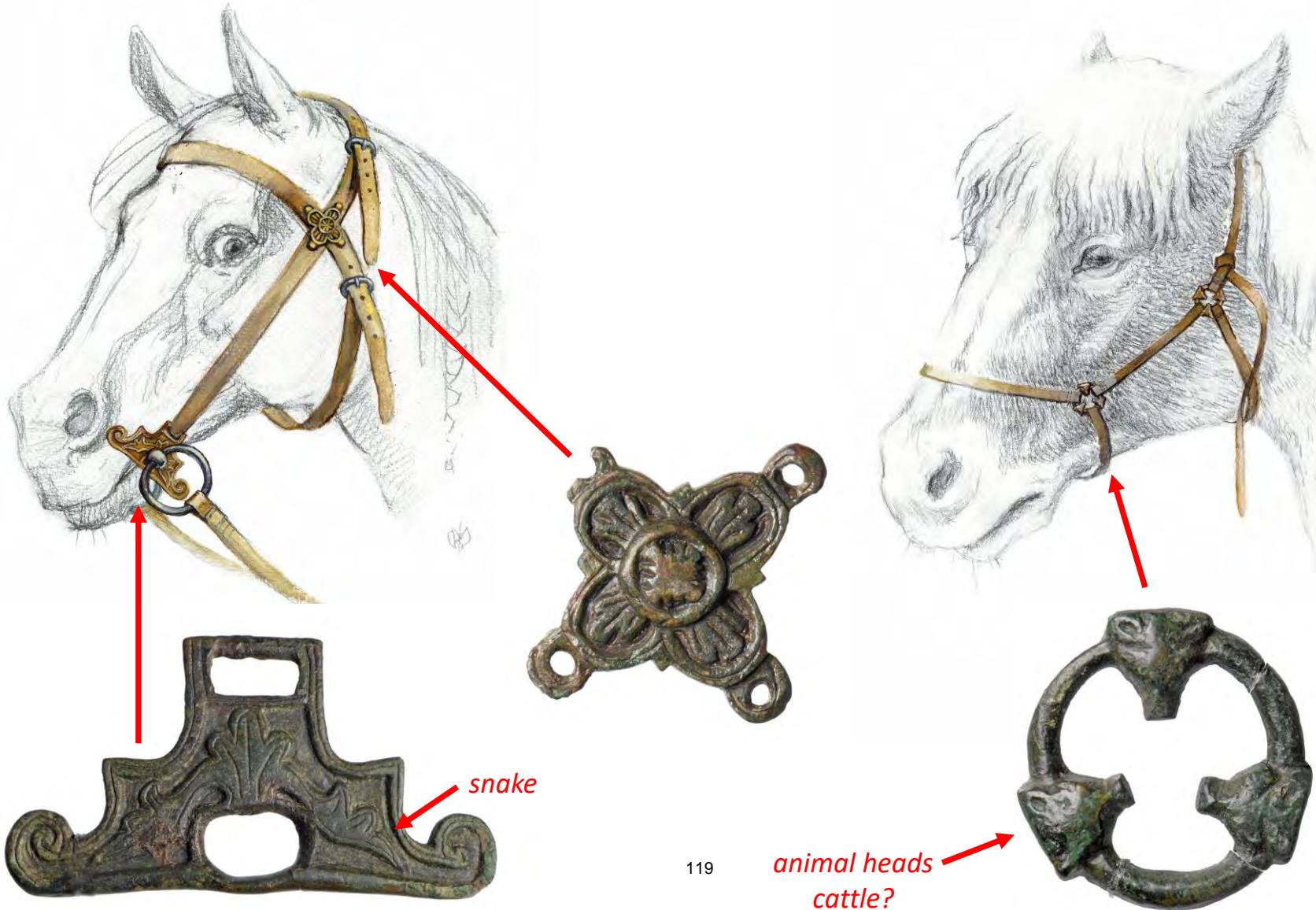
118

Stirrups (left) and zoomorphic spur (right)



snake head

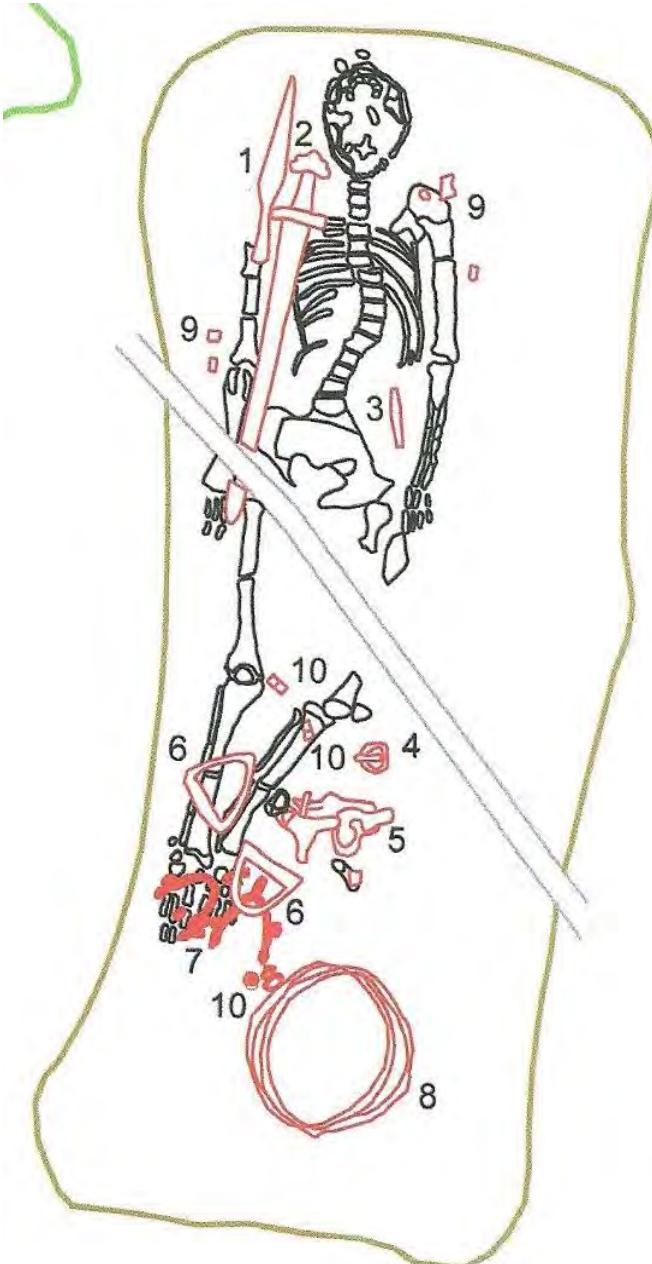
# Equestrian equipment from graves 5 and 10 at Lutomiersk



# **Ciepłe (Ger. Warmhof)**

The „gamechanger cemetery” excavated by Zdzisława Ratajczyk  
(2005, 2008-2010)

# Grave 42 from Ciepłe (Warmhof), Pomerania



stirrup



sword



zoomorphic spur

# Grave 42 from Ciepłe (Warmhof), Pomerania



stirrup



sword



zoomorphic spur

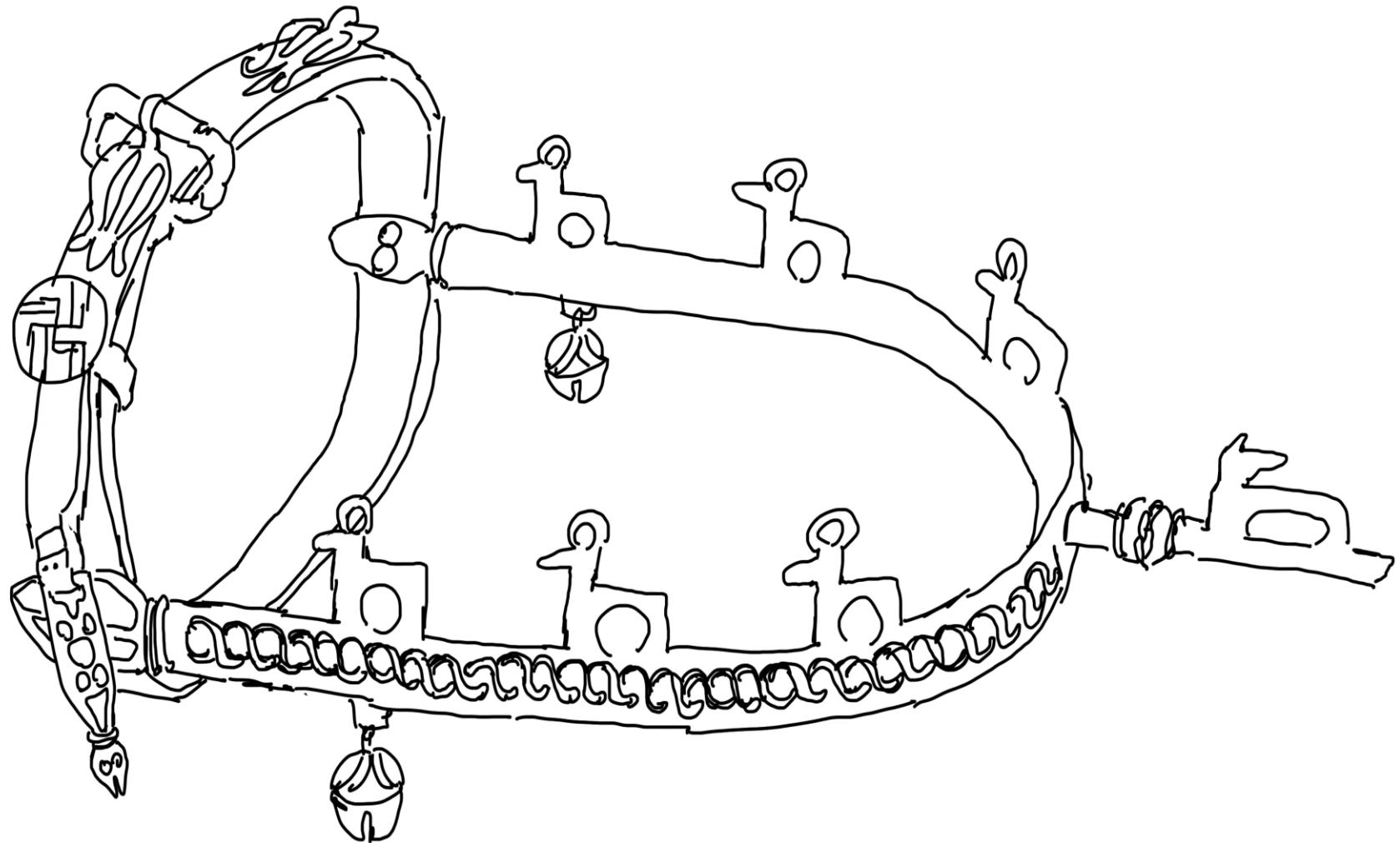
# Reconstruction of the zoomorphic spurs from Ciepłe (grave 42)



Replica by Tomasz Czyszczoń / Commissioned by Leszek Gardeła

# Symbolism

# The spur as a model of the Slavic cosmos

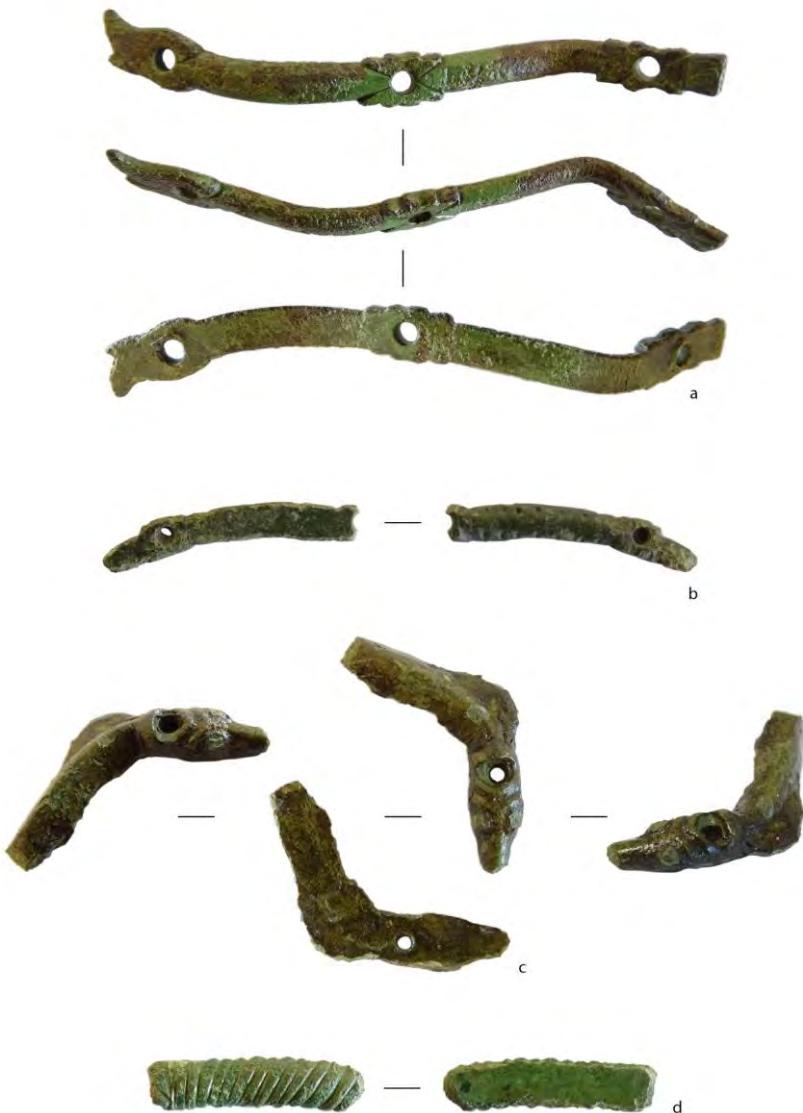


Animation by Konrad Ozgo, based on research by Leszek Gardeła, Kamil Kajkowski and Zdzisława Ratajczyk



The spurs are models of the Slavic pagan cosmos...but they also served as „material markers” of distinct West Slavic identity and elite status

# SLAVIC ANIMAL STYLE: Recent metal detector finds from Dziekanowice / Lednica, Poland (*Projekt Lednica*)



# Hybrid beasts and „material citations”

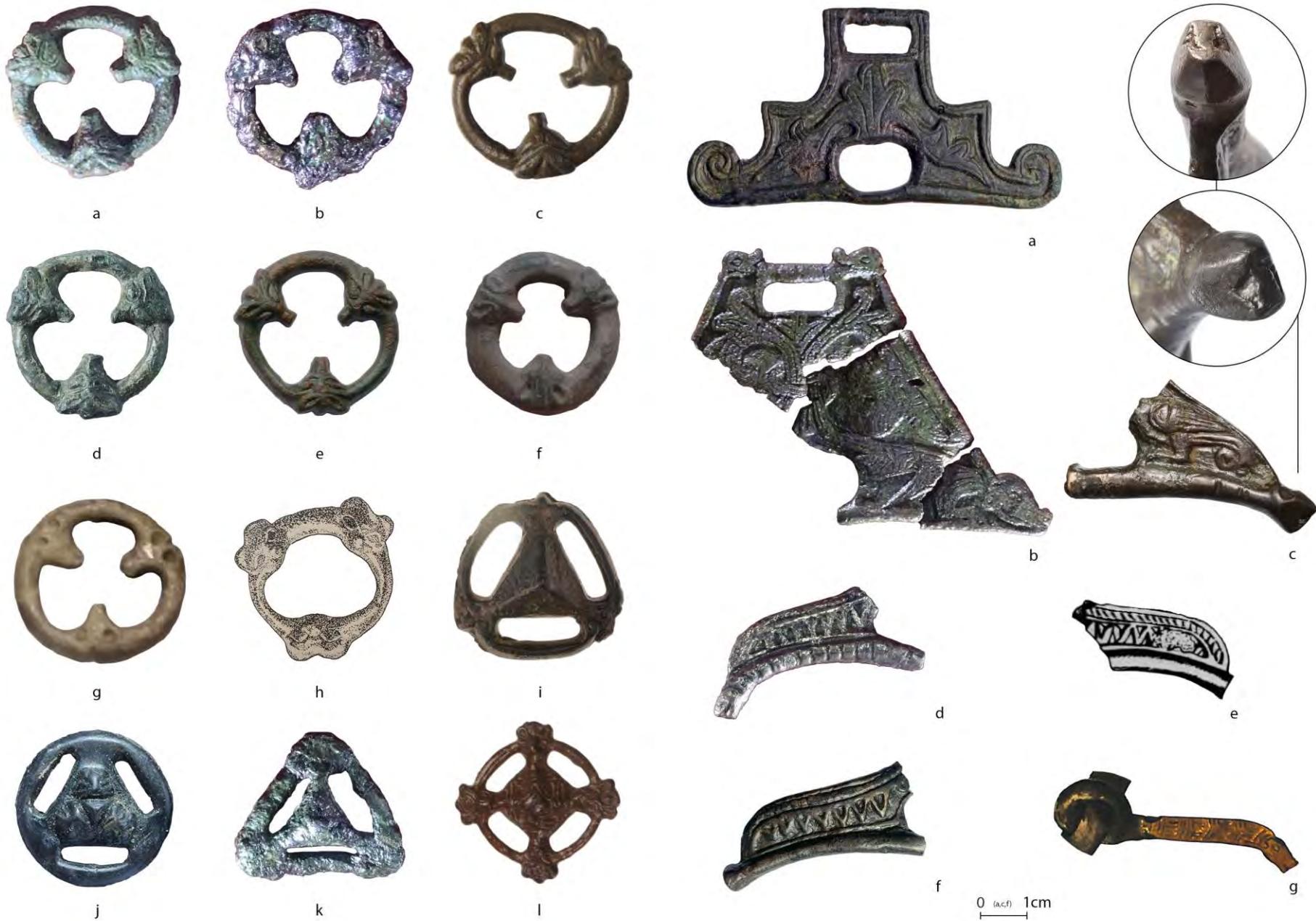
(the idea of cross-referentiality)



Bird-shaped fitting from Dziekanowice.  
Notice the additional birds on the wings



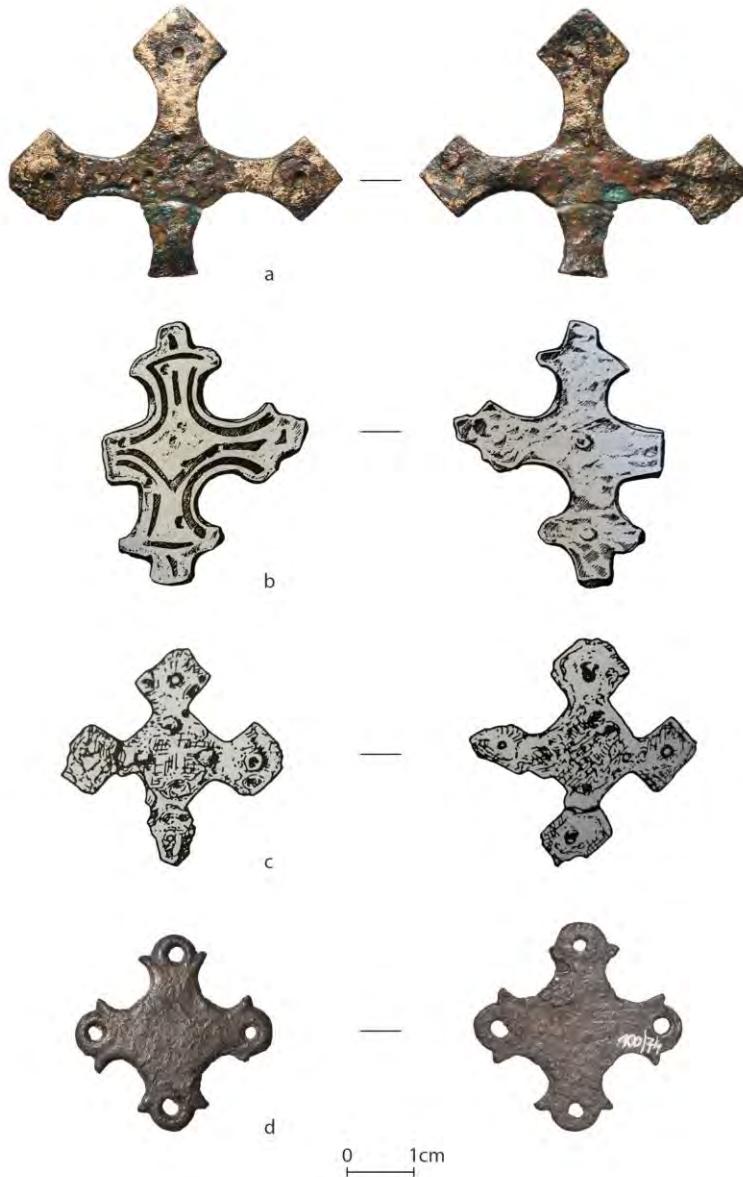
128 Material citations – stylistic and semantic correspondences  
a) Giecz; b) Dziekanowice; c) Kałdus; d-f) Dybäck, Sweden



Western Slavic openwork bridle strap distributors found in Poland, Germany and Ukraine

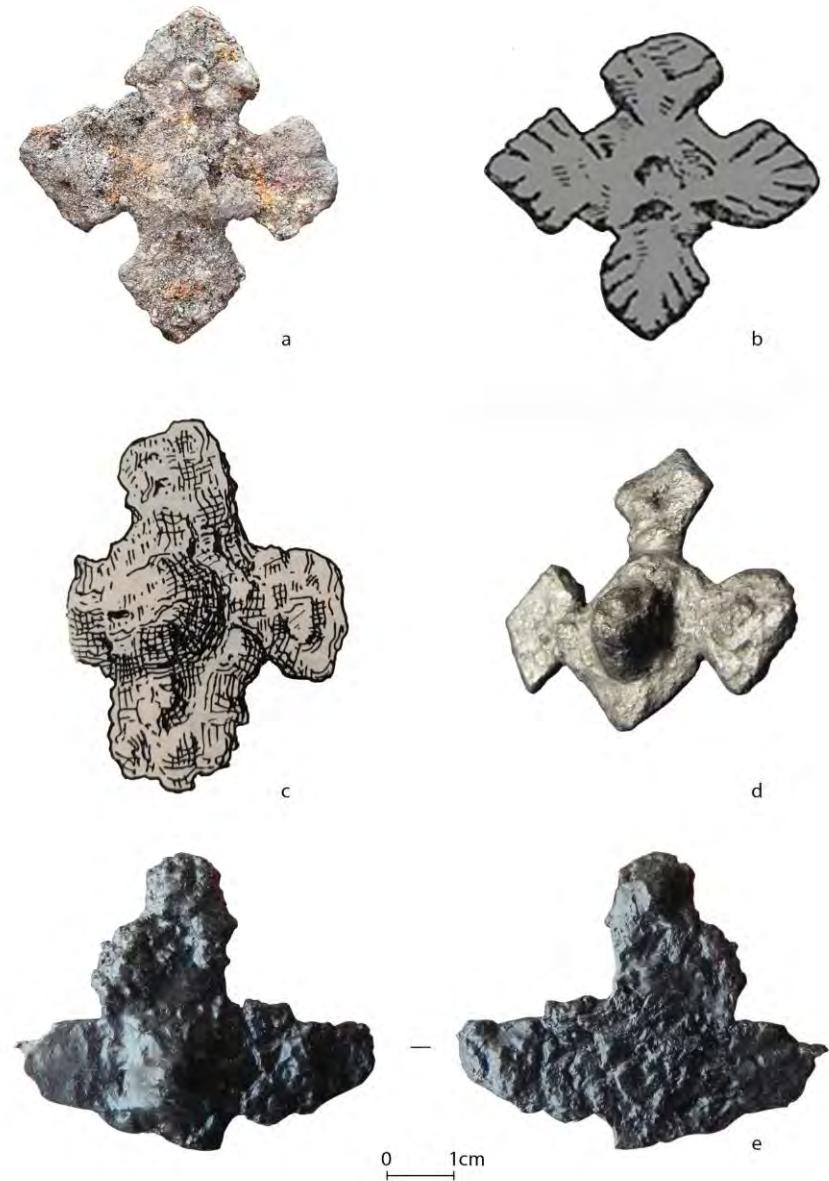
<sup>129</sup> Western Slavic Animal style cheekpieces from: a, d – Giecz, b – Lutomiersk, c – Ostrów Lednicki; e – Kruszwica; f – Santok; g – Ciepłe.

# Cross-shaped bridle distributors from Poland



Cross-shaped distributors from: a, d – Ostrów Lednicki,  
b – Turowo, c – Brusczewo.

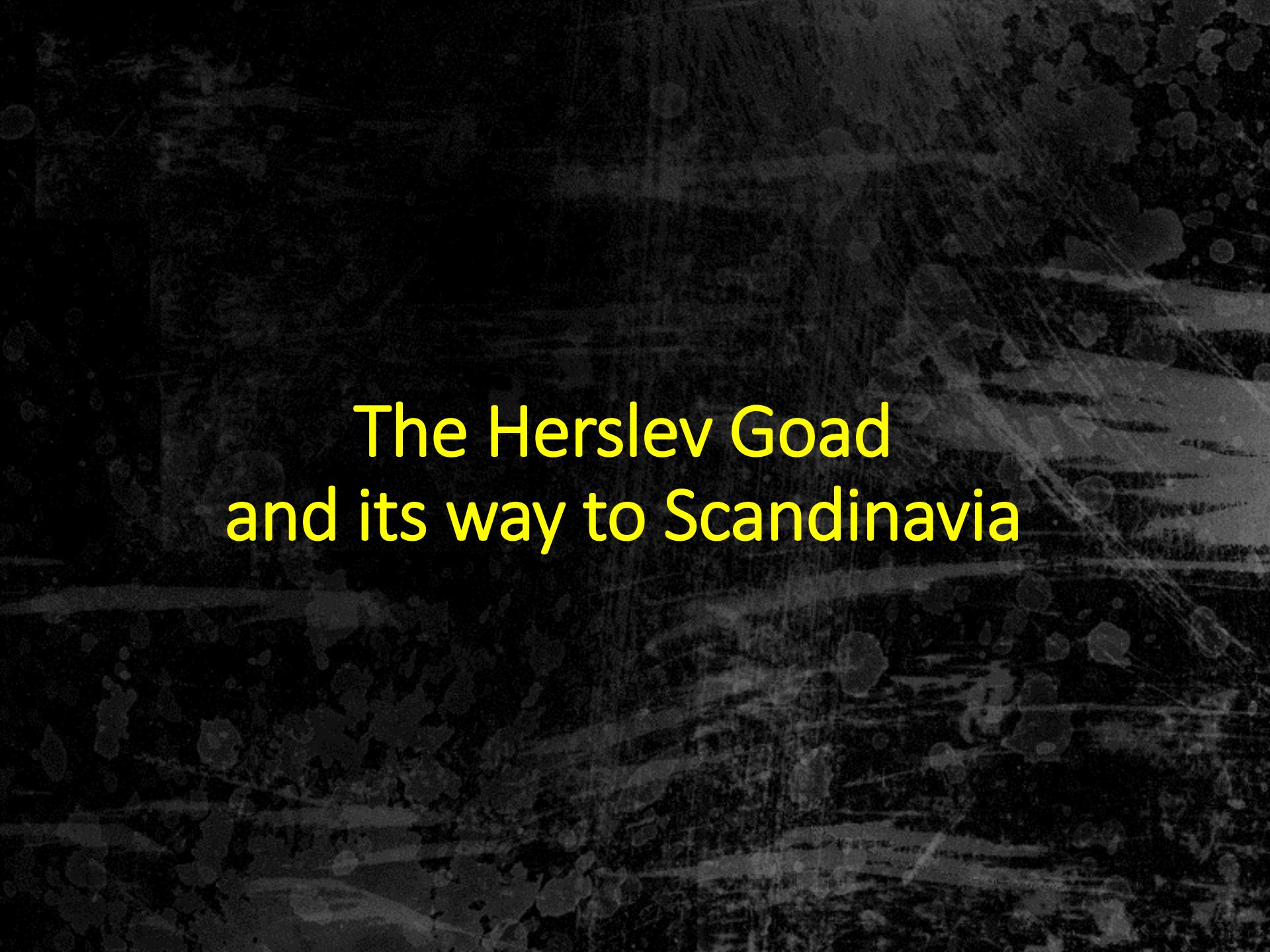
130



Cross-shaped distributors from: a – Grzybowo, b - Gniezno,  
c – Ostrów Tumski(Poznań), d – Śródka (Poznań), e - Dąbrówka

# The principles of Western Slavic animal style

- The most commonly depicted animal species are **horses, cattle, birds and snakes**; all with mythological/ritual connotations
- Occasional depictions of animal hybrids
- Animals can be either realistic or very schematic ( **II-----** )
- In contrast to Scandinavian art, animals are rarely integrated into interlace motifs
- Western Slavic animal style is usually seen on high-status metal objects. The style is rarely seen on other kinds of material (wood, bone, antler)
- It is probably a style for the elite
- The distribution of objects decorated in animal style in Poland is concentrated in Greater Poland, although some specimens are also found outside of the remit of the Piast state



# The Herslev Goad and its way to Scandinavia

# Archaeological and textual traces of cross-cultural interactions between Viking Age Scandinavians and Western Slavs

## Guests in the House

*Cultural Transmission between Slavs and Scandinavians 900 to 1300 AD*



Mats Roslund



THE NORTHERN WORLD ••• BRILL

THE NORTHERN WORLD ••• BRILL

Homelands lost and gained

Slavic migration and settlement on Bornholm in the early Middle Ages

Magdalena Naum



Lund Studies in Historical Archaeology 9

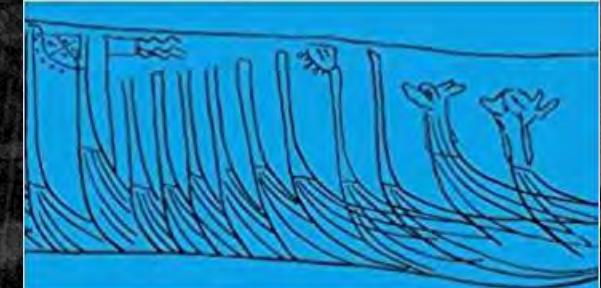
Mats Roslund,  
„Guests in the House”

Magdalena Naum  
„Homelands Lost and Gained”

Jakub Morawiec

## Vikings among the Slavs

Jomsborg and the Jomsvikings in Old Norse Tradition



Studia Medievalia Septentrionalia 17

Jakub Morawiec  
„Vikings among the Slavs”

# The spur goad from Skegrie, Skåne



A copper-alloy goad with a backwards-looking horse



Exactly the same technological features as in the case  
of the finds from Poland (iron core)

Gardeła L., Kajkowski K., Söderberg B. (2019):  
The Spur Goad from Skegrie in Skåne. Evidence  
of Elite Interaction Between Viking Age Scandinavians  
and Western Slavs, *Fornvännen* 114.



# The spur goad from Herslev, Sjælland



\* Discovered roughly half-way between the magnate's seat at Tissø and Harald Bluetooth's fortress of Trelleborg

\* The find-spot at Herslev provides a striking analogy to the find-spot at Skegrie

## Was the Herslev spur goad:

- ...lost by one of Harald's mercenaries?
  - ... or a Slavic diplomat?
  - ... or ?



# Other high-status Slavic weaponry and riding gear in Denmark

# The Fortress and the Cemetery

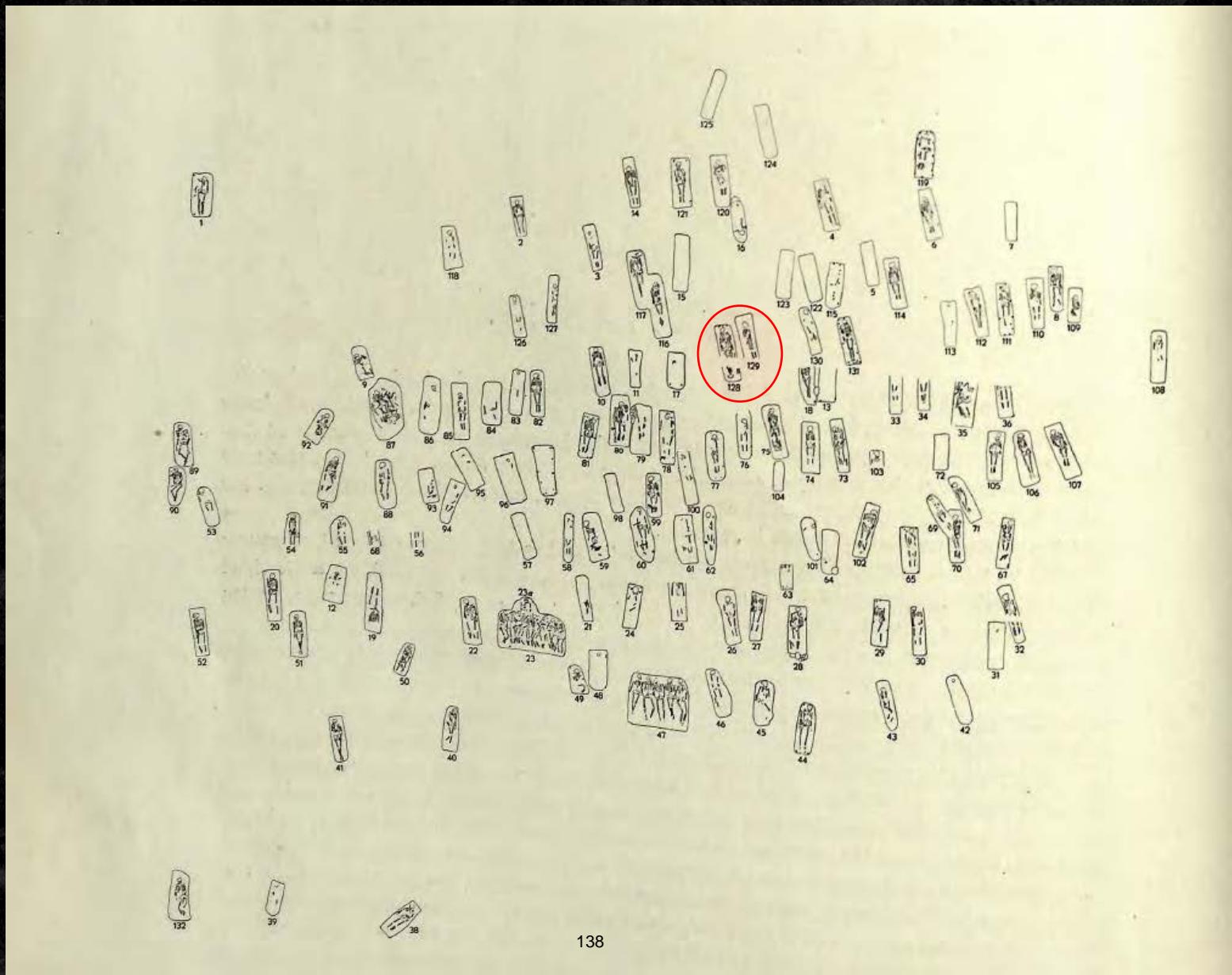
Trelleborg, Sjælland, Denmark



Andres Dobat: The State and the Strangers. The Role of External Forces in a Process of State Formation  
in Viking Age South Scandinavia(ca. AD 900–1050), „Viking and Medieval Scandinavia“ 5, 2010.

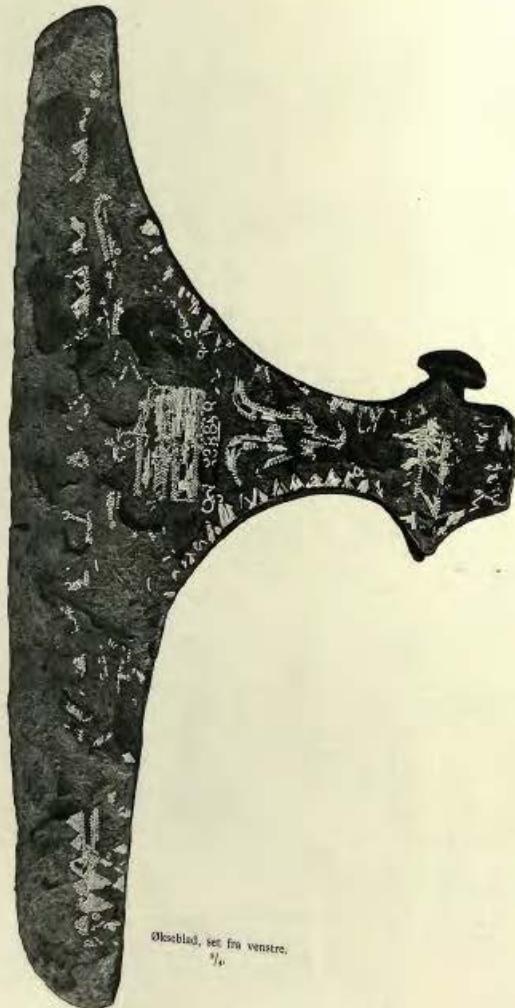
Price, T. D., Frei K.M., Dobat A.S., Lynnerup N. & Bennike, P., 2011. Who was in Harold Bluetooth's army?  
Strontium isotope investigation of the cemetery at the Viking Age fortress at Trelleborg, Denmark. *Antiquity* 85.

# Grave 128 with a „foreign” (possibly Slavic?) isotopic signature...



...with a T-shaped axe...  
(a striking correlation of isotopic and artefactual data)

XXXVI



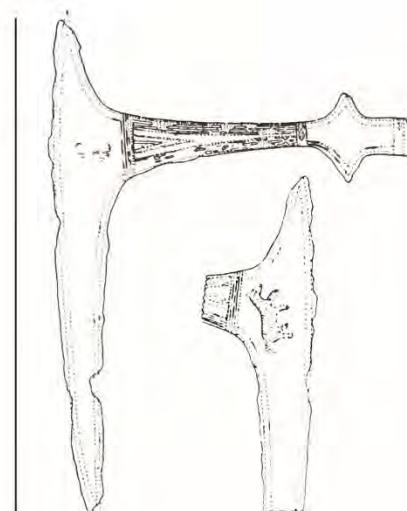
Gjæstblad, set fra venstre.  
1/4.

XXXVII

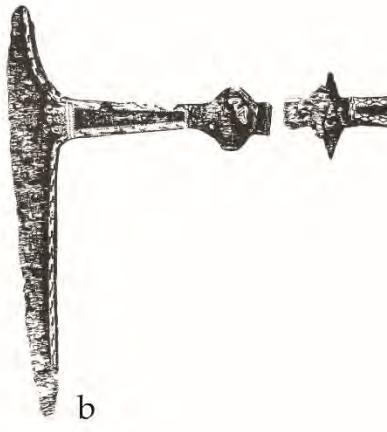


Gjæstblad, set fra høyre og ovenfra.  
1/4.

# T-shaped axes from Poland and Scandinavia



a)



b)



c)

d)

a) Luboń/Poznań, Poland; b) Lund, Sweden,  
c) Lunow, Germany d) Trelleborg, Denmark

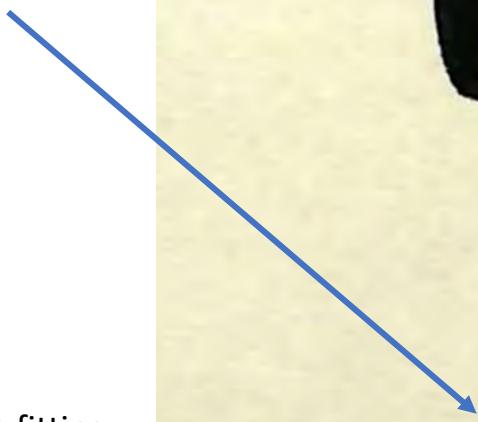
140



T-shaped axe from Birka (Bj 749), excavated by  
Dr Gunnar Andersson (SHM) and his team

# ...and some „emblematic” Western Slavic decoration!

Winged snake?



Spur strap fitting,  
Lutomiersk



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Spur strap fitting (?),  
Ostrów Lednicki

Spur strap fitting,  
Ciepłe



# The grave from Velds, Jutland

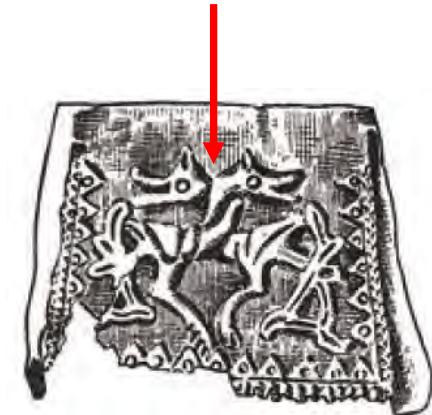
(notice the **winged snake** motifs)



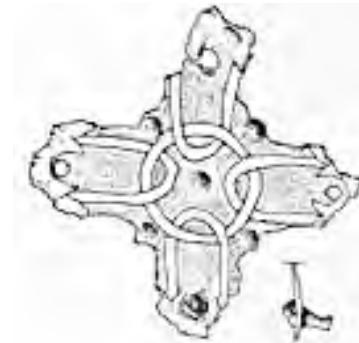
Stirrup with a zoomorphic mount  
showing birds and two intertwined  
flying snakes



Stirrup part, Velds



Kaptorga, Biskupin,  
Poland



142

Strap distributor, Velds



Strap distributor,  
Lutomiersk, Poland

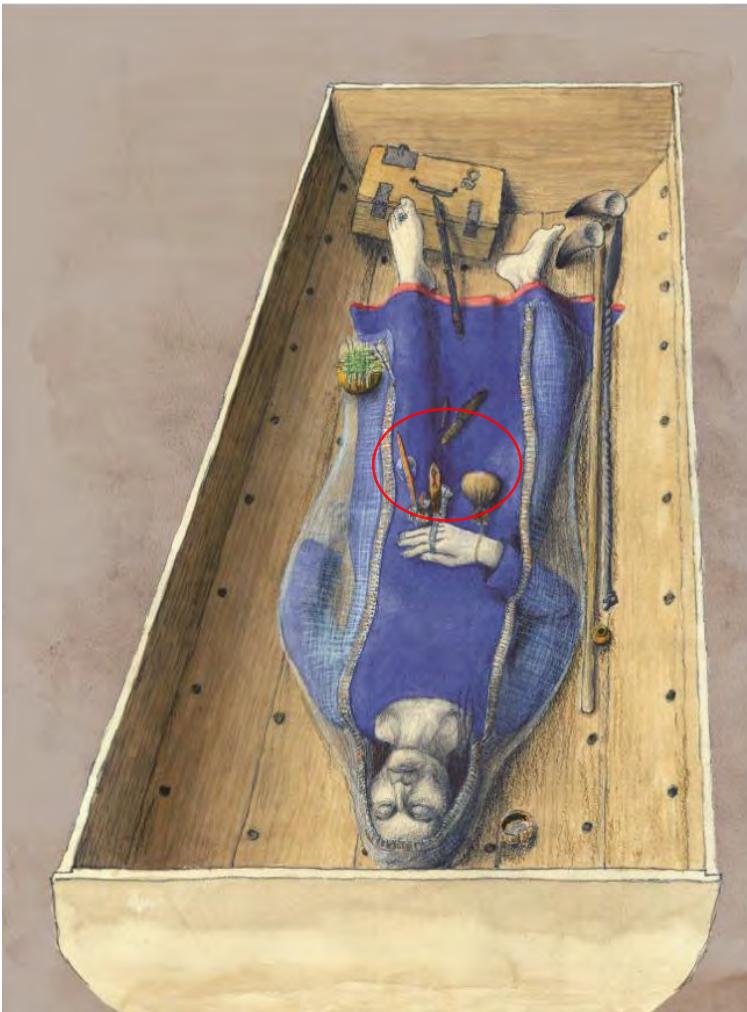
# Bird-shaped fitting from Bornholm



Bird-shaped fitting from Bornholm

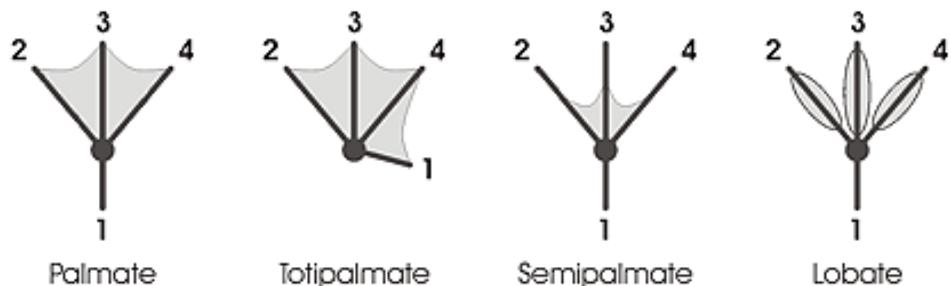
Bird-shaped fitting from Dziekanowice

# Bird-feet amulet from a „völva” grave at Fyrkat



Reconstruction of a female grave from Fyrkat (nr. 4).

After Pentz *et al.* 2009



*Different kinds of  
foot weeing*



Duck

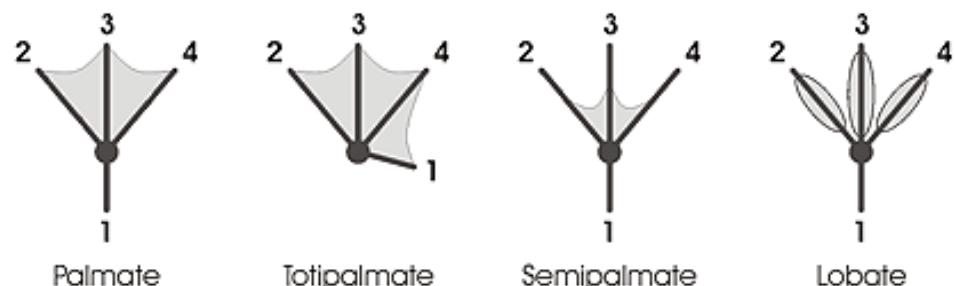


Goose



Swan

# Bird-feet amulet from a „völva” grave at Fyrkat



*Different kinds of foot weebing*



Duck



Goose



Swan

# Parallels in the Western Slavic world



Above: early medieval temple rings



Fyrkat pendants: front and back

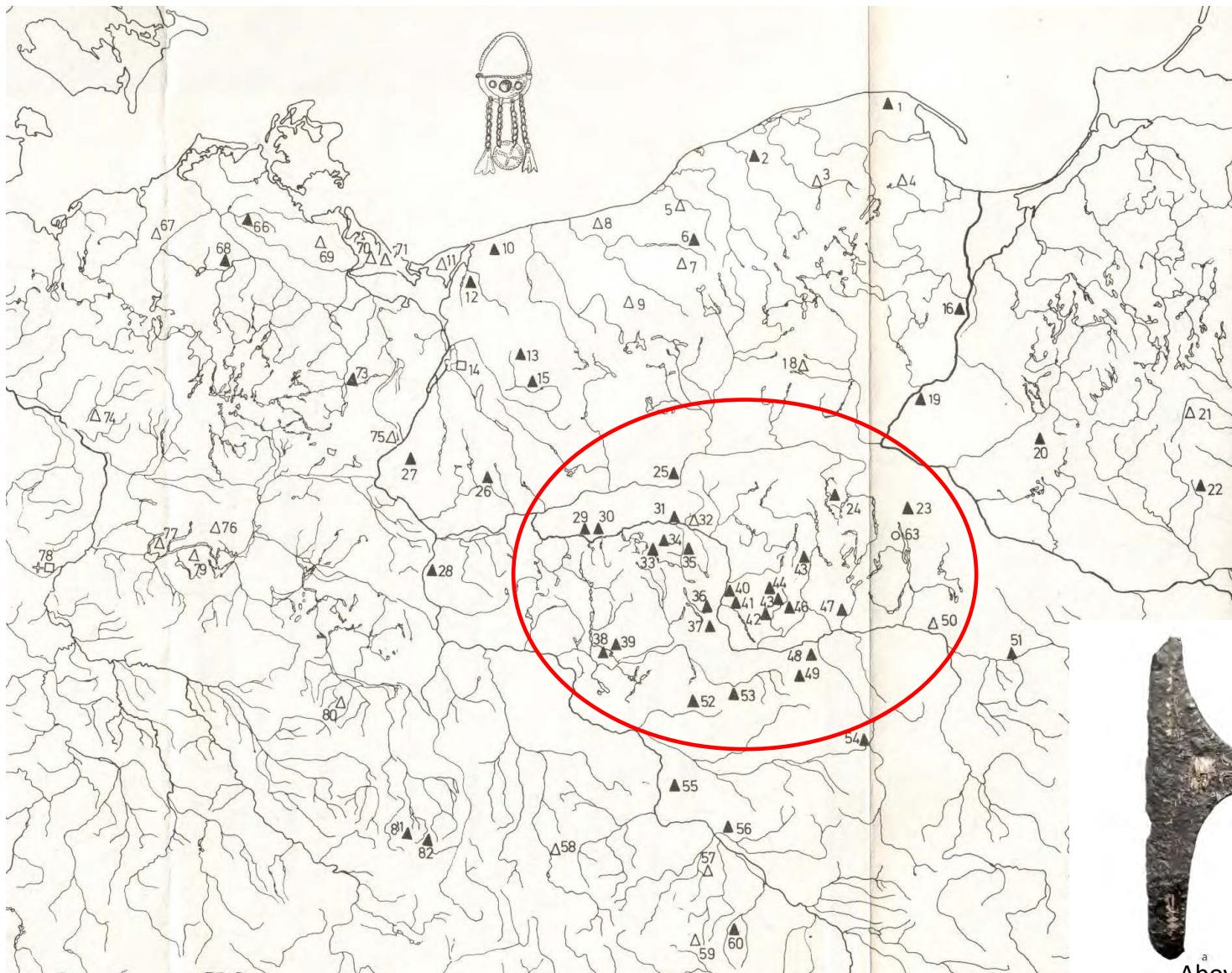


Above: bird-feet pendants from an early medieval hoard from Kąpiel, Greater Poland province

A selection of bird-feet pendants – originally part of Western Slavic temple rings (head adornments). **Very similar punched decoration; all made of silver foil**, exactly like the Fyrkat 4 specimens

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# Find distribution in Poland and Germany (Western Slavic areas)



The largest concentration of temple rings/earrings with bird-feet pendants is seen in the Province of Greater Poland (near Poznań), an area known to have had strong ties with Harald Bluetooth's realm (cf. an axe from the Trelleborg fortress with a close analogy in Poznań)



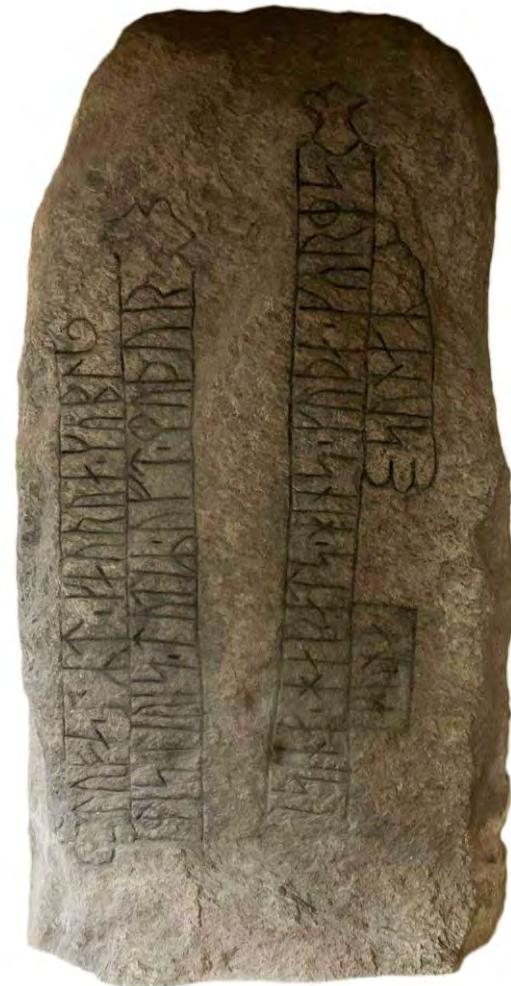
Above: 3 cross shaped pendants from Greater Poland



Above: A Slavic axe from Trelleborg, probably made in Greater Poland

# Conclusions and future research

- New studies of elite „warrior graves” in Poland as well as new analyses of Western Slavic art (animal style) can *and will refine our perception of cross-cultural interactions around the Baltic and beyond*
- Western Slavic presence in Viking Age Scandinavia has typically been identified on the basis of **pottery remains**. Slavic vessels in Southern Scandinavia are often seen as **material traces of foreign immigrants or slaves**. Until recently, **the presence and activity of Western Slavic elites in the North has remained unnoticed**. This view has to be revised.
- There is a **substantial corpus** of Western Slavic artefacts in the North (Scandinavia and the British Isles) – many of these finds have been erroneously attributed to Scandinavians or Anglo-Saxons. The interpretative shift outlined in this paper can nuance our understanding of cross-cultural interactions between the Western Slavic (Piasts?) and Scandinavian elites (Harald Bluetooth, Sveinn Forkbeard...)
- To be continued...



A runestone from Sønder Vissing in Jutland.  
Raised by Tova, Slavic wife  
of Harald Bluetooth

# Further reading

- **Gardeła, Leszek 2018.** 'Lutomiersk Unveiled. The Buried Warriors of Poland', *Medieval Warfare* 8(3).
- **Gardeła, Leszek 2019.** '(Re)discovering the Vikings in Poland: From Nineteenth-century Romantics to Contemporary Warriors'. in *The Vikings Reimagined: Reception, Recovery, Engagement*. ed. Tom Birkett and Roderick Dale, The Northern Medieval World, Berlin-Boston: Walter de Gruyter.
- **Gardeła, Leszek 2020.** 'Viking Archaeology in Poland: Past, Present, and Future'. in *Viking Encounters. Proceedings of the 18th Viking Congress*. ed. Anne Pedersen and Søren Sindbæk, Aarhus: Aarhus University Press.
- **Gardeła, Leszek and Kamil Kajkowski 2020.** 'Slavs and Snakes. Material Markers of Elite Identity in Viking Age Poland', *European Journal of Archaeology*.
- **Gardeła, Leszek and Kamil Kajkowski 2021.** 'Slawische Krieger in der Wikingerzeit', *Archäologie in Deutschland*.
- **Gardeła, Leszek, Kamil Kajkowski and Zdzisława Ratajczyk 2019.** 'Ostrogi zoomorficzne z Ciepłego. Zachodniosłowiański model kosmosu?', *Pomerania Antiqua* 28.
- **Gardeła, Leszek, Kamil Kajkowski, Zdzisława Ratajczyk and Sławomir Wadyl 2019.** 'Oporządzenie jeździeckie i elementy rzędu końskiego'. in *Ciepłe. Elitarna nekropolia wczesnośredniowieczna na Pomorzu Wschodnim*. ed. Sławomir Wadyl, Gdańsk: Muzeum Archeologiczne w Gdańsku.

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*European Journal of Archaeology* 2020, page 1 of 23

## Slavs and Snakes: Material Markers of Elite Identity in Viking Age Poland

LESZEK GARDEŁA<sup>1</sup>  AND KAMIL KAJKOWSKI<sup>2</sup> 

<sup>1</sup>The National Museum of Denmark, Denmark

<sup>2</sup>West Cassubian Museum in Bytów, Poland

This article offers a new perspective on a diverse corpus of high-status Western Slavic objects from the domain of the Piast dynasty in Poland, dated between the tenth and eleventh centuries AD. It is proposed that the lavish zoomorphic decorations, often depicting snakes, found on jewellery, weapons, and equestrian equipment reflected Western Slavic pre-Christian religious ideas and served as material markers of elite identity. The results of this study lead to a more nuanced understanding of Western Slavic worldviews and their material expressions, paving the way for new investigations into cultural interactions both within and beyond the Slavic homelands.

**Keywords:** Viking Age, Slavs, identity, elites, funerary practices, jewellery, weapons

### THE TURBULENT TENTH CENTURY

Tenth-century Europe witnessed profound cultural, ideological, and political transformations that ultimately led to the creation of early states. Among the characteristic features of zones subjected to the monopolistic rule of élites were the introduction of normative regulations, social differentiation, and the division of society into the governing and the governed. Centralized apparatuses of power began to emerge at around the same time in the European territories controlled by the Picts, the Přemyslids, the Árpads, and the Jelling dynasty (see Randsborg, 1980; Dobat, 2009; Révész, 2014; Urbářczyk, 2015; Mozdziach, 2016 with references). Using their authority and superior military force, prospective rulers developed the means to maintain law and order and devised new ways to manifest their position in both local and supra-local arenas. They were able to achieve their long-term political

goals by relying on expertly-trained, well-armed, and mobile groups of warriors who had the capacity to prevent attempts at separatism and anarchy and to maintain the state's integrity in the face of external threats.

This article concerns the ways in which Western Slavic élites expressed their identity during the turbulent period of the formation of the Piast state. The geographical focus is on the territory located between the rivers Oder in the west and Vistula in the east, an area which in the Viking Age (c. AD 750–1050) coincided with the western parts of present-day Poland. There are strong and multiple indications that in this part of Europe the process of state formation did not follow an evolutionary course, as some scholars have argued, and it is now widely accepted that it was not preceded by a preliminary period of gradual development of proto- or early state structures known as 'tribal states' or 'territorial-tribal states' (for an overview of

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Manuscript received 16 December 2019,  
accepted 10 June 2020, revised 7 May 2020

doi:10.1017/ea.2020.36

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The harness from Fregerslev II and parallels  
amongst the metal detecting finds.

Merethe Schifter Bagge, Museum  
Skanderborg



# The harness from Fregerslev II

and parallels amongst the metal detecting finds

*Korsør fæstning, 8. sept. 2023*

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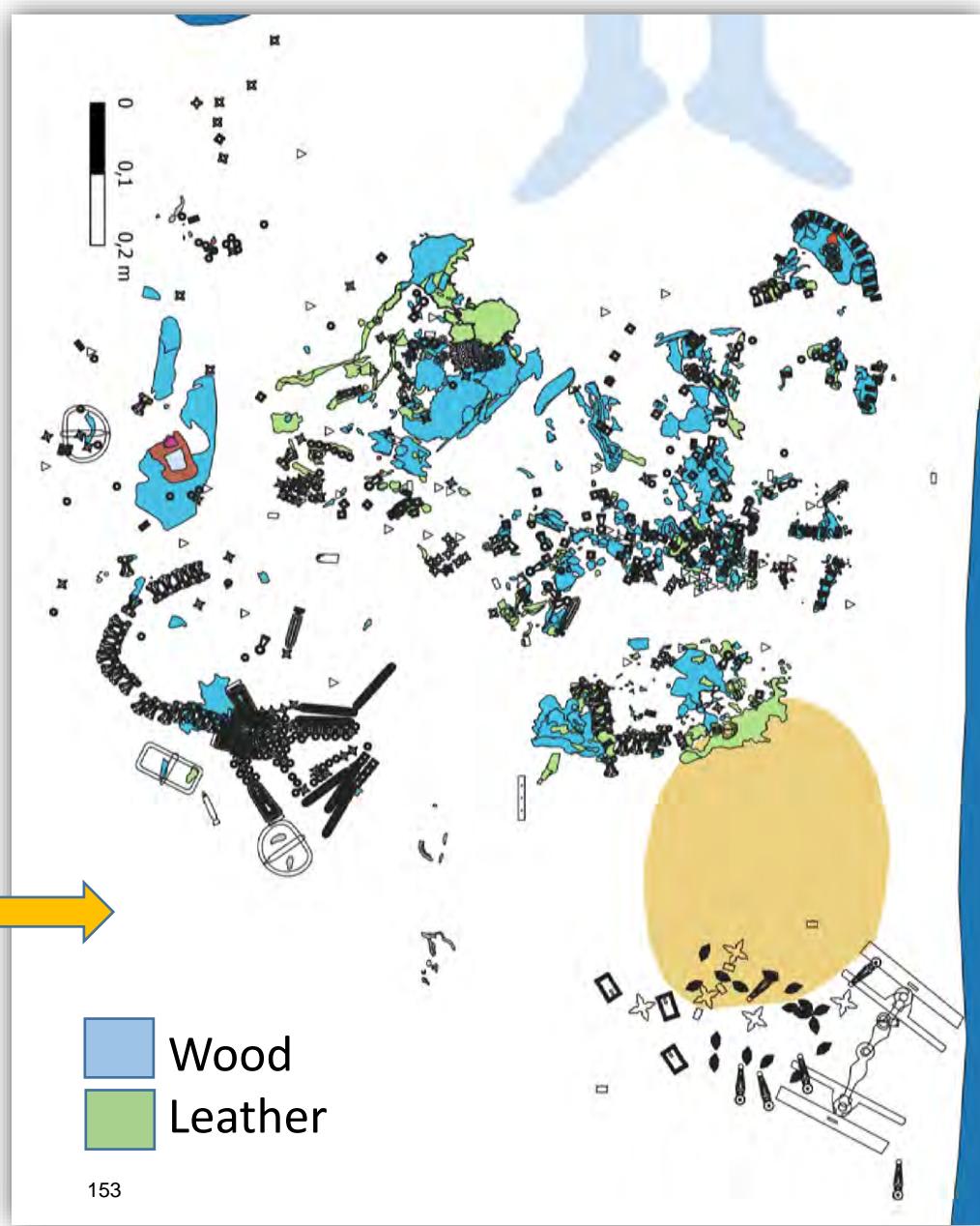
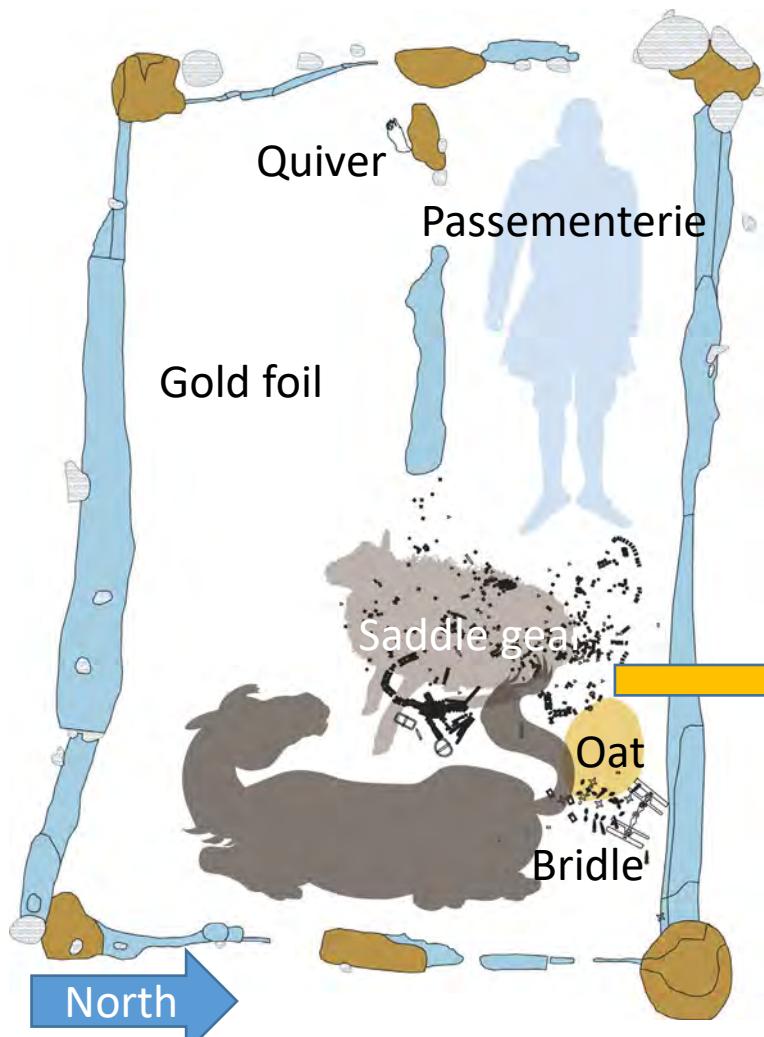
*Merethe Schifter Bagge, msb@museumskanderborg.dk*



©Museum Skanderborg

*'The Viking from Fregerslev'*  
Reconstruction of the burial site and associated buildings

# Bottom level of the chamber with assumed position of man, sheep and horse

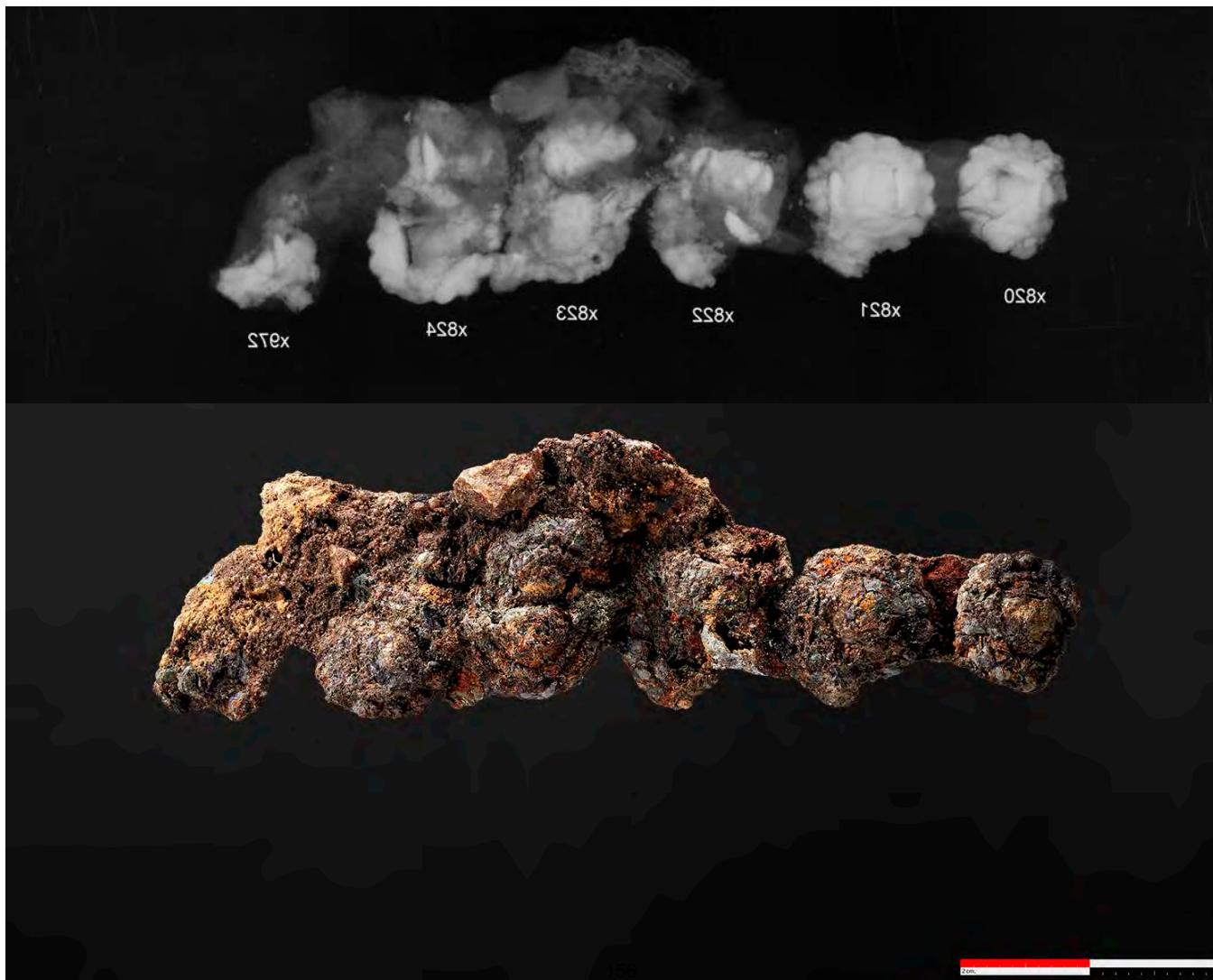




Store Kongshøj, Mors (187<sup>3</sup>)



# What is left versus X-ray

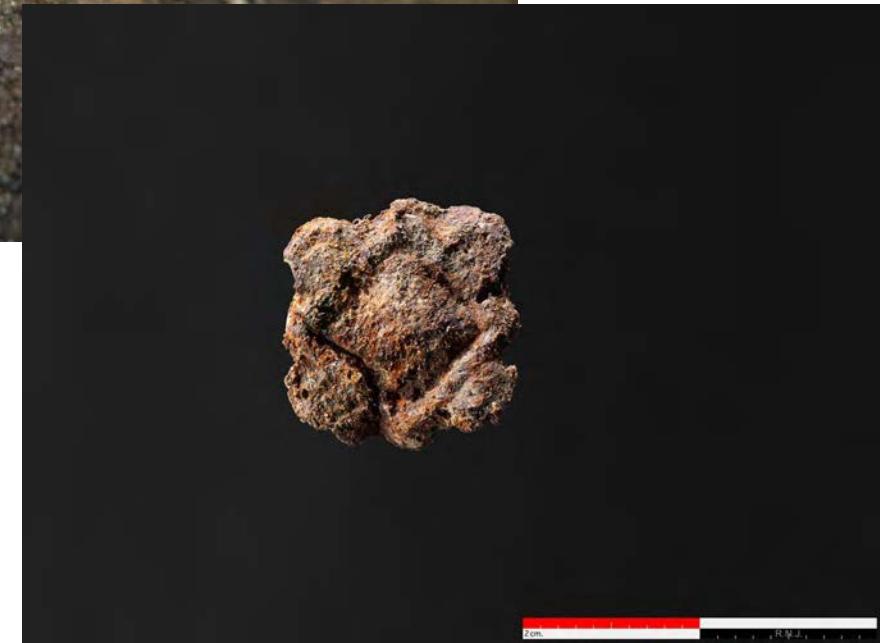


# What is left versus X-ray





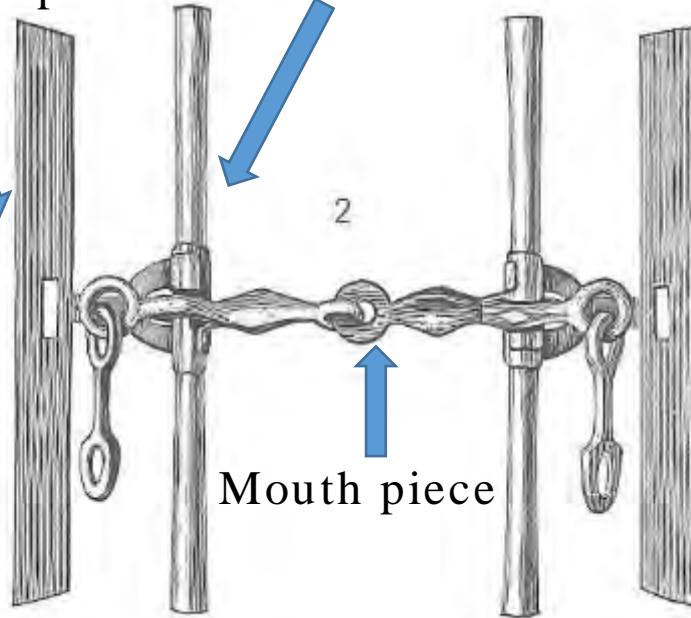
The work of a conservator



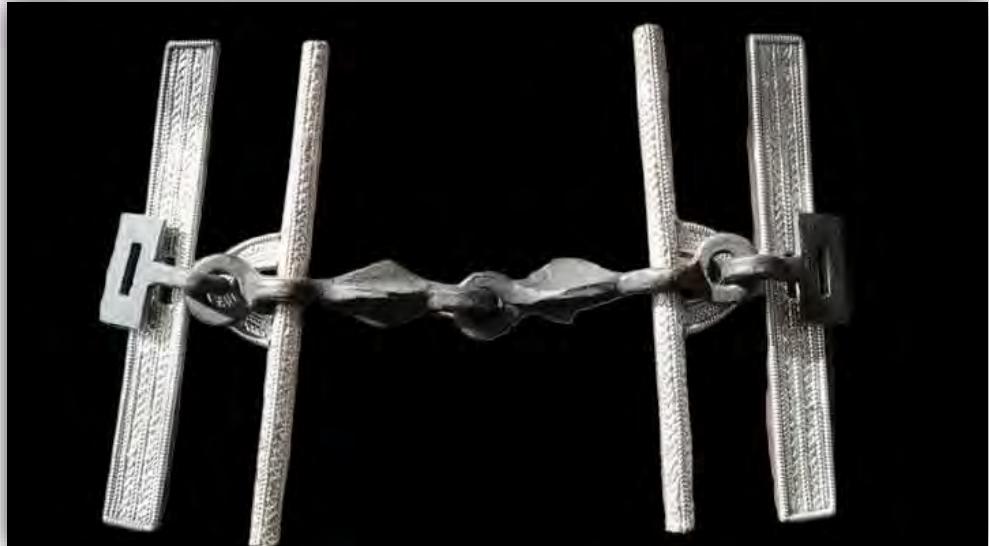
# The bit from Fregerslev



Cheek plate      Side bar



Stengade I. After Brøndsted 1936



# The pommel from a wooden saddle

One of the  
pommel fittings  
Photo: R. Johansen



The rim of the pommel with fittings,  
wood and carvings.

Photo: MSB



Attempt to reconstruct  
Photo: Maria Nørgaard



## Fregerslev II, 10th C. harness Denmark

A-D: Gilded brass  
E: Bronze  
F: "pressblech"  
G-U + X,Y: tin-lead-alloy with silverfoil  
V: Iron with silverfoil

4 cm.



Thumby Bienebek 37A  
Quern-Scheersberg 1928  
Langballigau 1

## Fittings for bridles in gilded copper-alloy



Fregerslev II



Dommerby  
Photo: The National Museum of Denmark

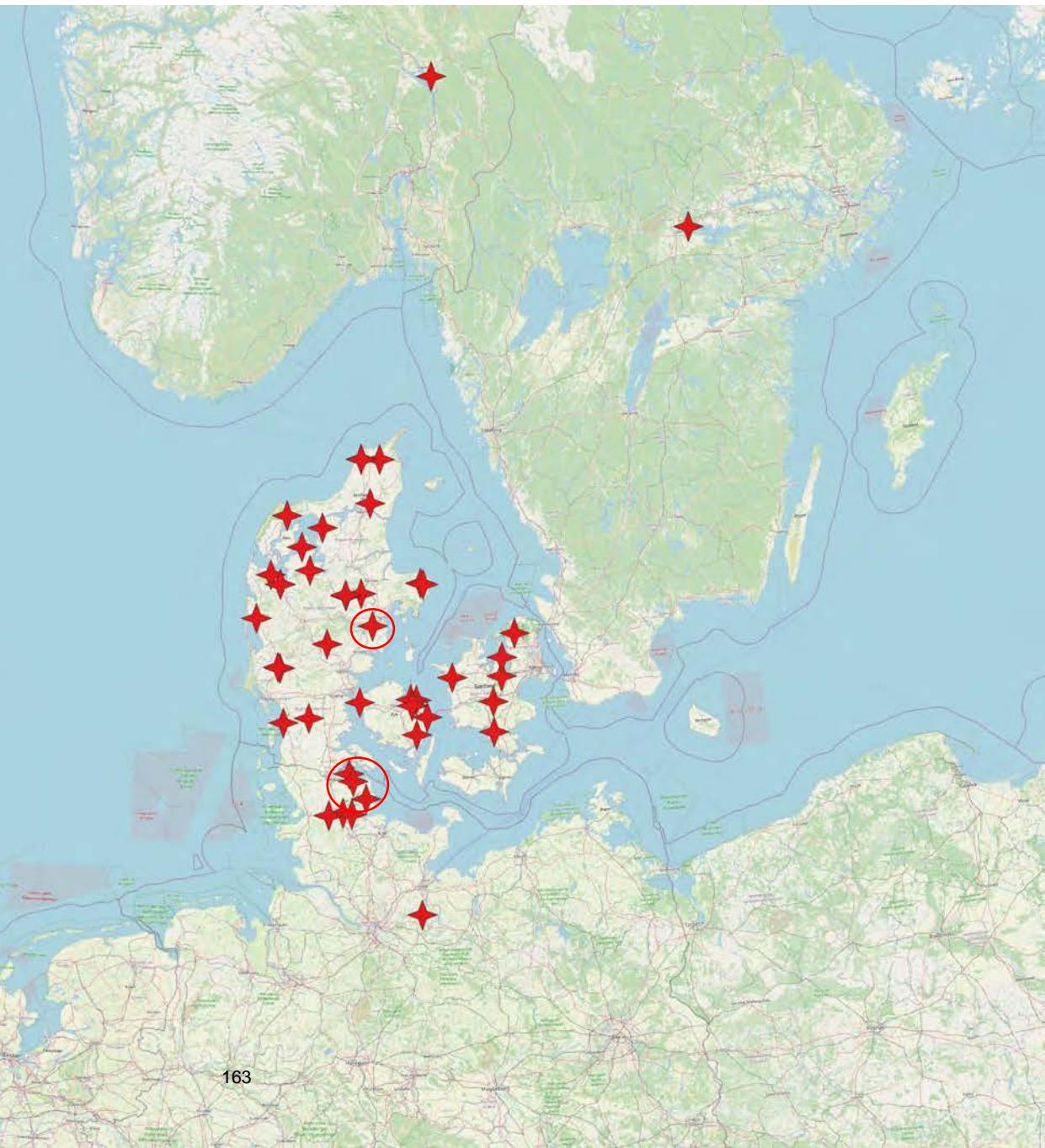


Liver Å  
162  
Photo: Vendsyssel historiske Museum



Didriksm inde

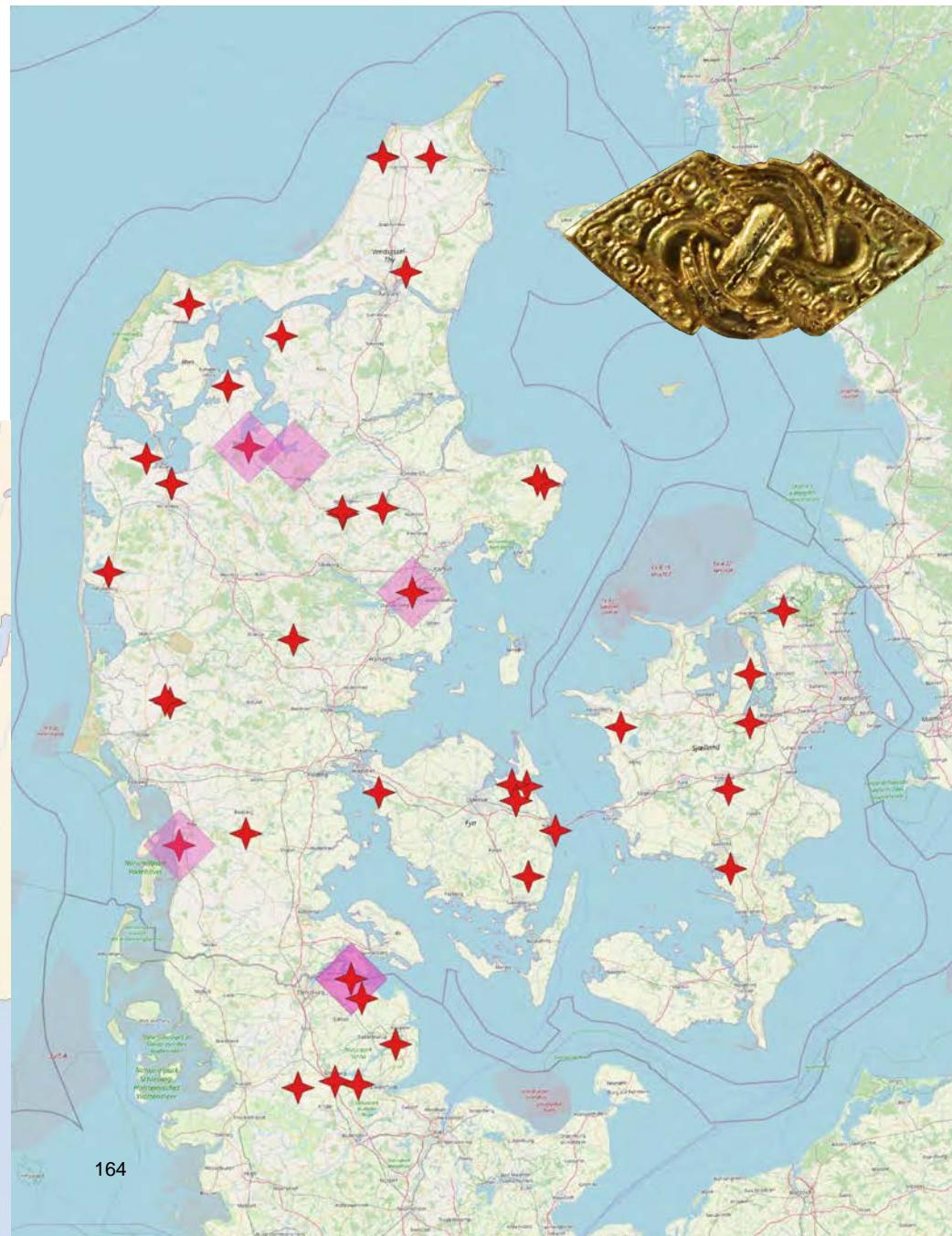
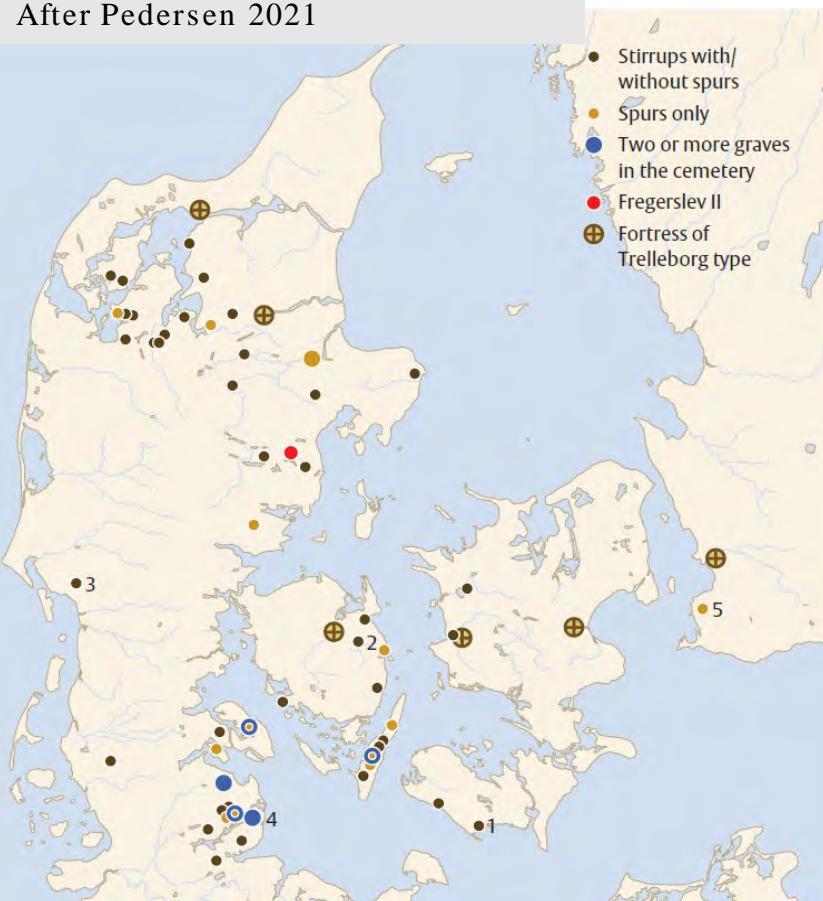
# Cross-shaped strap mounts – Borre and Jelling – detector (39) and grave (4) finds



# Pointed figure-of-eight fittings – detector (3) and grave (2) finds

## Equestrian burials 10<sup>th</sup> C

After Pedersen 2021

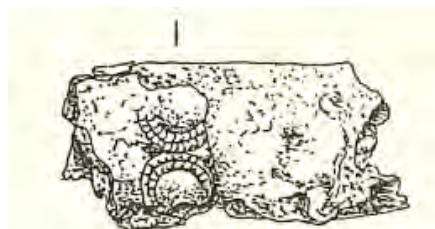


Small fittings  
in  
tin/lead/silver



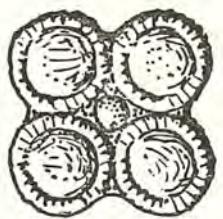
Fregerslev II

Photo: R. Johansen



Thumby Bienebek 37A

After Müller-Wille 1987



Ladby  
After Thorvildsen 1957



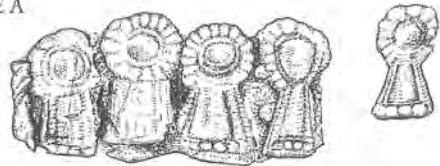
Rosenlund



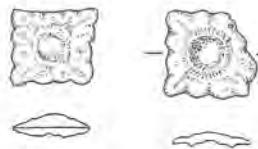
Hedeby  
© ALM Schloß Gottorf



TYPE A



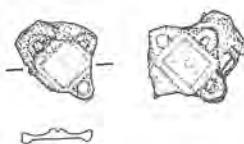
TYPE B



TYPE C



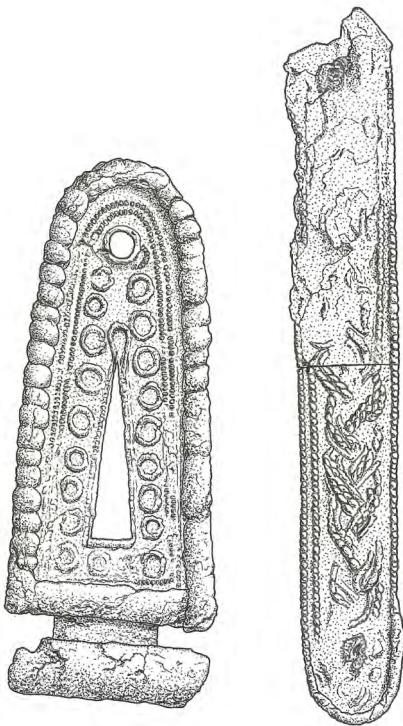
TYPE D



Grimstrup

After Stoumann 2009

Long fittings (Strap-ends and two-linked) in iron/tin/lead/silver



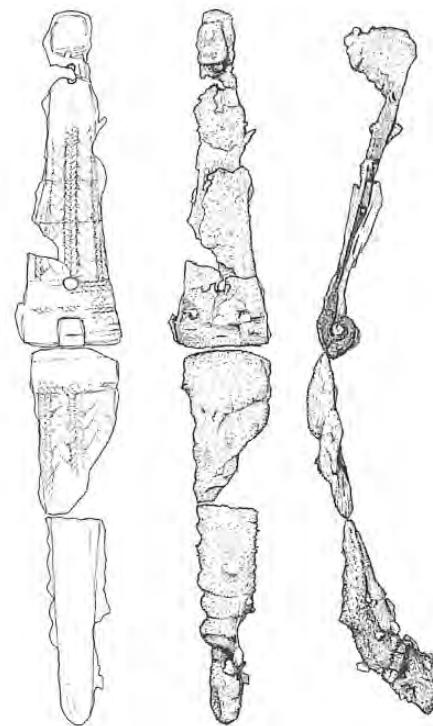
Fregerslev II

Drawing by G.H.Bischoff



TB 37A

Photo: MSB



Grimstrup

<sup>166</sup>  
After Stoumann 2009

Stengade I,3

Photo: MSB





Marke, Sjælland

Finder and photo: Jan Mortensen



## Male and female moulds (Matrice/Patrice)



Sjelle, Jutland

Finder and photo: Anders Kallestrup Mikkelsen



Hedeby, Germany

© ALM Schloß Gottorf

Lejre, Sjælland

Photo: Cille Krause



Kr. Hyllinge,  
Sjælland



Åle, Jutland

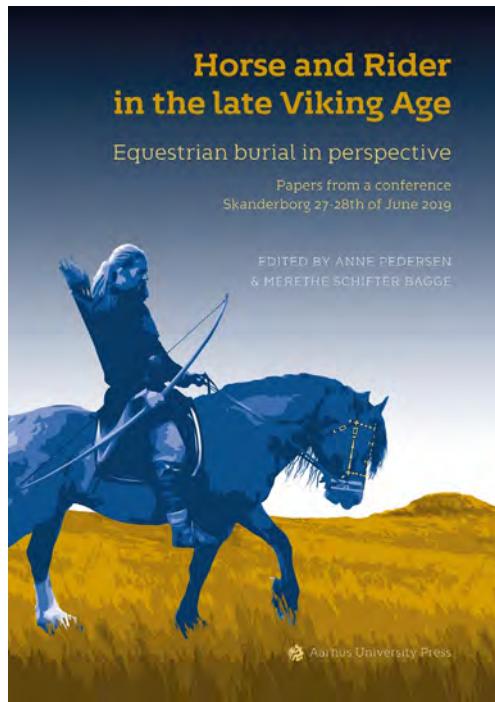
Finder and photo: Carina Mia Boese



KBR Ms. 9987-91  
Hamartigenia & Psychomachia 9th/10th C



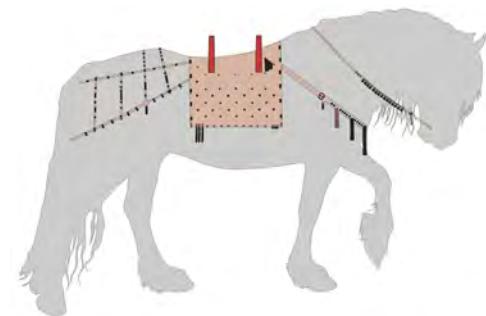
Stuttgarter psalter. Early 9th C



[www.vikingfregerslev.dk](http://www.vikingfregerslev.dk)



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# VIKINGEN FRA FREGERSLEV



AARHUS UNIVERSITET



Nationalmuseet  
National Museum of Denmark

MUSEUM  
SKANDERBORG

DEN A.P MØLLERSKE  
STØTTEFOND

AUGUSTINUS FONDEN  
ESTD 16. NOVEMBER 1642

Skanderborg  
Kommune

KULTUR  
MINISTERIET  
SLOTS- OG KULTURSTYRELSEN

The dance around the anvil – iron, stirrups,  
workshops and decomposition.

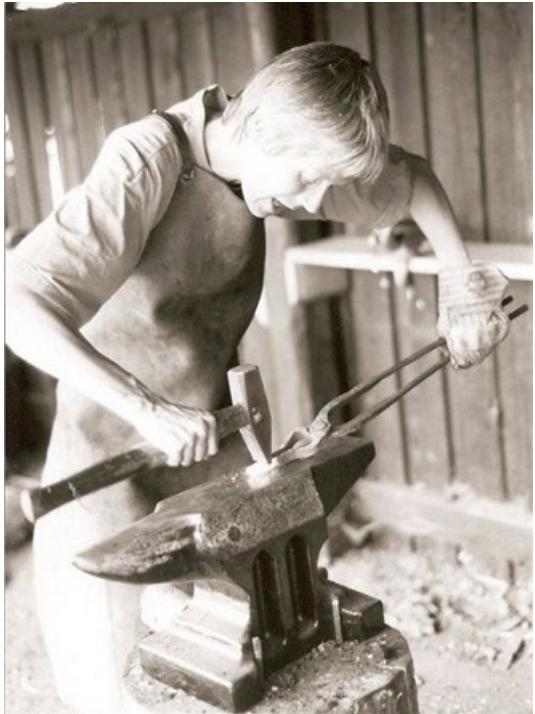
Arne Jouttiärvi, Heimdal-archaeometry,

Henriette Lyngstrøm, University of  
Copenhagen

# The dance around the anvil – iron, stirrups, workshops and decomposition

Korsør 8. september 2023

Arne Jouttiärvi & Henriette Lyngstrøm



GRIMSTRUP



(Stoumann 2009, fig. 114)

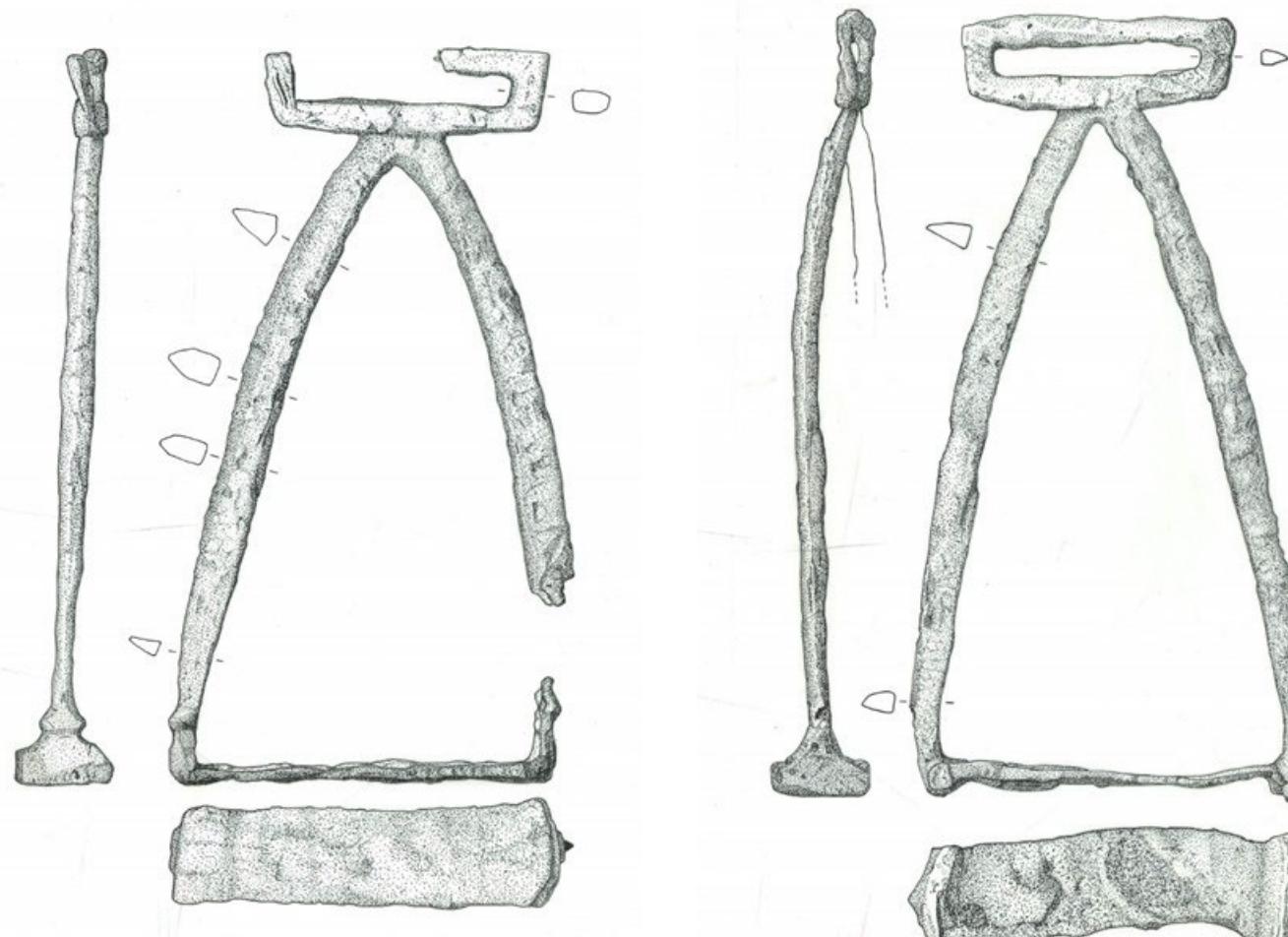
NR. LONGELSE



(Brøndsted 1936, Pl. VI & VII)

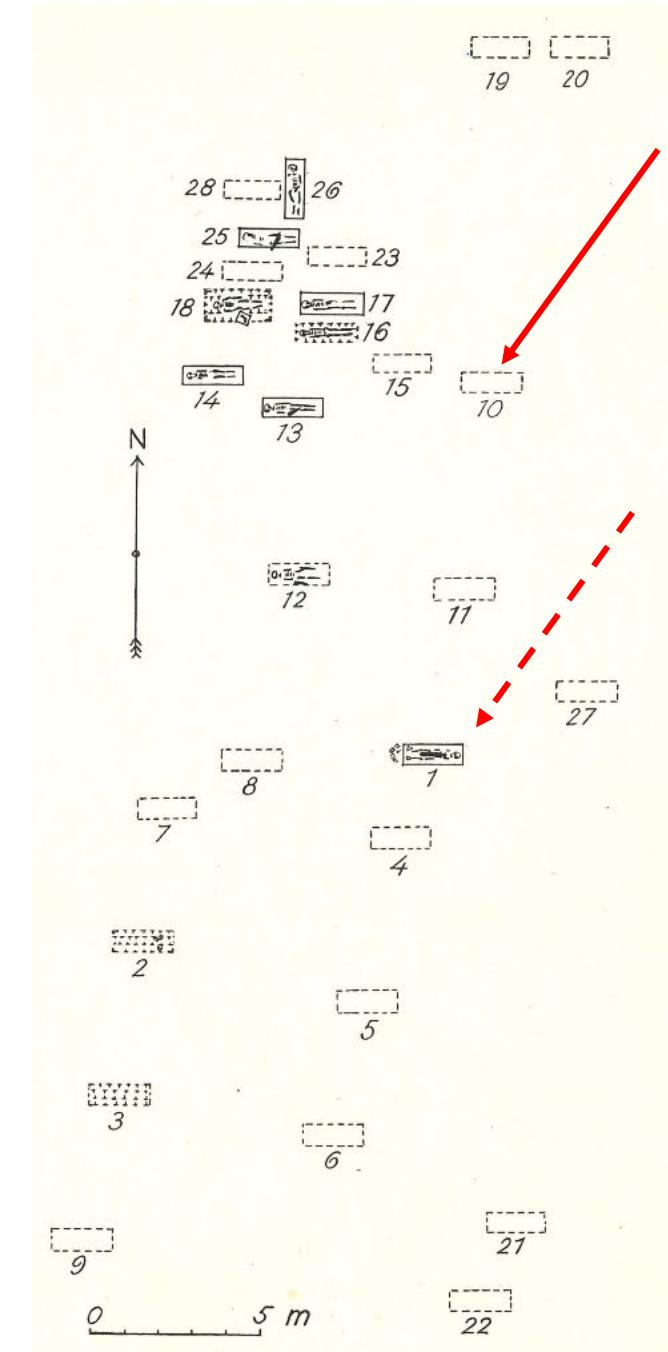


KETTING grav X

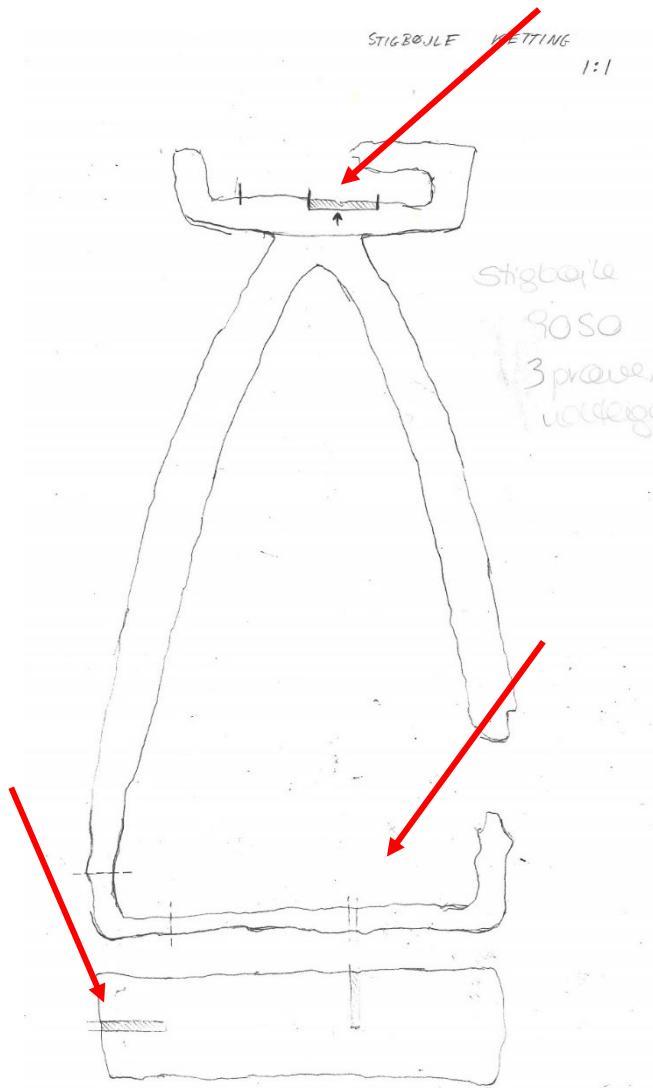


(Tegning: Alice Lundgren)

(Brøndsted 1936, fig. 36)

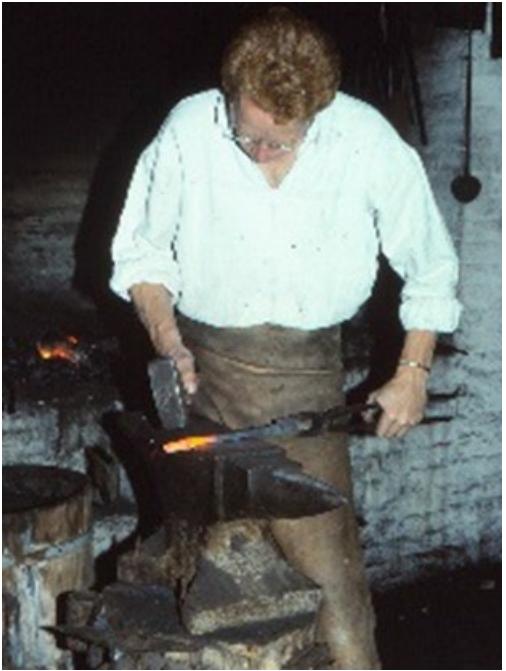


# KETTING grav X, mus. nr. MMS 1741

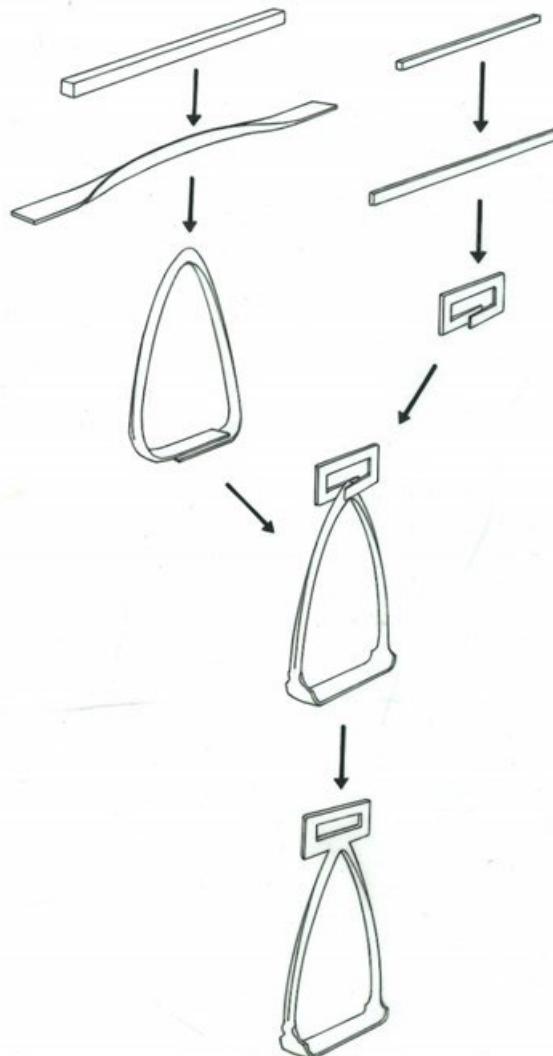


Ikke mere end 0,2 % C  
0 % P  
jernets bearbejdningsgrad påfaldende ens i alle fire stigbøjler  
pæne svejsesømme  
lokalt jern

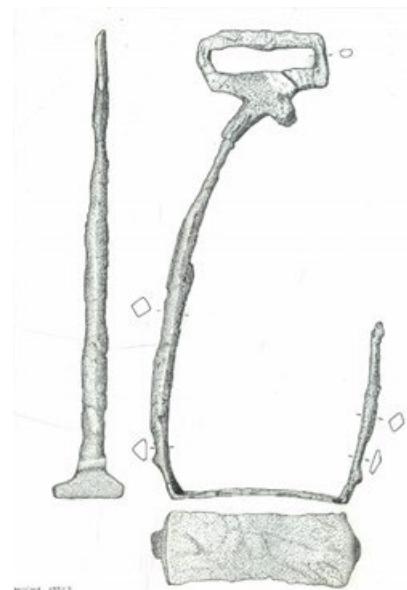
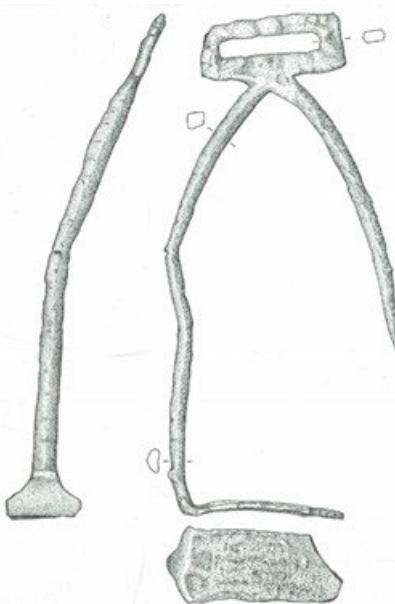
# Jens Christiansen



500 g                  100 g



## KETTING grav 1

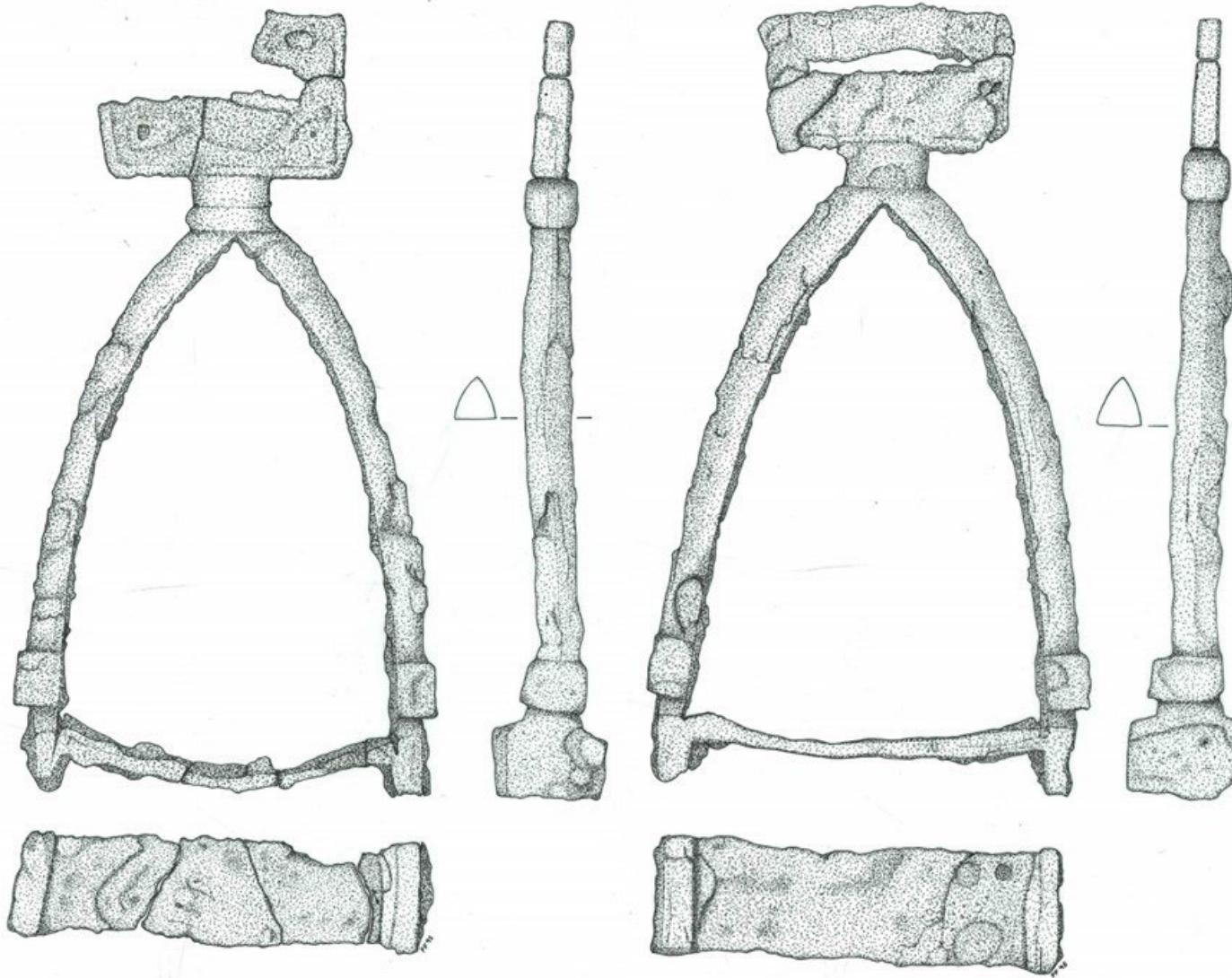


(Tegning: Alice Lundgren)

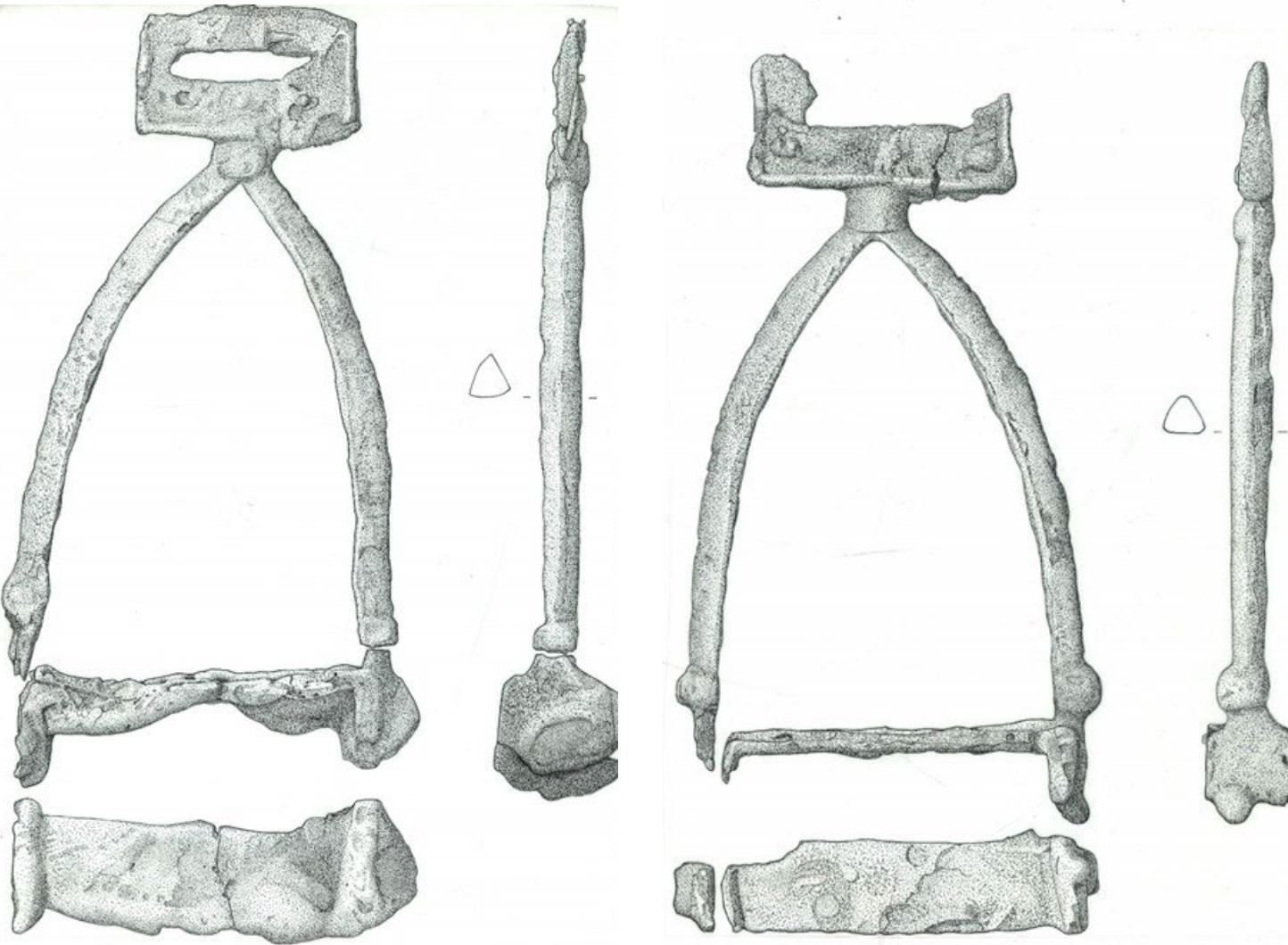


MSS 1704	1	2
Jernbarre 1	608 g	501 g
Antal varmer	35	41
Antal hammerslag	2007	2109
Antal minutter	59	63
BØJLE	314	299
Jernbarre 2	108 g	117 g
Antal varmer	24	18
Antal hammerslag	988	813
Antal minutter	43	38
REMHOLDER	72 g	80 g
Antal svejsninger	3	2
STIGBØJLE	345 g	361 g
Antal minutter	117	106
Trækul	9 kg	8 kg
Amboltslagge	69 + 34 g	98 g
Esseslagge	37 g	41 g

FARSØ

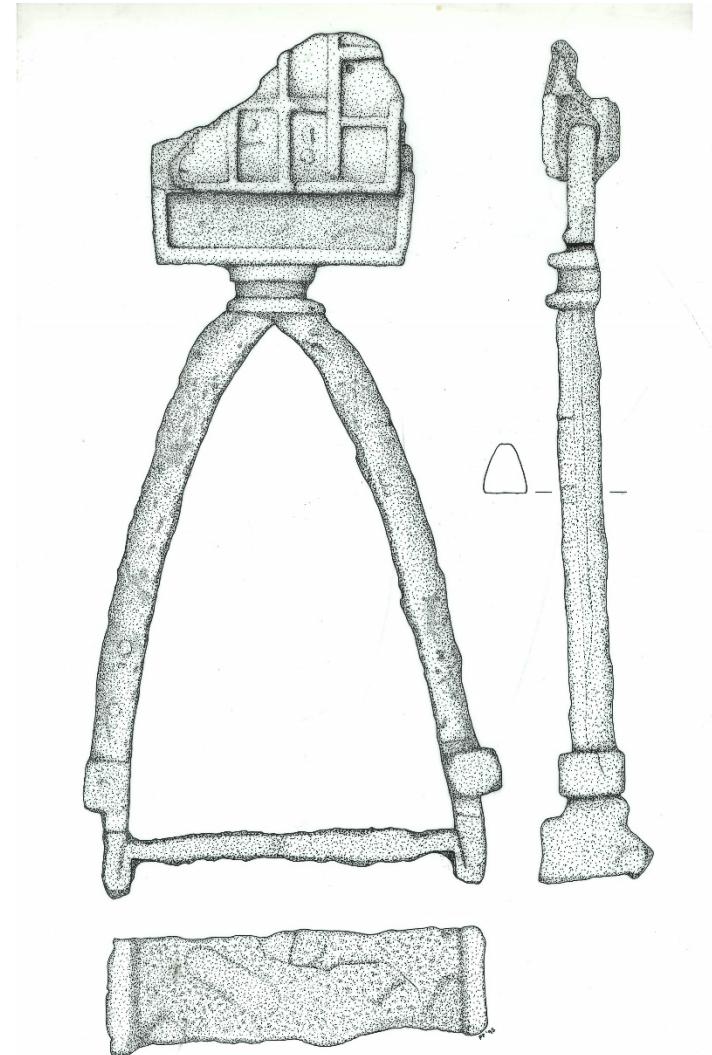
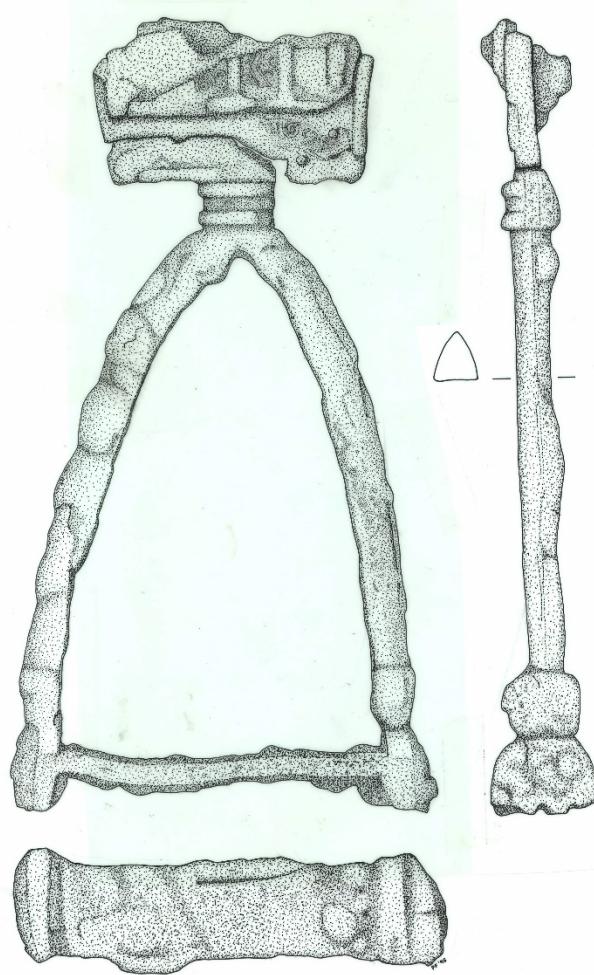


(Tegning: Pernille Foss)



NÆSBY

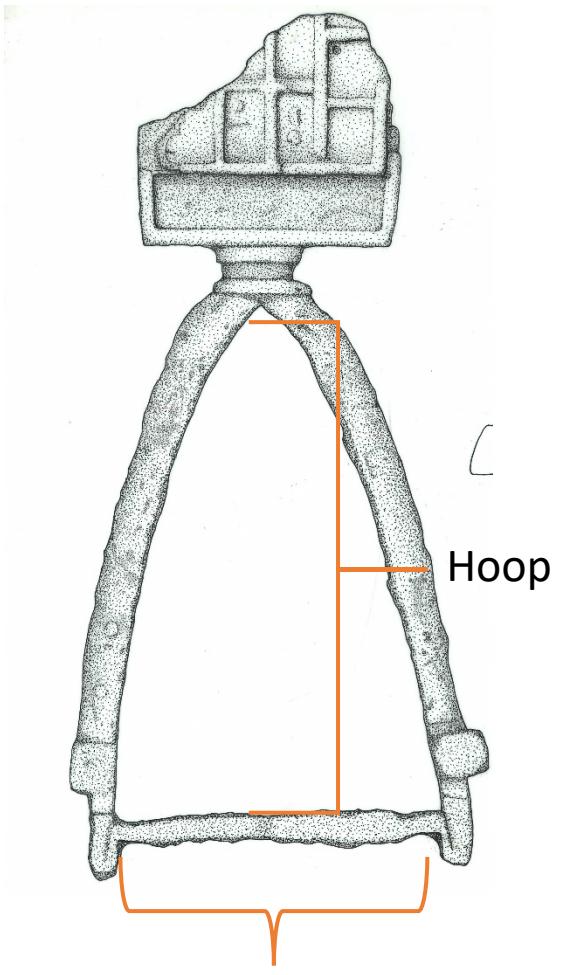
(Tegning: Pernille Foss)



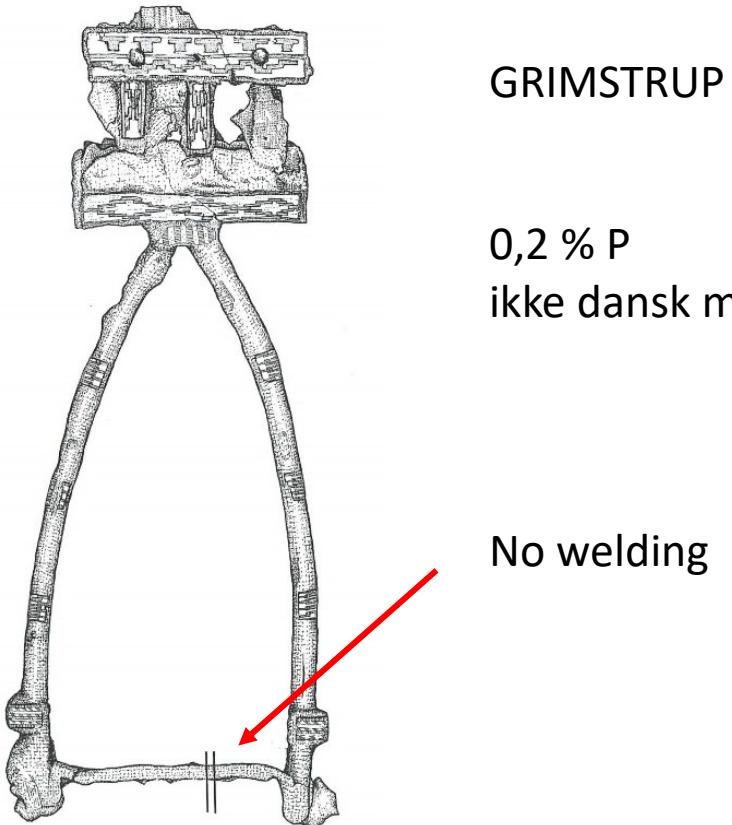
SVOSHØJ

(Tegning: Pernille Foss)

	Hoop height	Tread length	Tread width
FARSØ 1	14,5	9,7	3,0
FARSØ 2	14,5	9,5	3,0
NÆSBY 1	15,7	10,0	3,4
NÆSBY 2	15,2	9,7	2,8
SVOSHØJ 1	14,5	9,5	2,7
SVOSHØJ 2	14,7	9,5	3,0



Tread

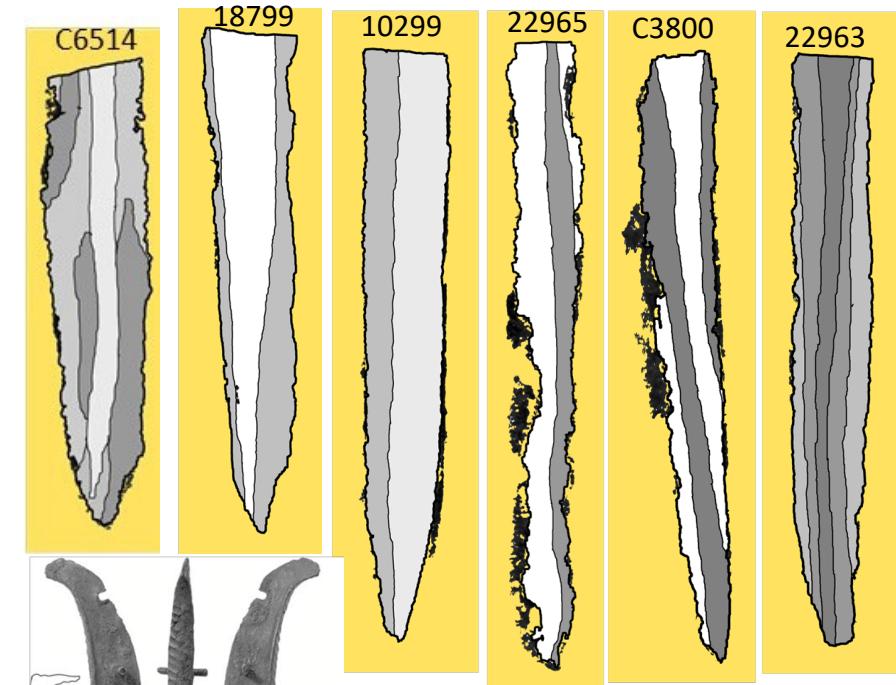


GRIMSTRUP

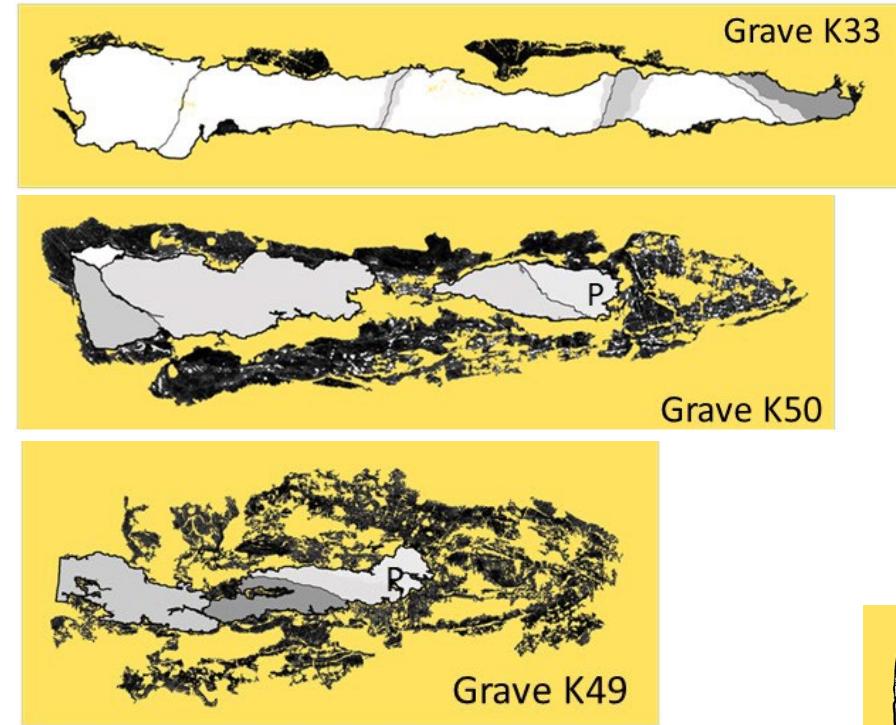
0,2 % P  
ikke dansk myremalm

No welding

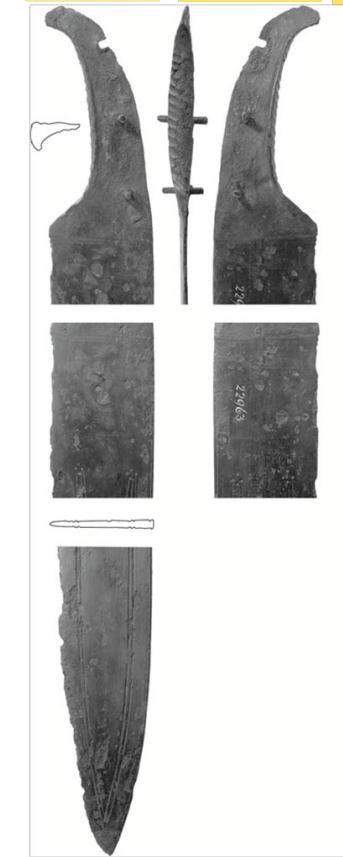
(Jouttijärvi 2009, fig. 27)



Vimose



Nr Sandegård

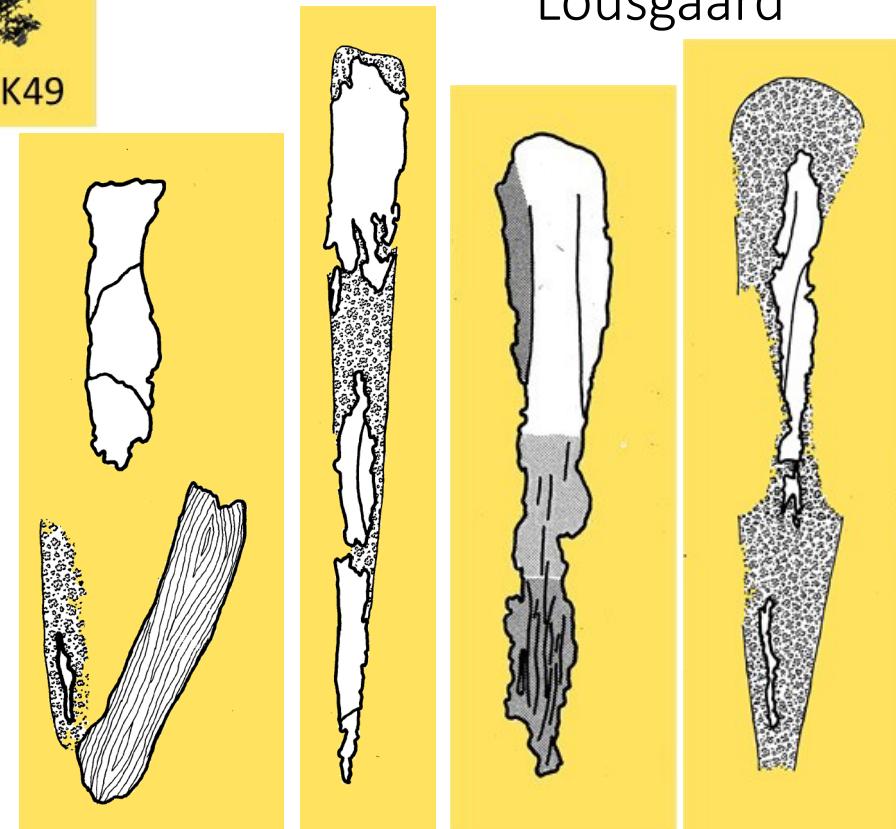


Lousgaard

Knowledge is often found in the complex structures of smithing

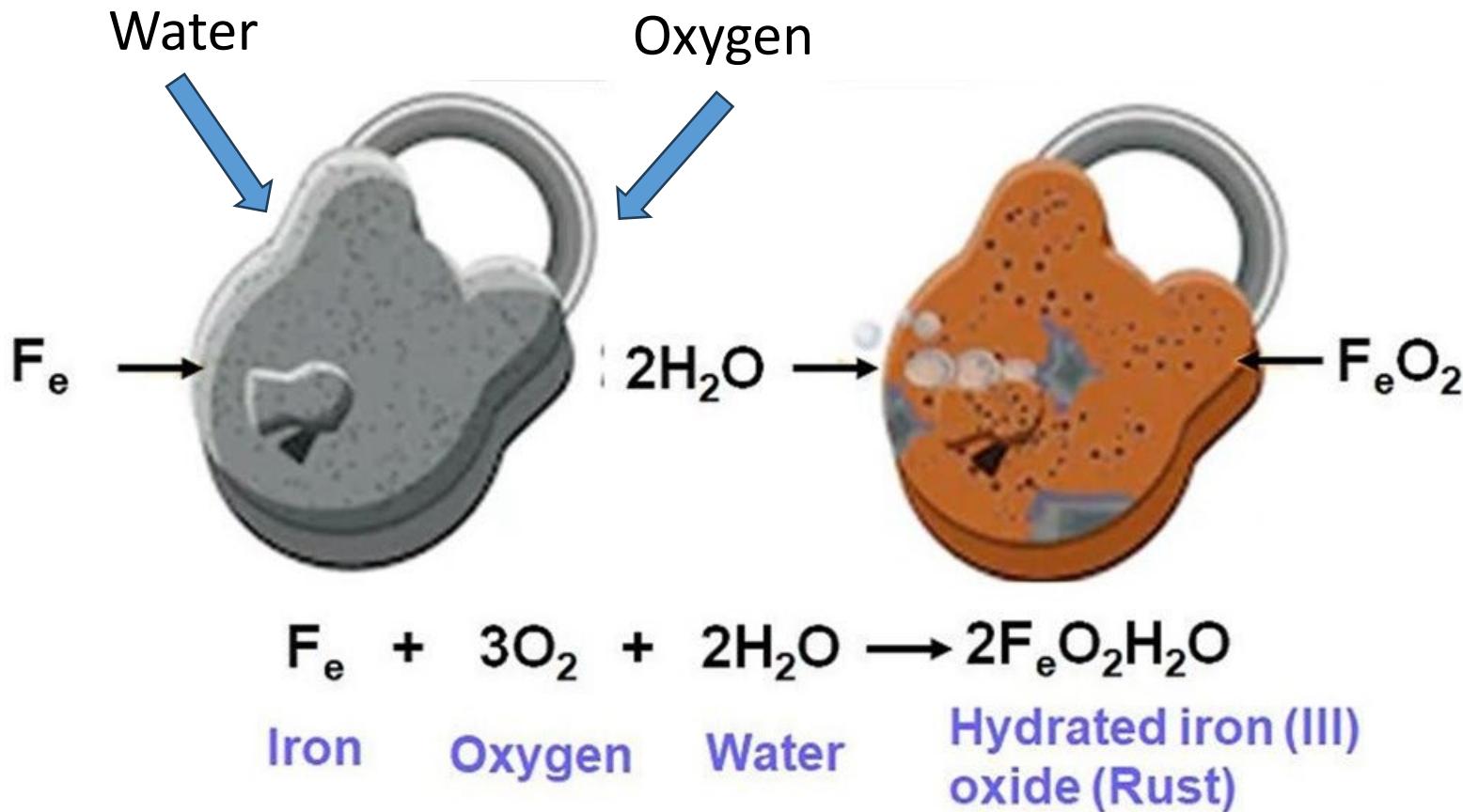
- Weapons are often made by a combination of iron and steel
- Hardened
- High quality

Lyngstrøm, H. S. (2008). *Dansk jern: - en kulturhistorisk analyse af fremstilling, fordeling og forbrug.*



# But the corrosion takes it all

To make a good corrosion, all you need is iron, water and oxygen



hydrous iron(III) oxides ( $\text{Fe}_2\text{O}_3 \cdot n\text{H}_2\text{O}$ ) and iron(III) oxide-hydroxide ( $\text{FeO(OH)}$ ,  $\text{Fe(OH)}_3$ )

# Does it always corrode?

No water



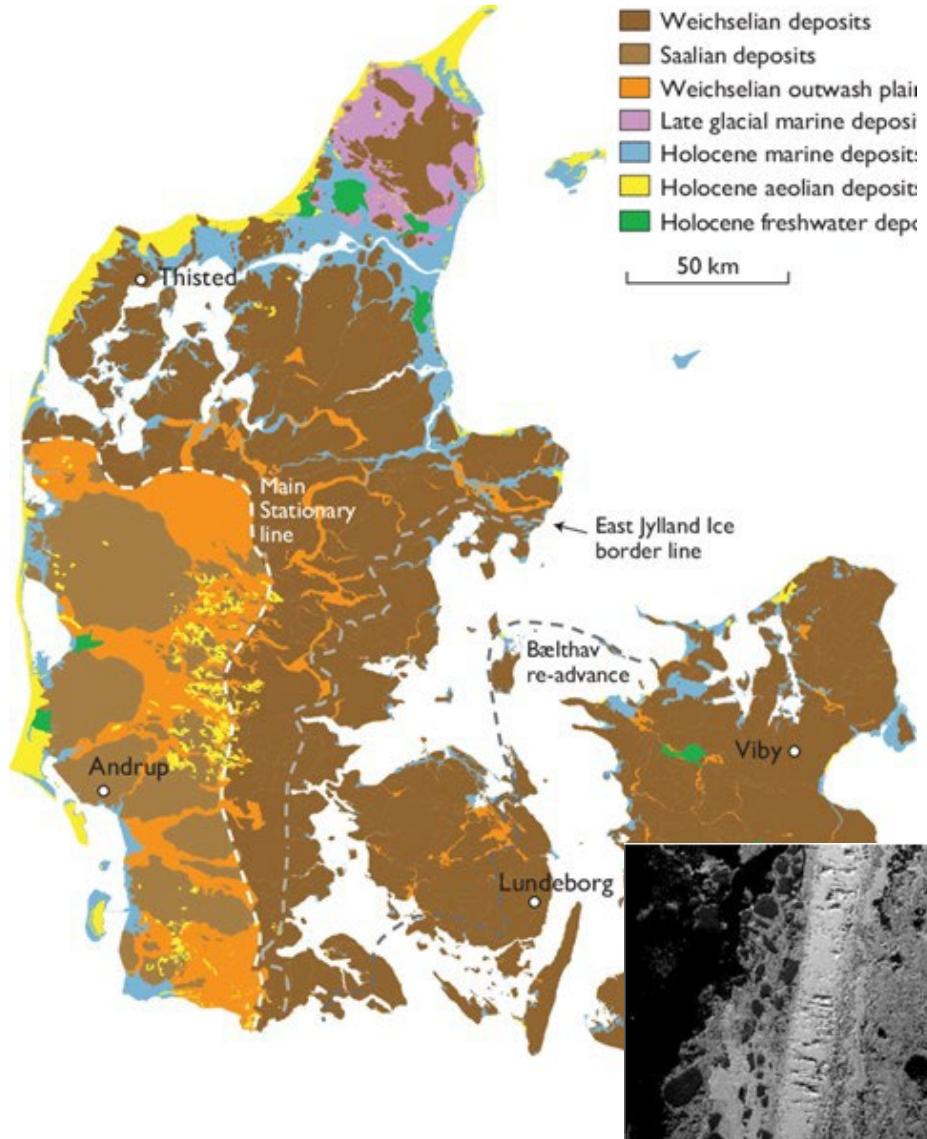
Kongeveien, Dovrefjell (UIO)

No Oxygen

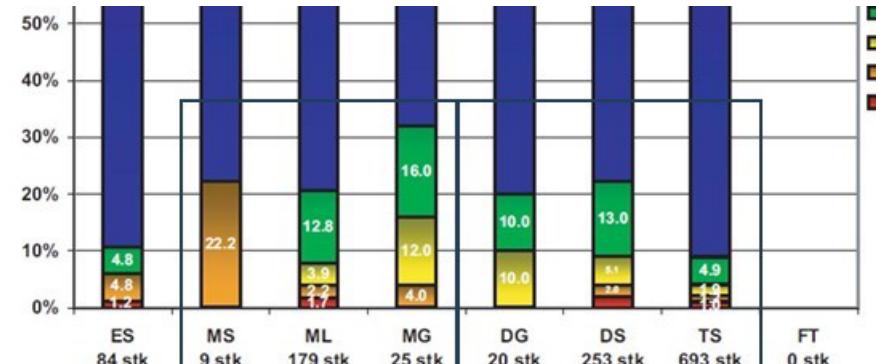


Illerup Ådal,  
<https://www.museumskanderborg.dk/krigsbytteofret-i-illerup-%C3%A5dal>

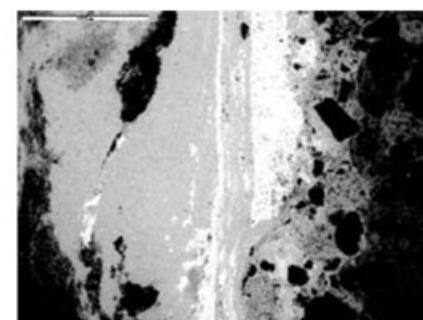
# Overall differences



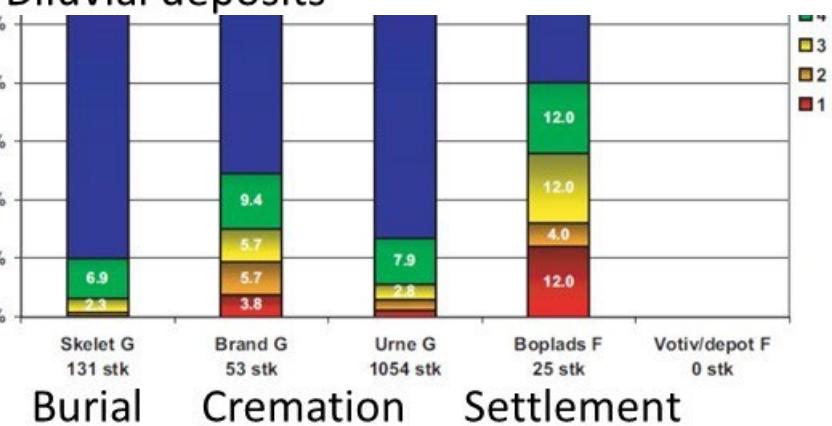
- Corrosion works best in a sandy soil (oxygen access)
- Chlorides accelerate corrosion
- Iron corrodes somewhat faster in the western parts of Denmark



Aeolian sand      Moraine      Diluvial deposits

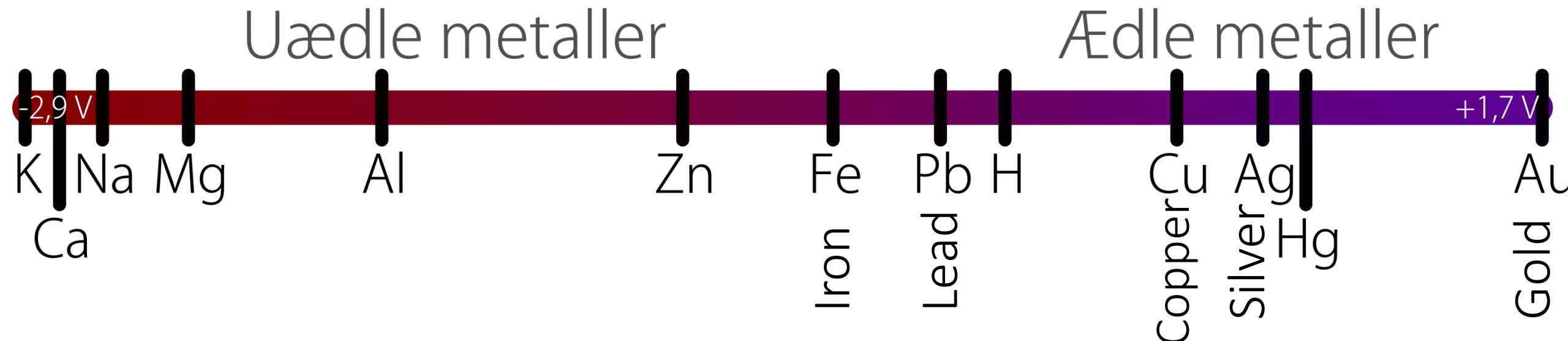


oxidation layer (identical to hammer scale from forging. We'll get back to that)

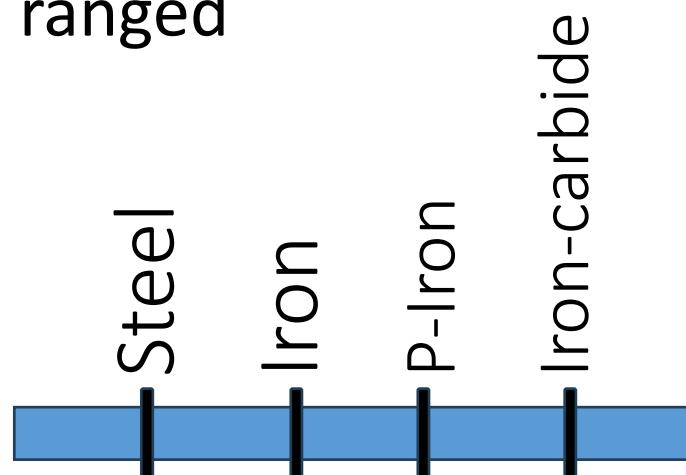


- Iron is better preserved in cremation graves (protective layer)

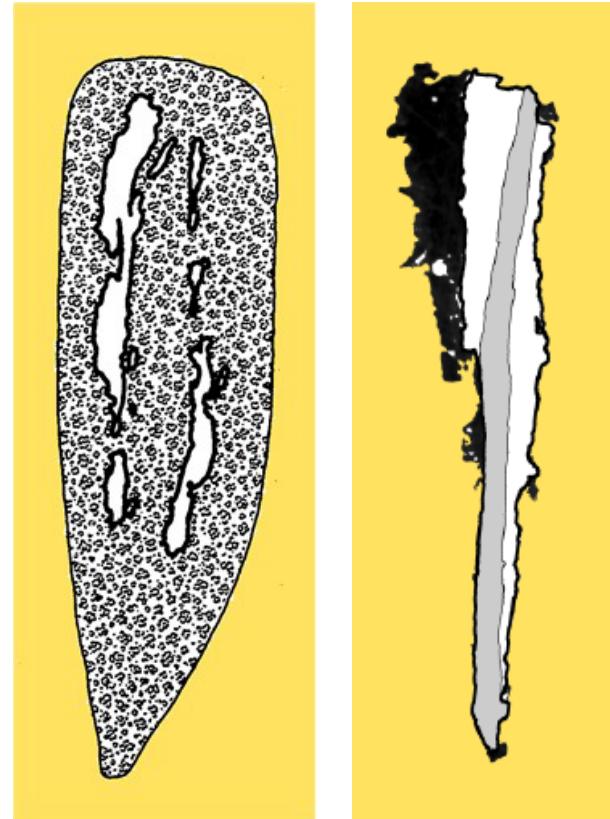
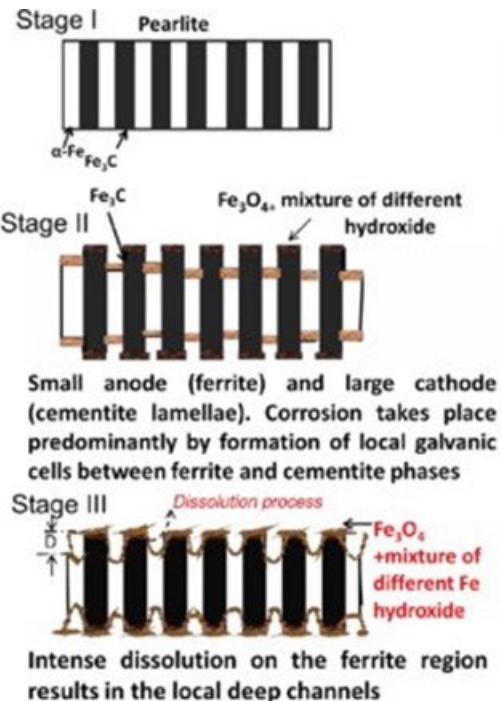
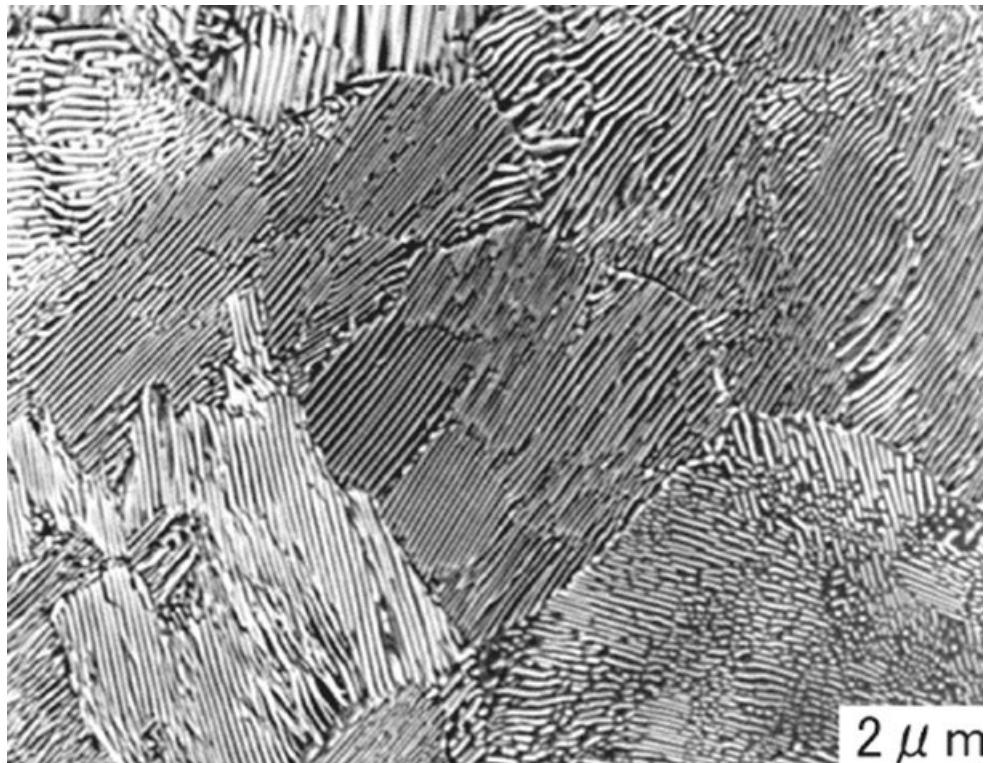
# Different materials



- If in contact, the metal to the left will corrode and the other will not
- Even the different iron types can be ranged



# Steel

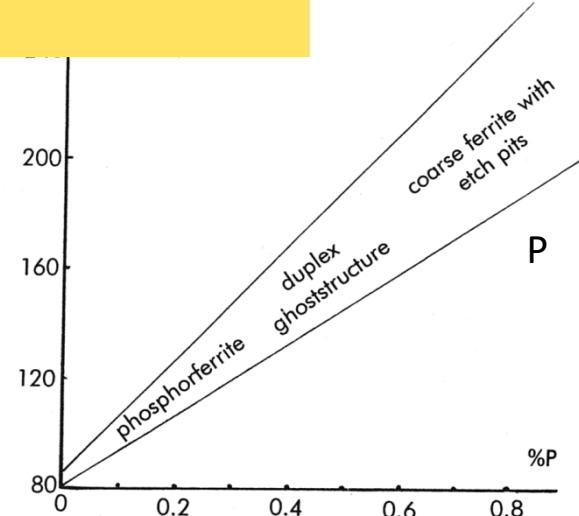
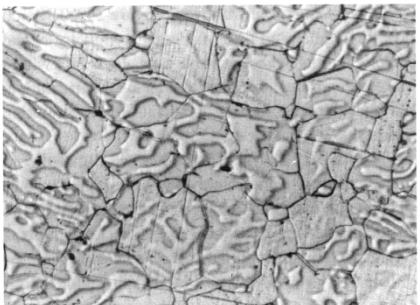
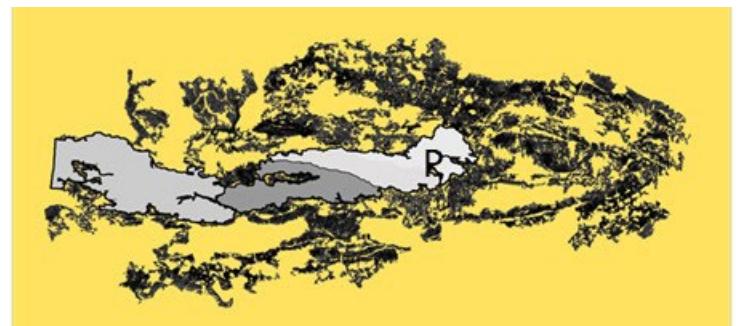
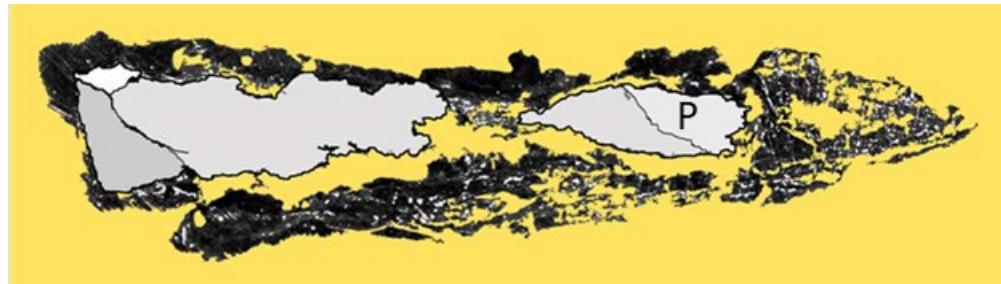


- Steel consists of thin layers of iron and iron carbide. A more noble iron carbide causes the iron to corrode faster than it would otherwise.
- The result is that steel will corrode faster than pure iron

\*Lyngstrøm, HS 2008, *Dansk jern: - en kulturhistorisk analyse af fremstilling, fordeling og forbrug*. vol. serie C bind 5, 1 edn, Det Kongelige Nordiske Oldskriftselskab, København. Nordiske Fortidsminder

# Phosphorous in iron

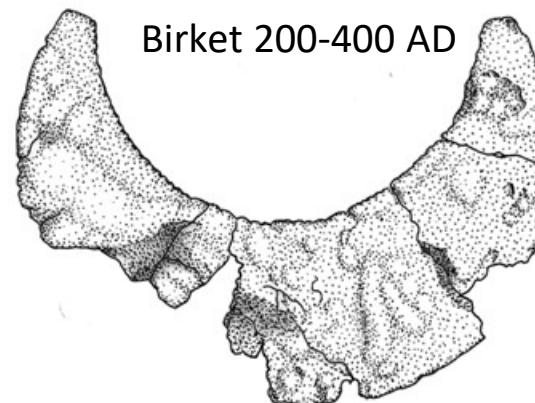
Nørre Sandegård



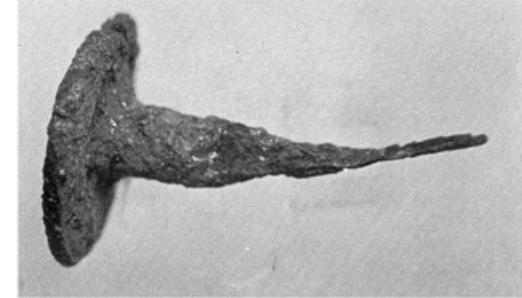
V.F. Buchwald: Iron and Steel in Ancient Times; Det Kongelige Danske Videnskabernes Selskab, Copenhagen (2005)



Hårup, 0-200 AD



Birket 200-400 AD

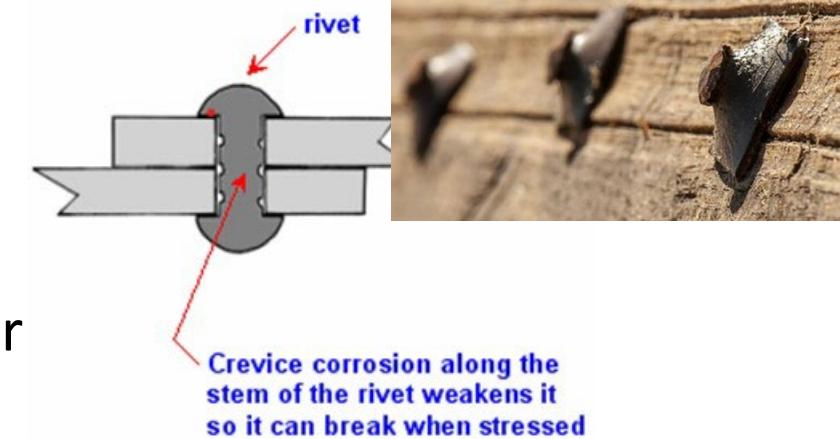


It is likely that crevice corrosion will play a major role

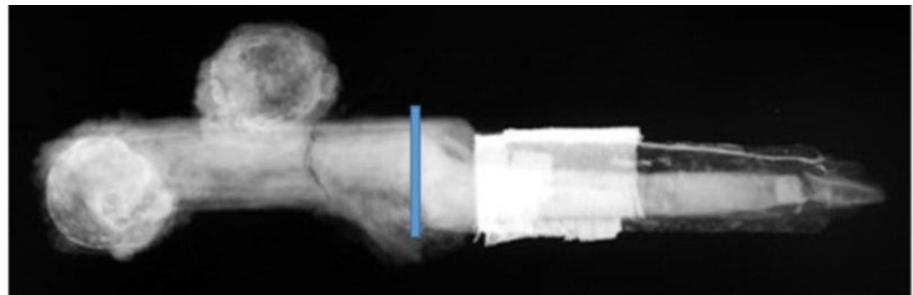
The iron will corrode in the gap between the stem of the nail and the wood

Lyngstrøm, H. S. (2008). *Dansk jern: - en kulturhistorisk analyse af fremstilling, fordeling og forbrug.*

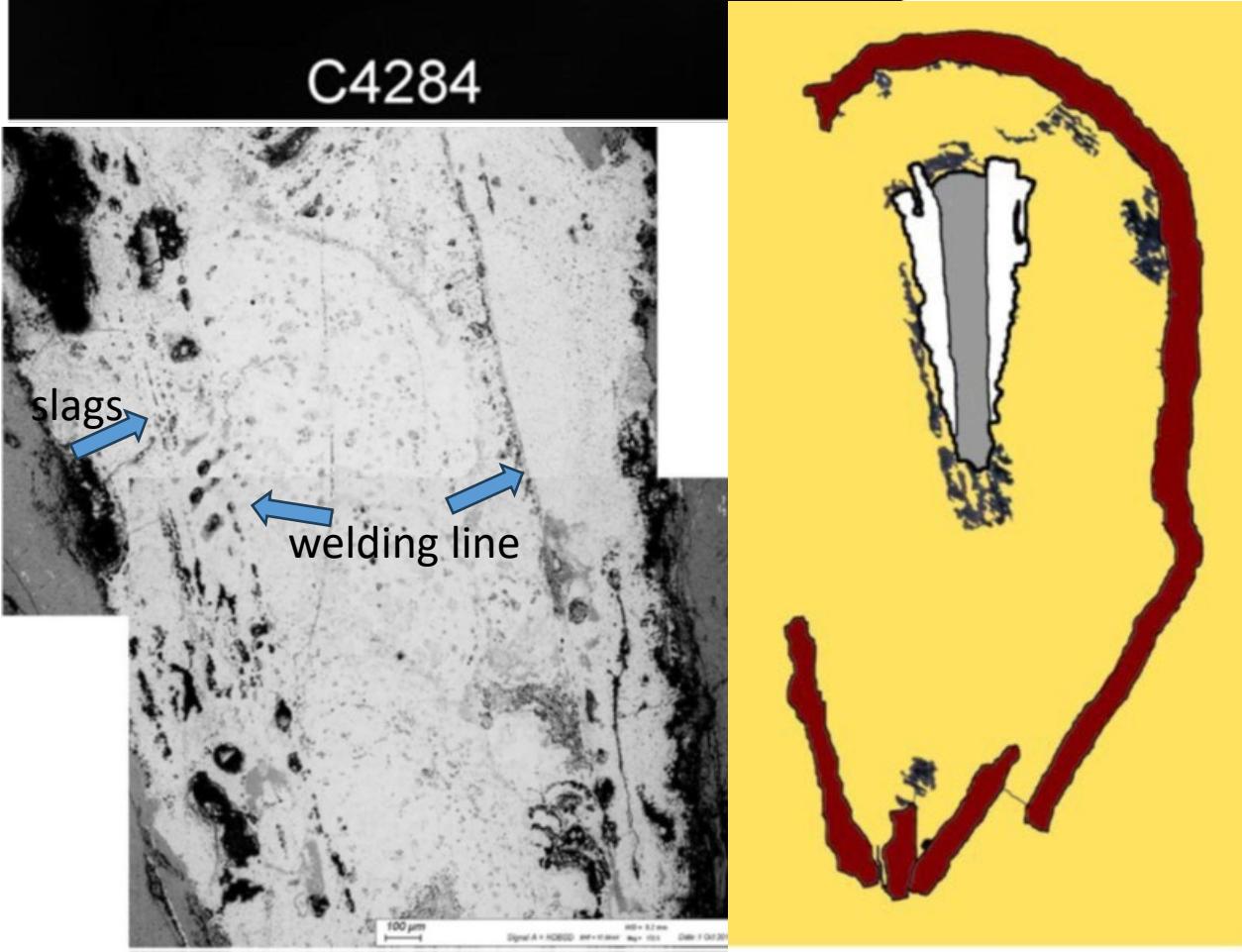
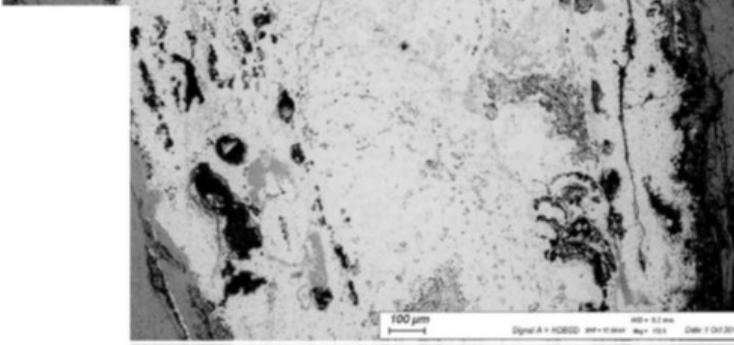
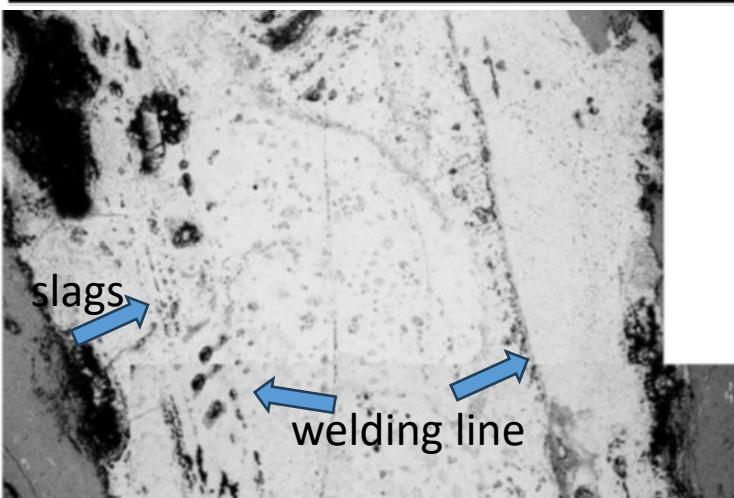
Phosphorous can be used as a hardener or to reduce corrosion



# If it's all gone, then what do we do?

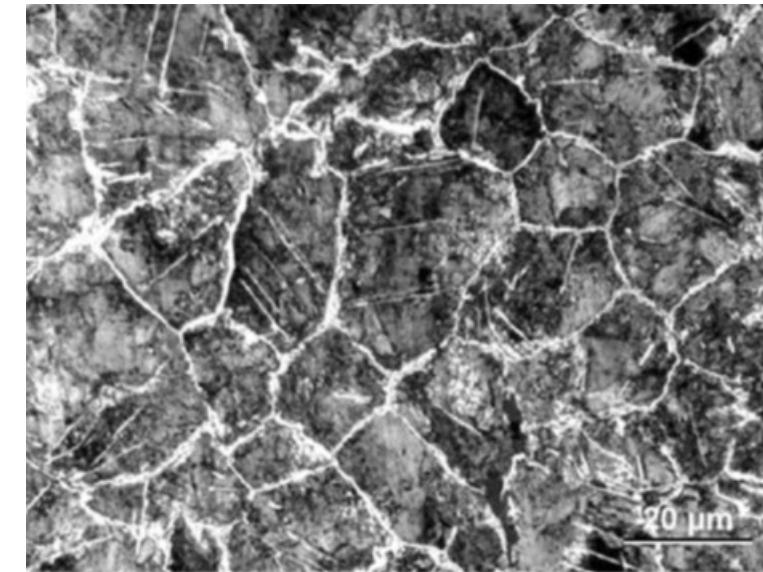
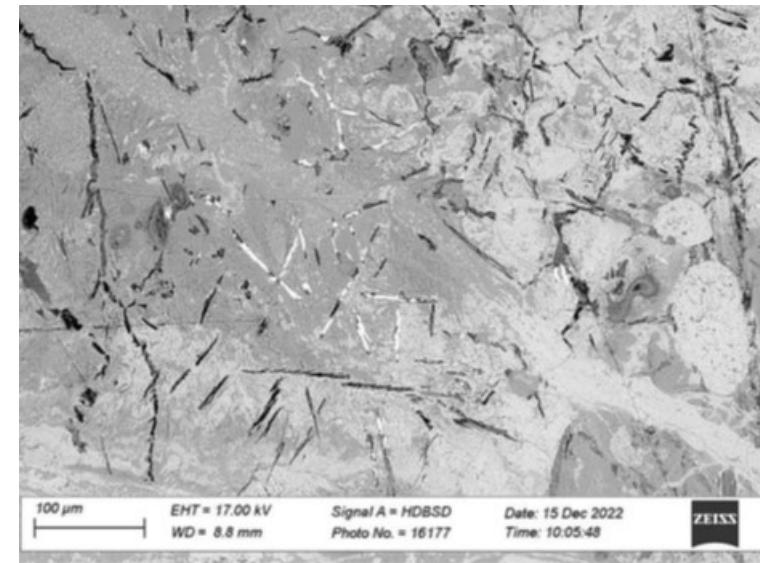


C4284



Knife Hvilehøj

Corrosion



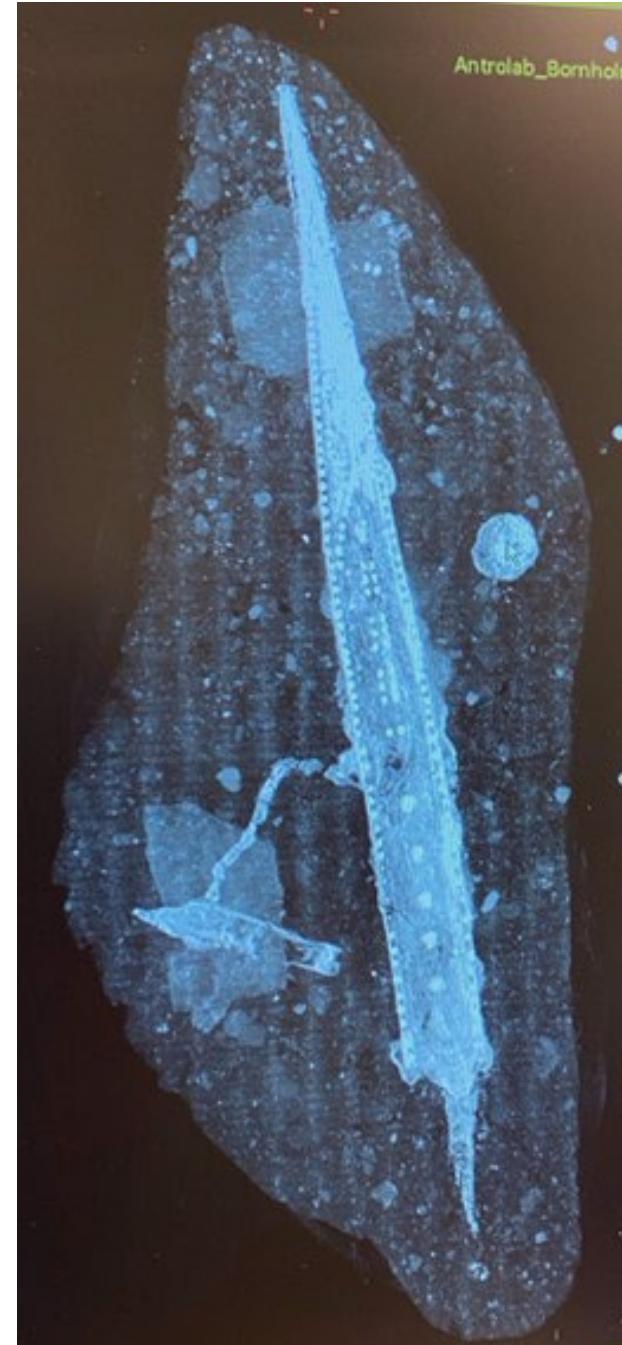
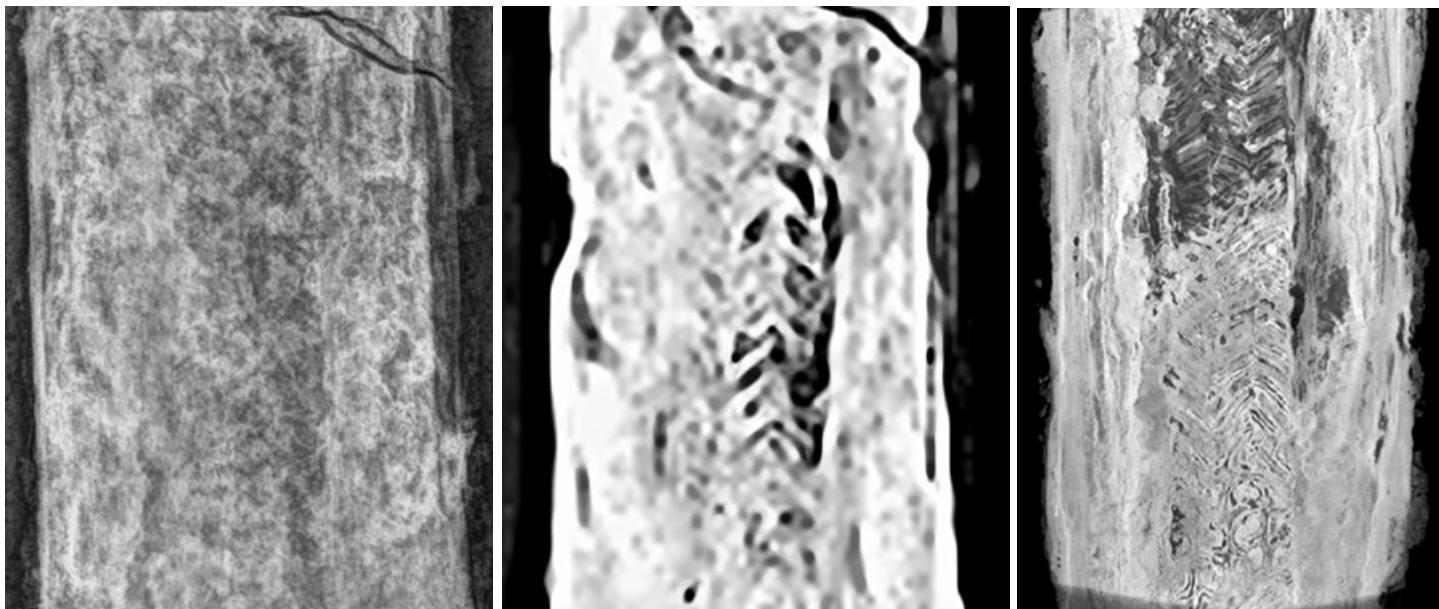
Steel,  
Skövde

- In many cases, a forging technique or the quality of iron or steel can be reconstructed based on traces in the corrosion

# Larger structures as seen by X-ray

BMR 1409 x1642

HEM 5332 x237

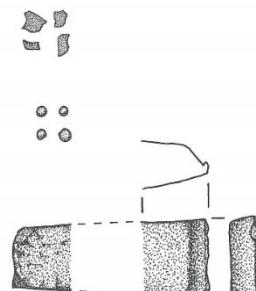
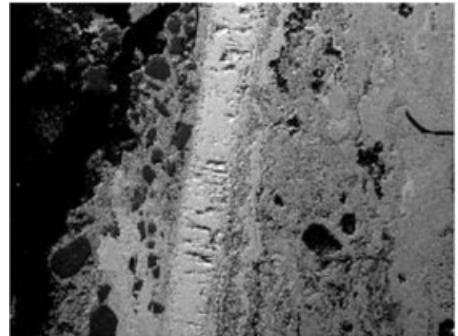
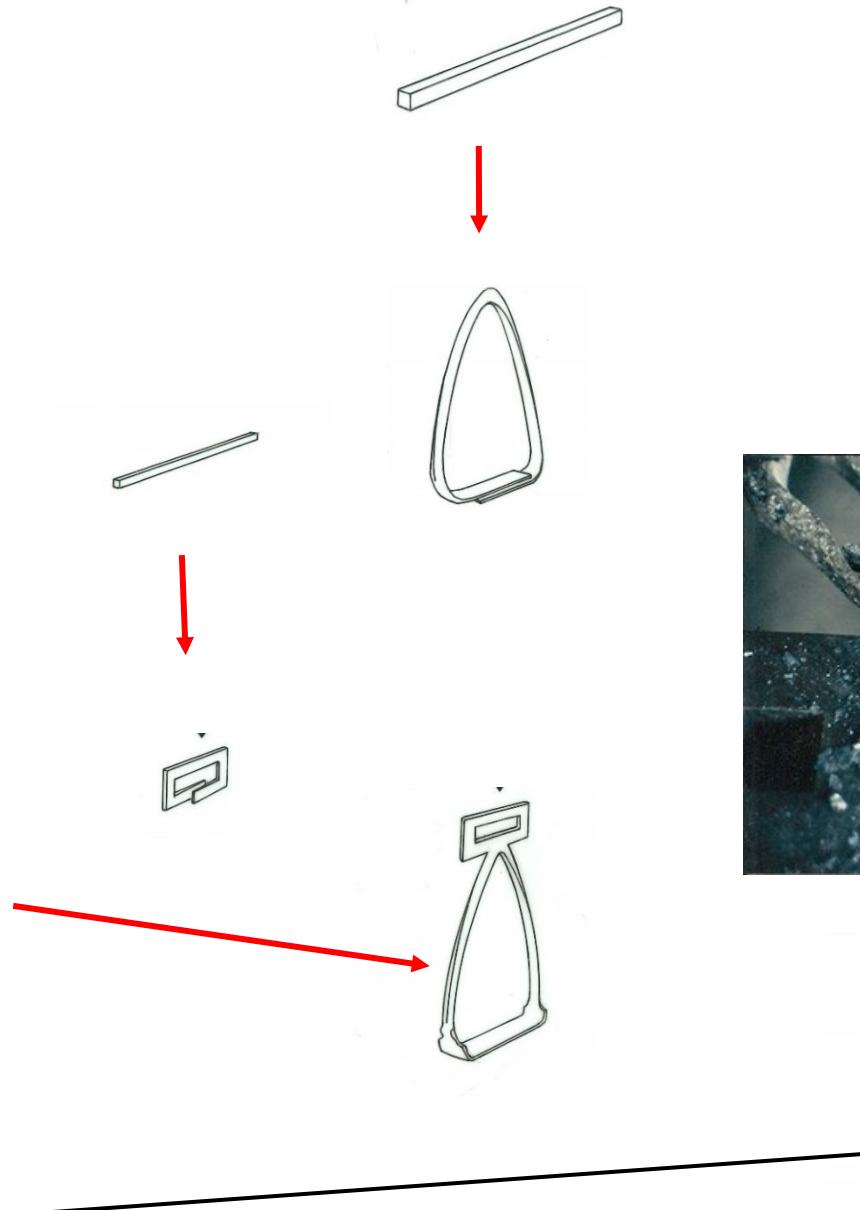


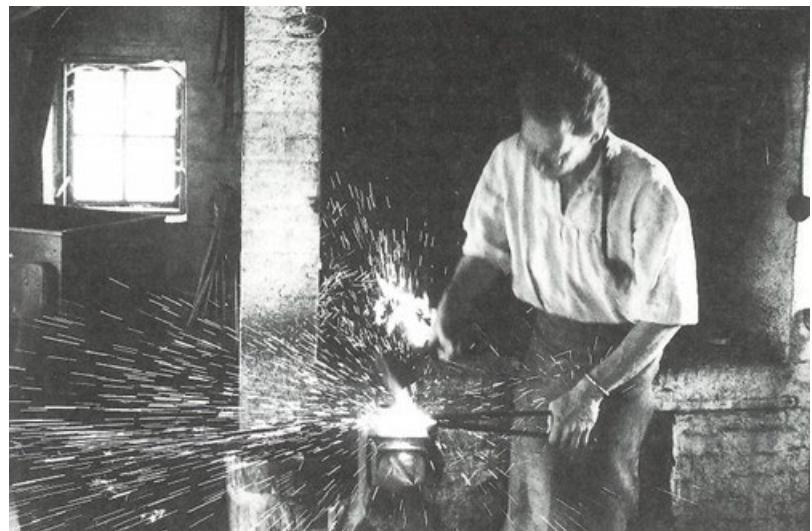
Carsten Gundlach, Department of  
Applied Mathematics and Computer  
Science, DTU

Chiara Villa  
University of Copenhagen  
Department of Forensic Medicine

It's all about oxidation

MSS 1704	1	2
Jernbarre 1	608 g	501 g
Antal varmer	35	41
Antal hammerslag	2007	2109
Antal minutter	59	63
BØJLE	314	299
Jernbarre 2	108 g	117 g
Antal varmer	24	18
Antal hammerslag	988	813
Antal minutter	43	38
REMHOLDER	72 g	80 g
Antal svejsninger	3	2
STIGBØJLE	345 g	361 g
Antal minutter	117	106
Trækul	9 kg	8 kg
Amboltslagge	69 + 34 g	98 g
Esseslagge	37 g	41 g





(Lyngstrøm 1995, fig. 12)

The dance around the anvil --

globules



scales



## Anvil slag – from bar to stirrup

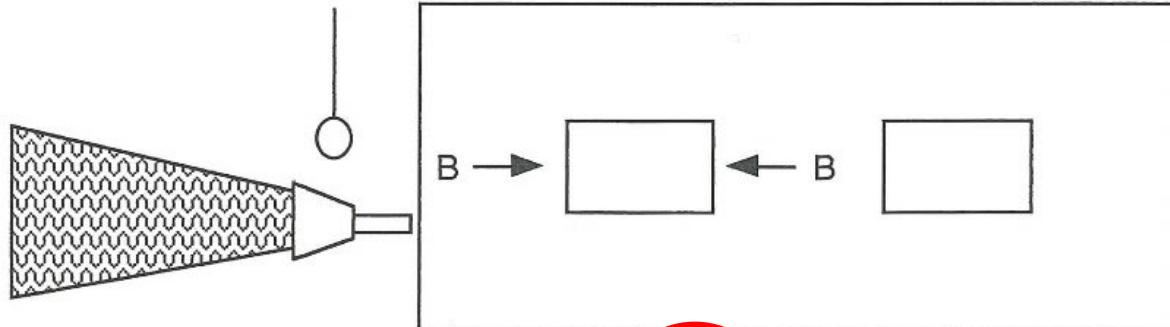


Small globules with a smooth surface - highly magnetic  
Far away from the anvil – may be found along walls or inventory

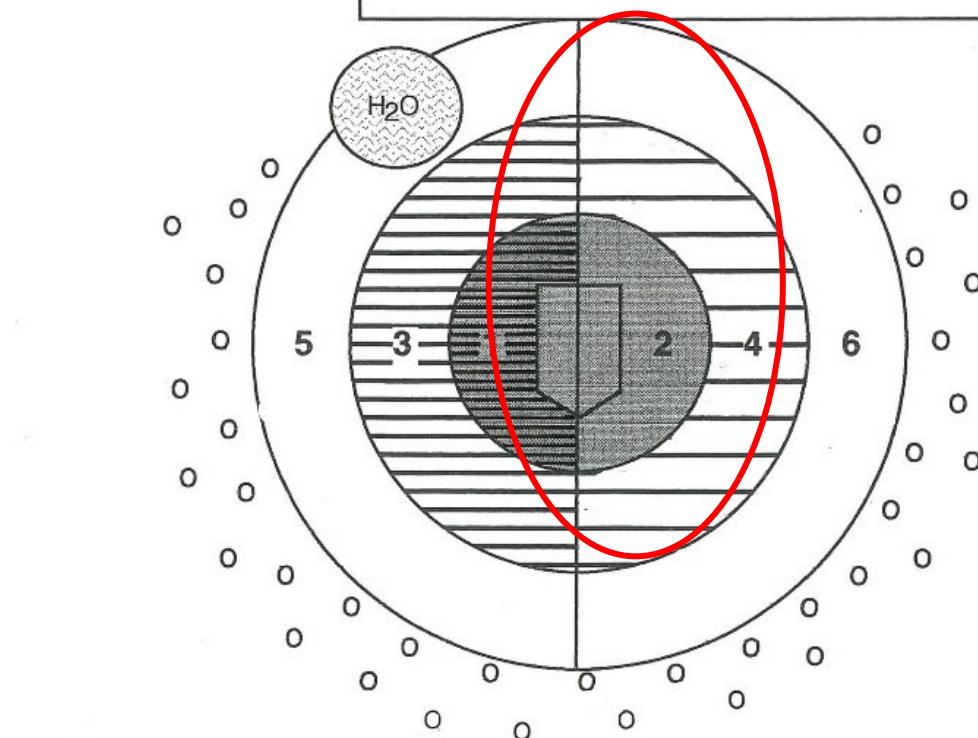


Small scales with smooth surface - highly magnetic  
Close to the anvil – may be found at “the opposite side”

## BAR-SMITHING



HEARTHSLAG

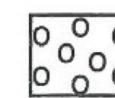


Distance between the rings: 0.5 m

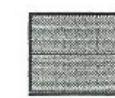
ANVILSLAG



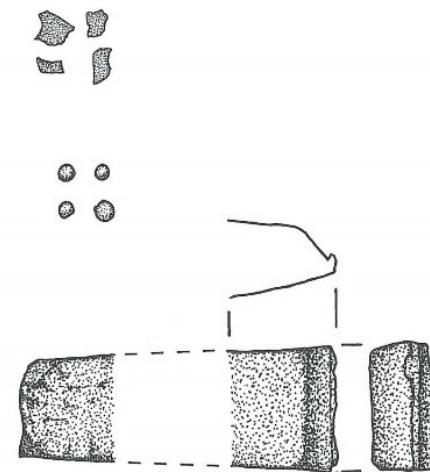
Scales



Globules



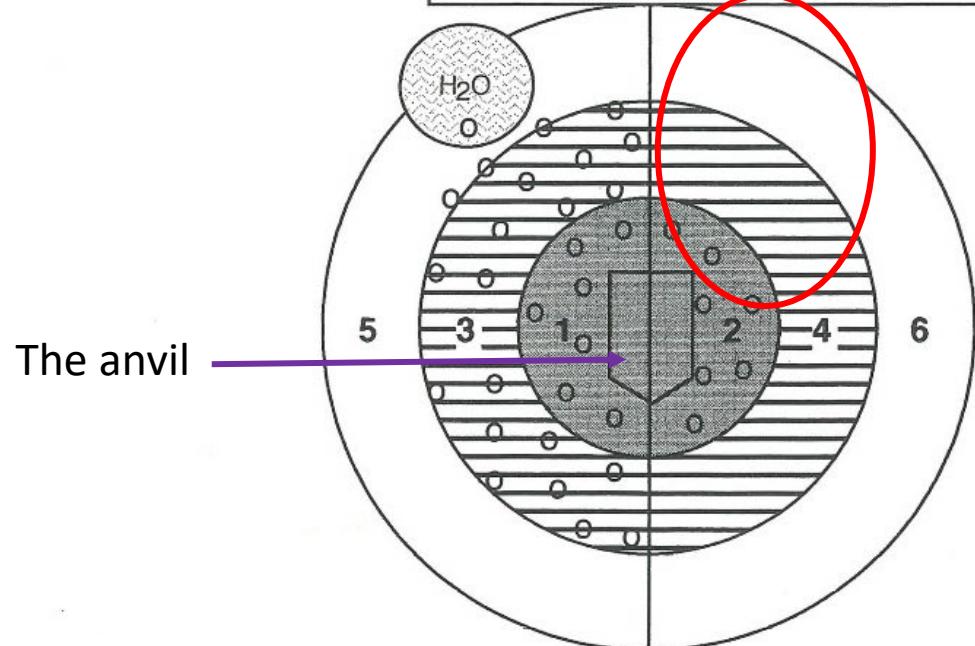
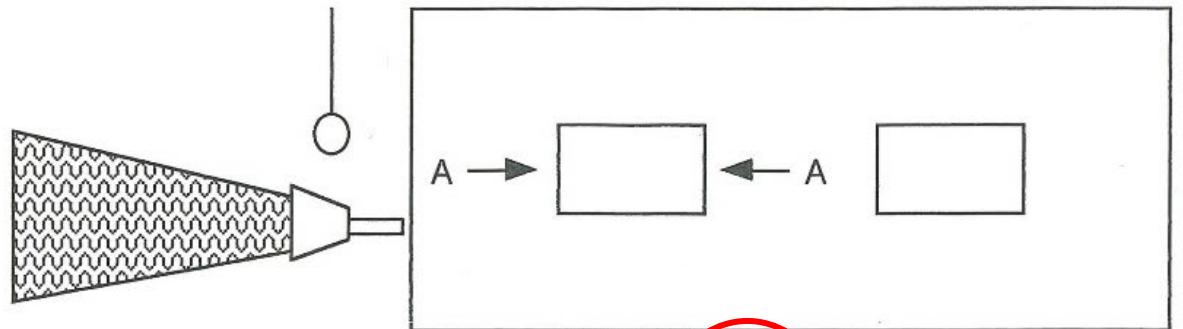
Parts of the bar



The blacksmith



## BLOOM-SMITHING

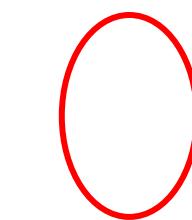


Distance between the rings: 0.5 m

## HEARTHSLAG



The blacksmith



## ANVILSLAG



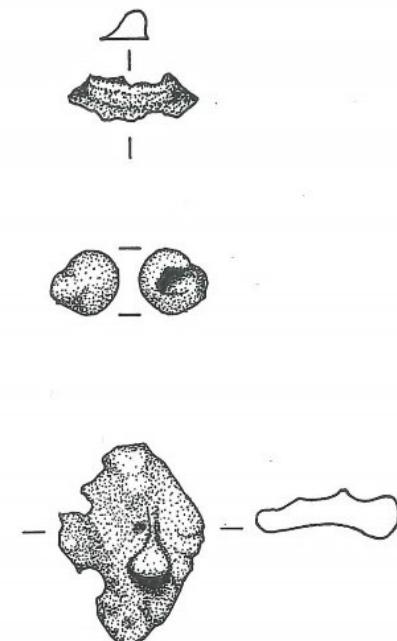
Scales



Globules



Parts of the bloom



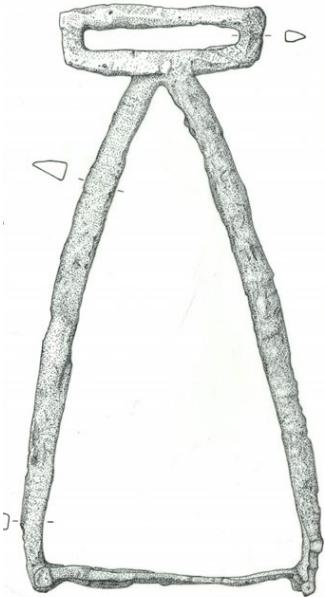
## Anvil slag – from bloom to bar



Large globules with an uneven surface - partly magnetic  
Close to the anvil – some at “the opposite side”

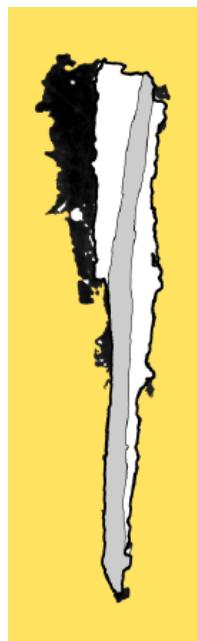
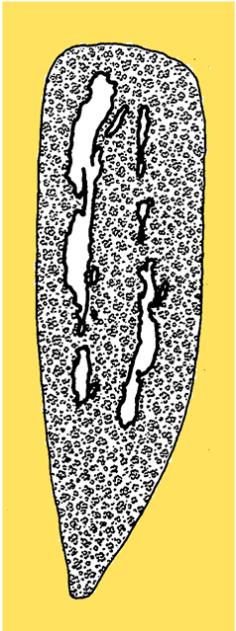


Large scales with an uneven surface – partly magnetic  
Close to the anvil



## Some **conclusions** after the dance around the anvil:

- A stirrup, as those found in Ketting grave I and X, can be forged in less than two hours
  - The the anvil slag changes as forging progresses
  - Weapons from cremation graves will be protected from corrosion by an oxidation layer similar to hammerscale from smithing
- Steel corrodes faster than iron and iron faster than phosphorous iron
- The corrosion depends on the geology and the local environment
- Even if everything is converted to corrosion, traces of forging techniques and the quality of metal can be found



Consecrated by water. Wetland weapon deposits in a temporal and regional perspective. What we learn from them that we do not learn from graves.

Rasmus Birch Iversen, Moesgaard Museum

# Consecrated by water

## Wetland weapon deposits in a temporal and regional perspective

What we learn from them that we do not learn from graves



Rasmus Birch Iversen

Brainstorm

Våbenofringer som tidsligt og rumligt fænomen

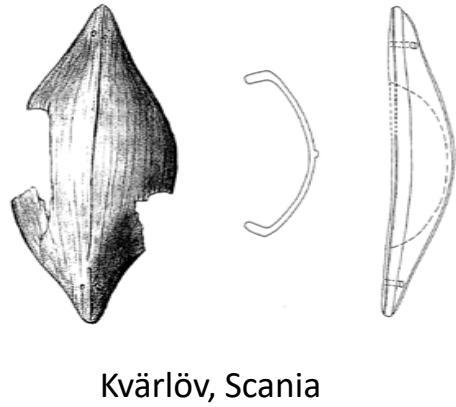
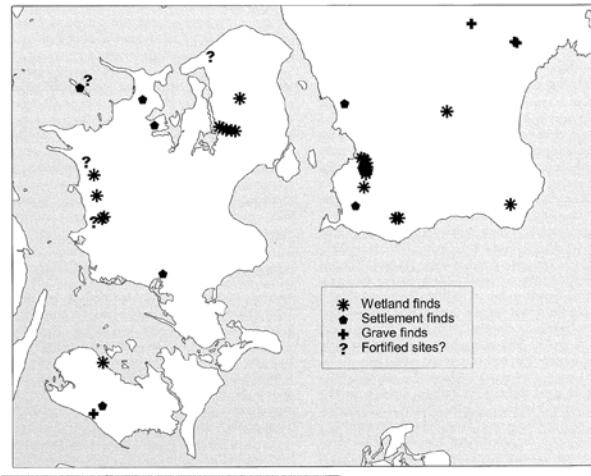
Tidlige ofringer: Hjortspring

Sene ofringer: Germansk jernalders offerfund, Vikingetid og middelalder

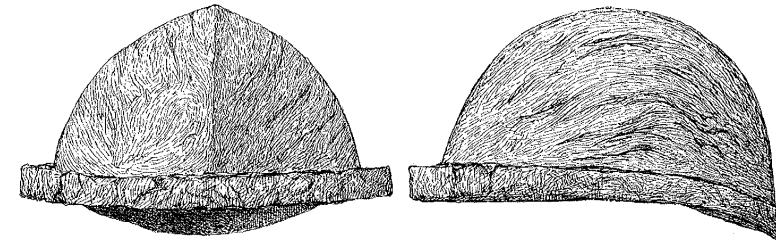
Hvad kan de store ofringer bruges til i typologisk og kronologisk: Når vi har dem kan de det hele:  
Kronologi, typologi, hærstrukturer, kamp, historiske vidnesbyrd (med regional bias).

Grave og Krigsbyttefund: Gravene som hjælp til opdeling af små fund og fund uden  
udgravningsdata

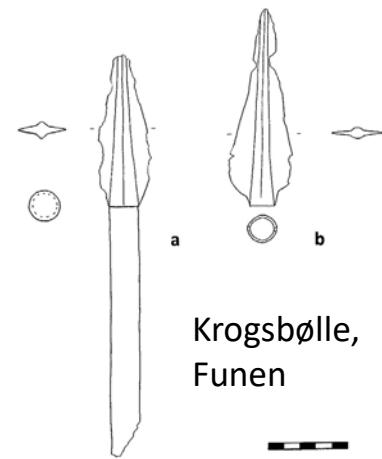
De store krigsbyttefund som overlegne til data om Organisation og fintypologi



Kvärlöv, Scania

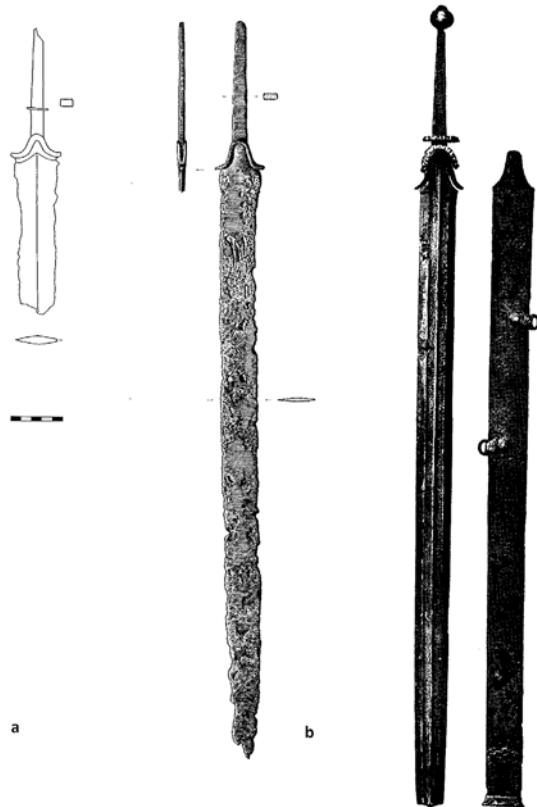


Uglemose, Lolland

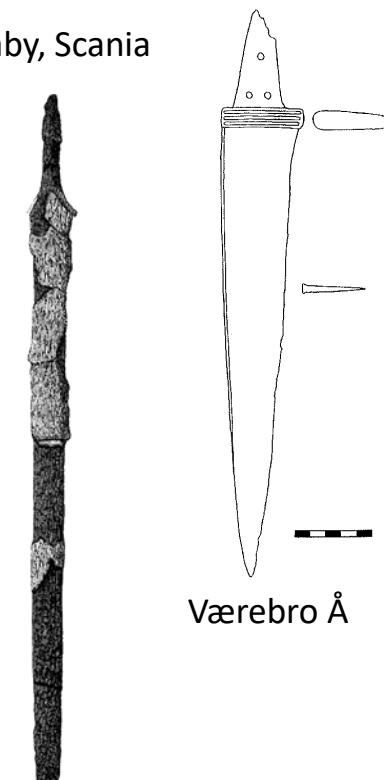


Krogsbølle,  
Funen

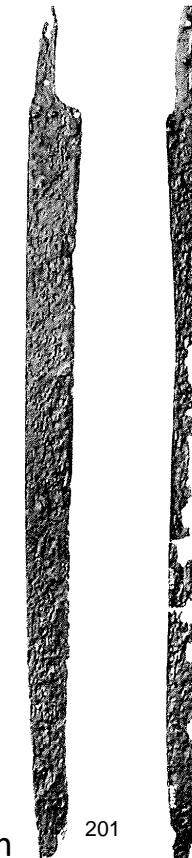
Værebro Å Tissø Lindholmgård



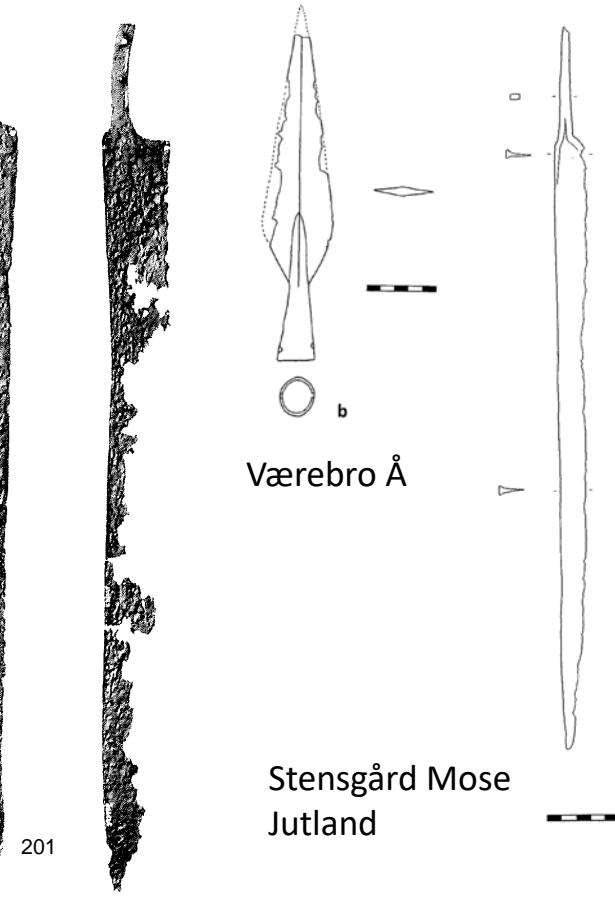
Nosaby, Scania



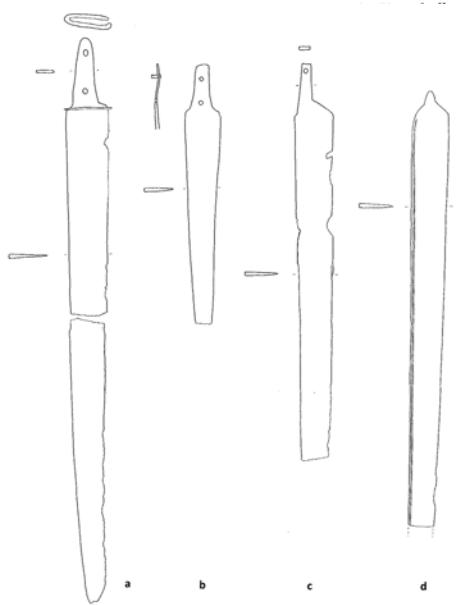
Værebro Å



Præstemosen

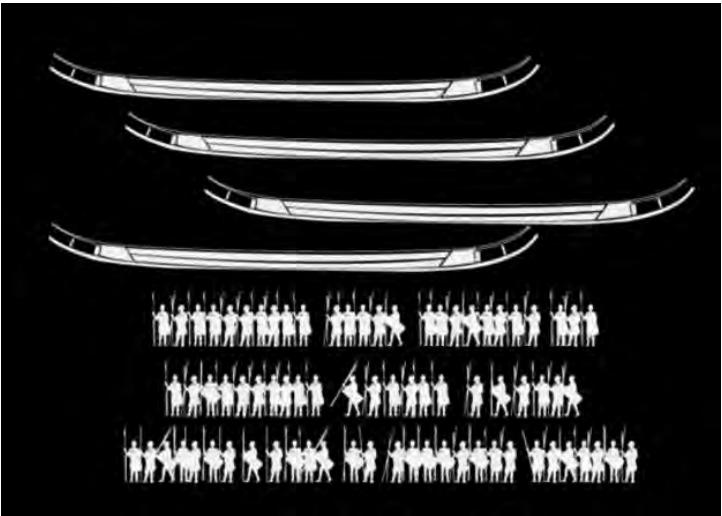


Stensgård Mose  
Jutland



All from Martens 2011

# Hjortspring 350 BC.



64 shields  
138 iron spear heads  
31 bone spear heads  
11 single-edged swords  
11-12 chain mail shirts

64 men with 2-3 pole-arms  
11 "commanders"

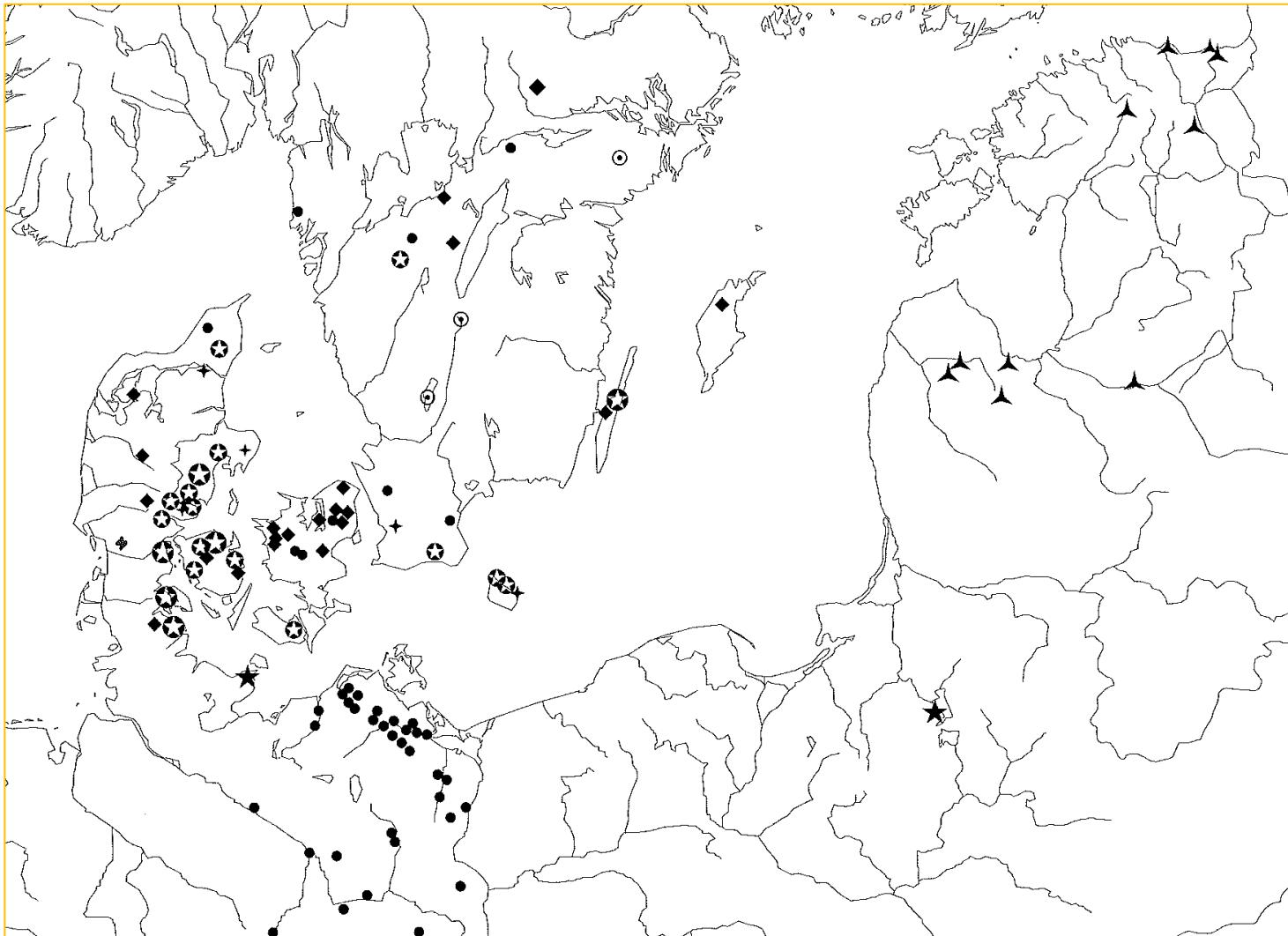


18 man canoe

Rosenberg 1937  
Randsborg 1995



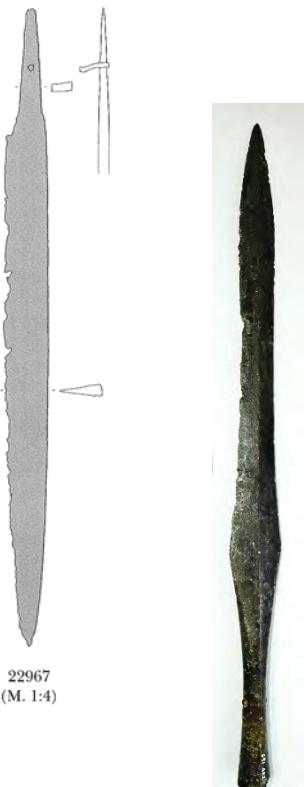
# Wetland deposited weapons in the Roman and Migration period



Landsdel	Wagg Boats den /Boat bowl parts s	Woo n parts ols	Wago n hes	Fireto Brooc hes	Knive s	Tools s	Shiel d Combequip ment Belts	Ridin g Arro ws gear	Spear and head equips/sta kes	Swords Bog/L Stre ake	River Dry	Settle find
Vimose	Fyn	1	1	1	1	1	1	1	1	1	1	1
Nydam	Jylland	1	1	1	1	1	1	1	1	1	1	1
Ejsbøl	Jylland	1	1	1	1	1	1	1	1	1	1	1
Thorsberg	Slesvig	1	1	1	1	1	1	1	1	1	1	1
Kragehul	Fyn	1	1	1	1	1	1	1	1	1	1	1
Illerup	Jylland			1	1	1	1	1	1	1	1	1
Skedemosse	Öland			1	1	1	1	1	1	1	1	1
Tranebær	Jylland		1					1	1	1	1	1
Vingsted	Jylland		1			1	1	1	1	1	1	1
Hedelisker	Jylland				1	1	1	1	1	1	1	1
Illemose	Fyn				1	1	1		1	1	1	1
Sørup	Sjælland					1	1	1	1	1	1	1
Knarremose	Bornholm						1	1	1	1	1	1
Finnestorp	Västergötland			1			1	1	1	1	1	1
Hassle-Bösarp	Skåne							1	1	1	1	1
Techelwitz	Holstein						1		1	1	1	1
Villestofte	Fyn							1		1	1	1
Balsmyr	Bornholm					1					1	1
Porskjær	Jylland						1	1		1	1	1
Trinnemose	Jylland								1	1	1	1
Dallerup	Jylland							1	1	1	1	1
Vemmetofte Mose	Sjælland							1				1
Dalby	Öland								1	1	1	1
Vellinge Mose	Fyn									1	1	1
Langsee	Slesvig									1	1	1
Gudingsåkrarna	Gotland									1	1	1
Grimsöbodar	Västmanland									1	1	1
Ballerup	Sjælland									1	1	1
Söborg Sø	Sjælland									1	1	1
Äversta	Närke								1	1	1	1
Filan	Västergötland									1	1	1
Helge Å	Skåne									1	1	1
Rönne Å	Skåne									1	1	1
Nedergården	Bohuslän									1	1	1
Værebro Å	Sjælland									1	1	1
Grönbæksgård	Sjælland									1	1	1
Ubro	Jylland									1	1	1
Ringsted Å	Sjælland									1	1	1
Rommelsjö	Småland										1	1
Gåsinge	Södermanland										1	1
Perstorps	Västergötland										1	1
Bolmsö	Småland										1	1
Uppåkra	Skåne						1		1	1		1
Bejsebakken	Jylland								1	1		1
Sorte Muld	Bornholm										1	

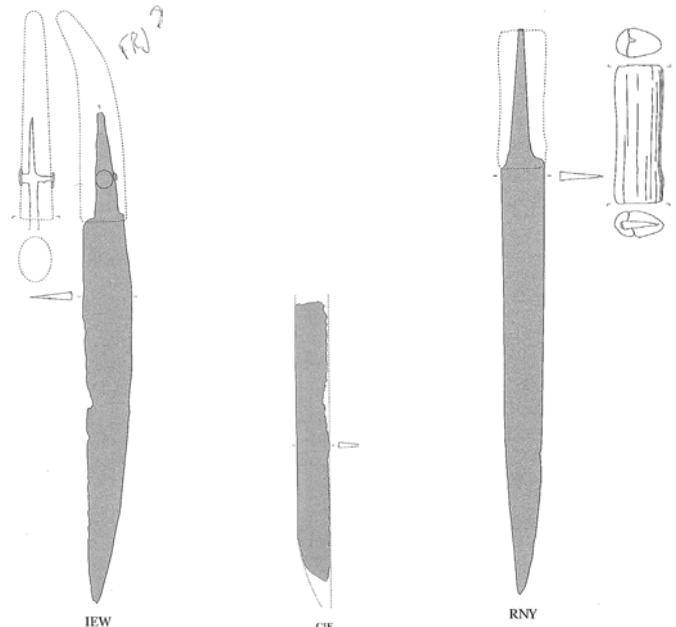
# Late Iron Age wetland deposits

Vimose bog, Funen,  
6th century,  
Nørgård Jørgensen 2008



Alken Enge, Central Jutland  
6th century,  
Ilkjær 2001/Nørgård Jørgensen  
2008/Iversen 2019

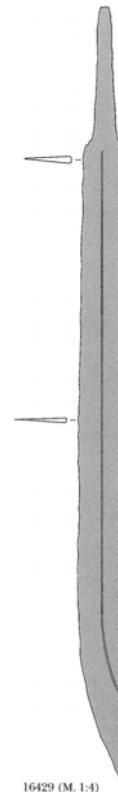
Illerup Ådal, Central Jutland 7th century,  
Nørgård Jørgensen 2008



204



Lake Søborg, Zealand, 750-800  
Nørgård Jørgensen 2008



Lake Alling, Central Jutland,  
Ca. 700,  
Nørgård Jørgensen 2008



Lake Bildsø, Zealand  
Late 7th century,  
Nørgård Jørgensen  
2008

# The Vikings



Tude Å,  
Lund 2004



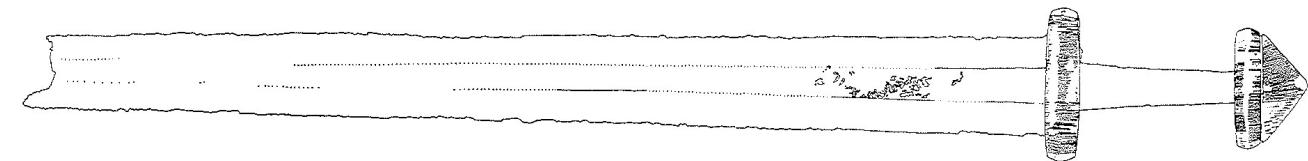
Lake Tissø, Zealand: Jørgensen 1996



Gråsand, West Jutland.  
Ca. 950-1000  
Vikinger i vest 2009.



Kragehul bog find, Funen  
Iversen 2010.



Sjørring lake, Thy. Ca. 1000. Behrend 1970.



Gudenåen near Randers. Ca. 1000. Stidsing 1999.

# Medieval bog found weapons and their parallels

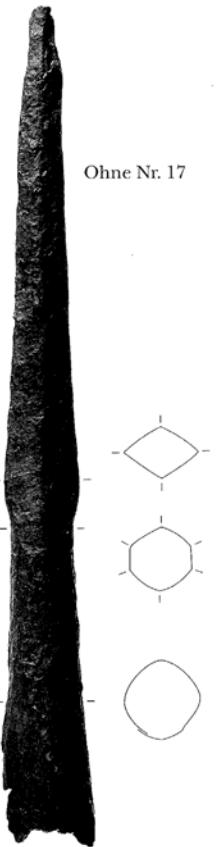


Tønderhus  
Larsen et al. 2010

FU.

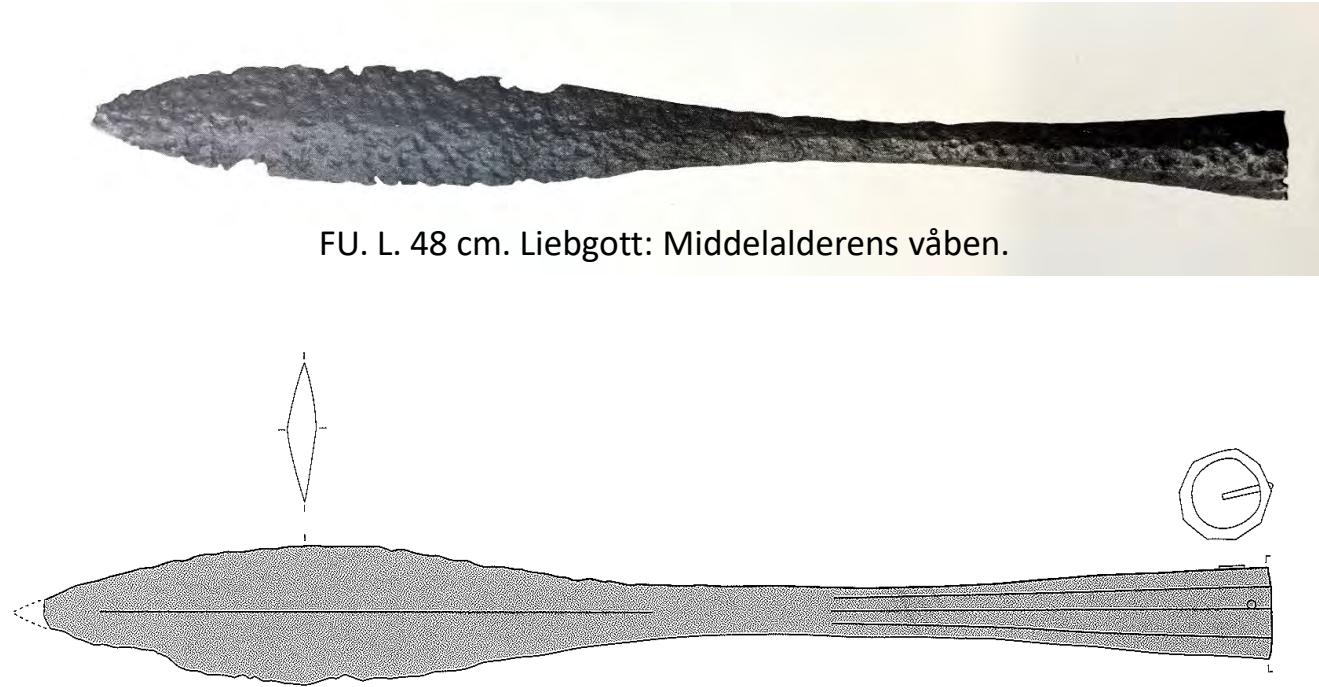
Liebgott:  
Middelalderens våben.

Kragehul bog find  
Iversen 2010

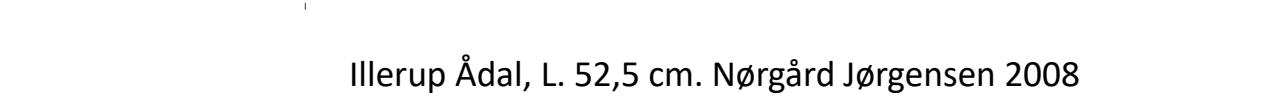


Museet på Koldinghus, MKH 6493.

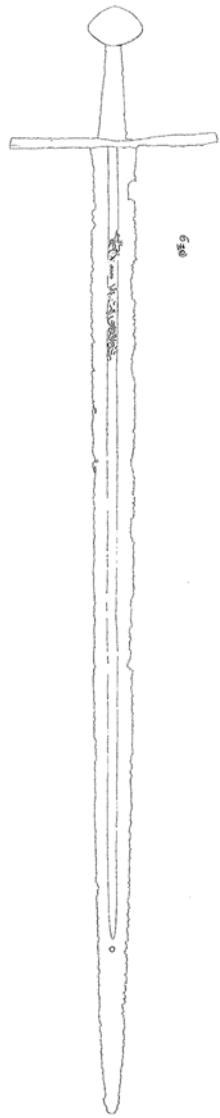
40 cm



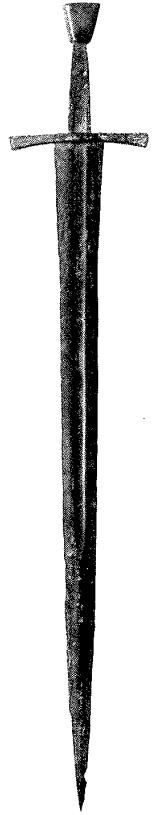
FU. L. 48 cm. Liebgott: Middelalderens våben.



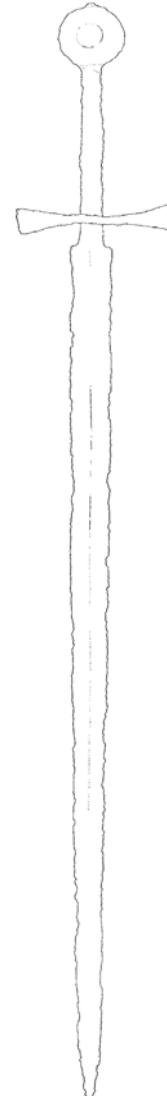
Illerup Ådal, L. 52,5 cm. Nørgård Jørgensen 2008



Esrom Sø, ca. 1200.  
Behrend 1970

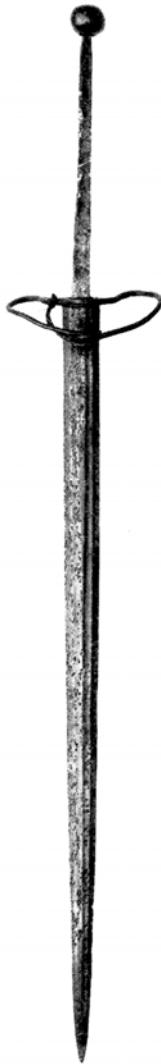


Ordrup mose, ca. 1200  
Behrend 1970

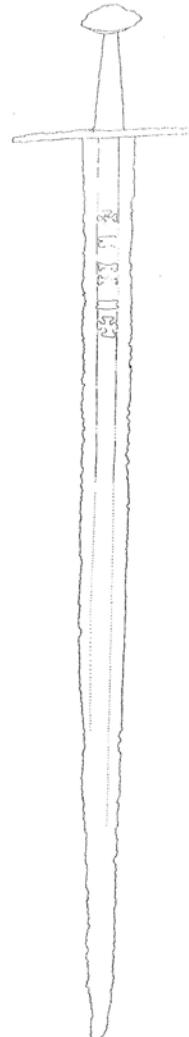


Skafterup å, ca. 1400.  
Behrend 1970

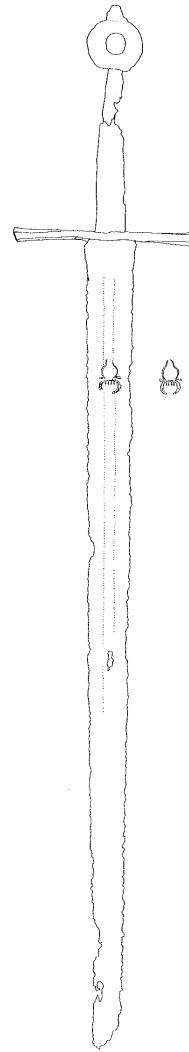
Tude å, ca. 1500  
Behrend 1970



207

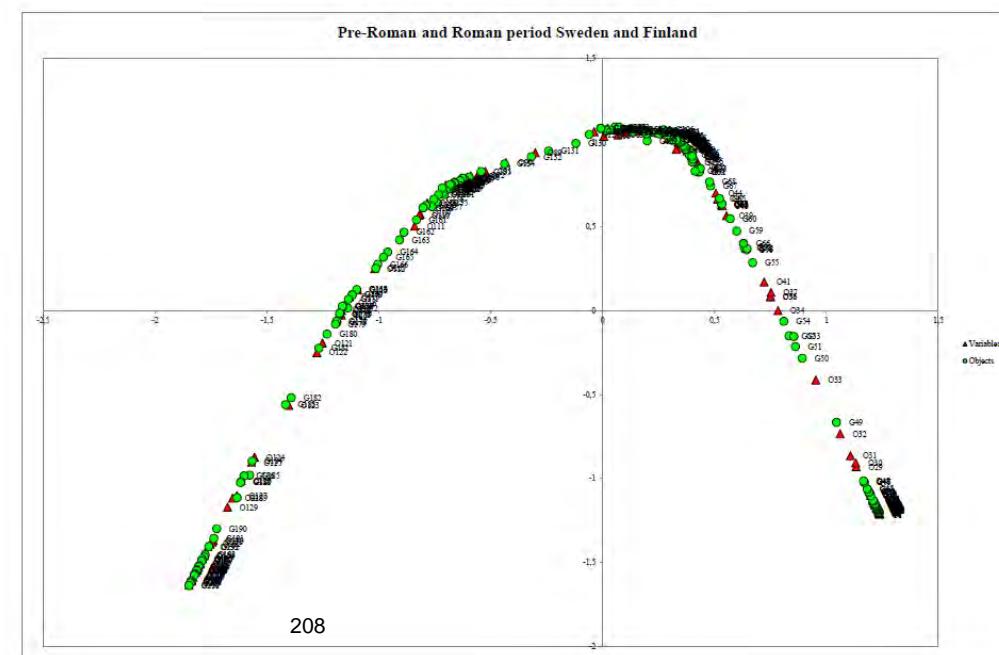
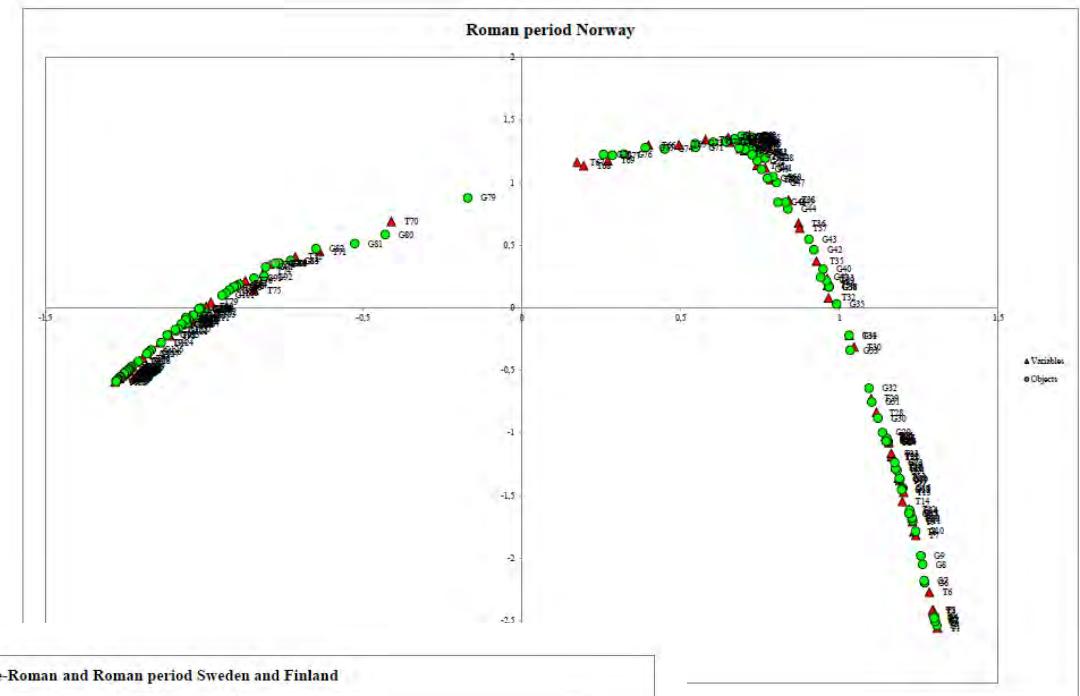
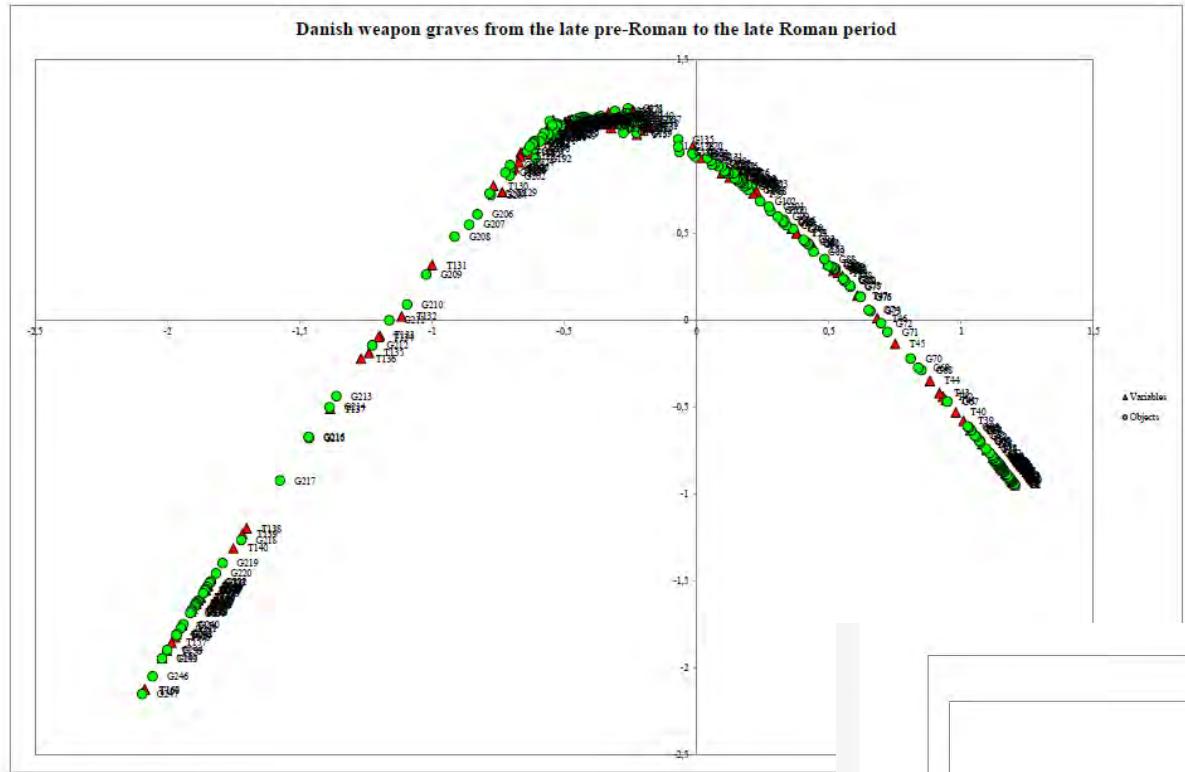


Ingvorstrup, Djursland.  
Ca. 1150.  
Behrend 1970.



Illerup å, ca. 1300.  
Behrend 1970





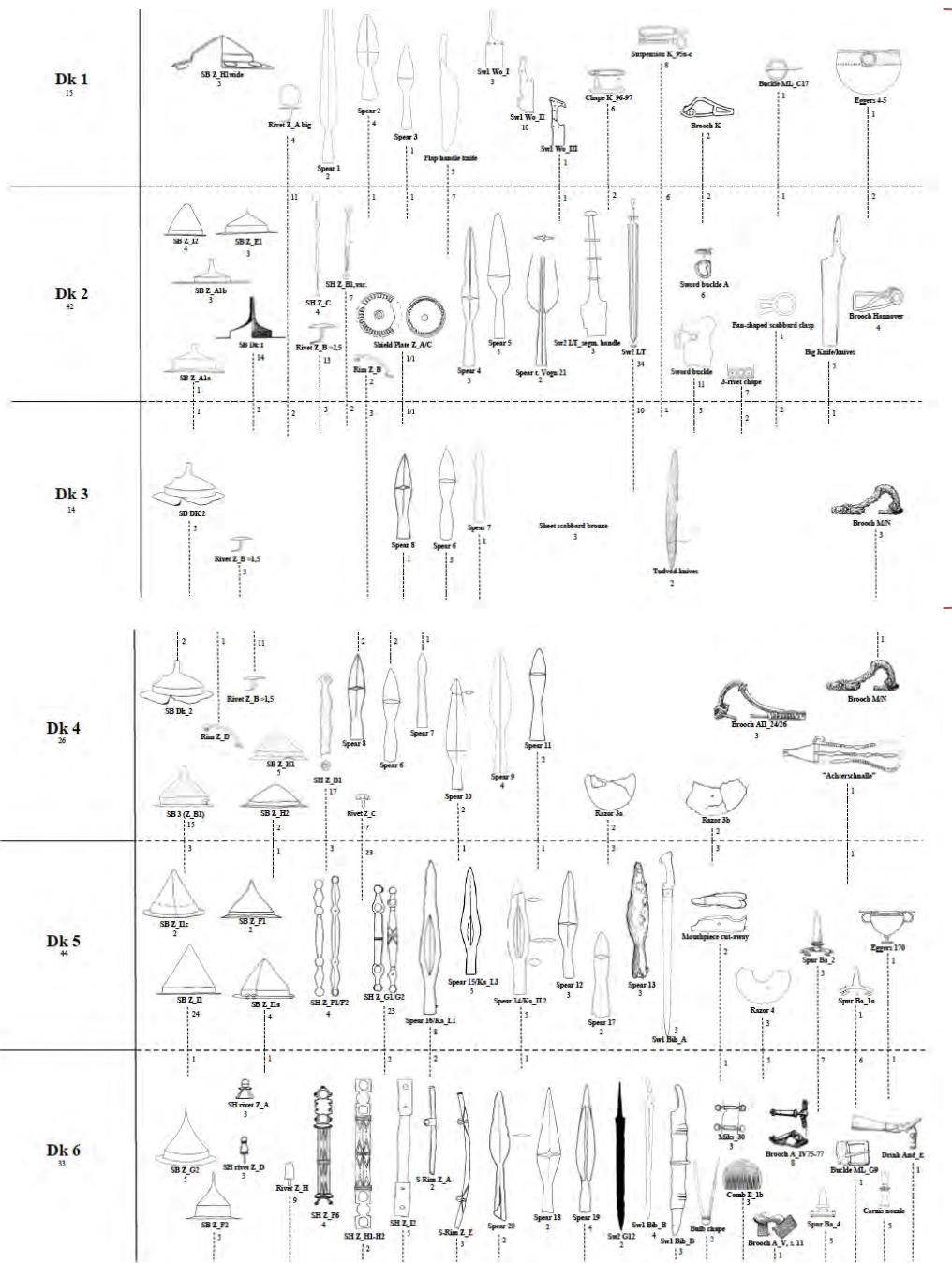
## Weapon grave chronologies

Late pre-Roman to late Roman periods

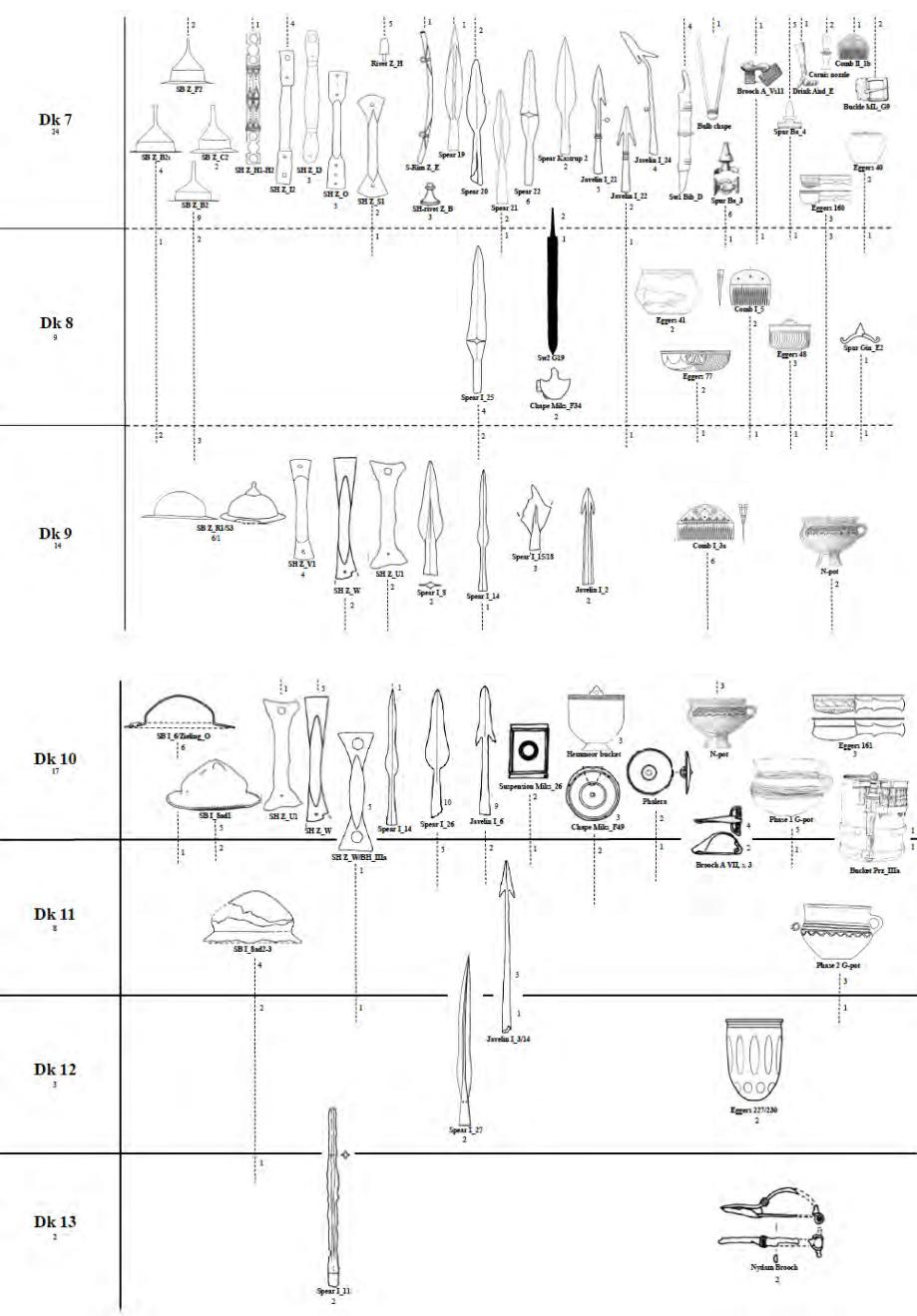
Iversen forthcoming

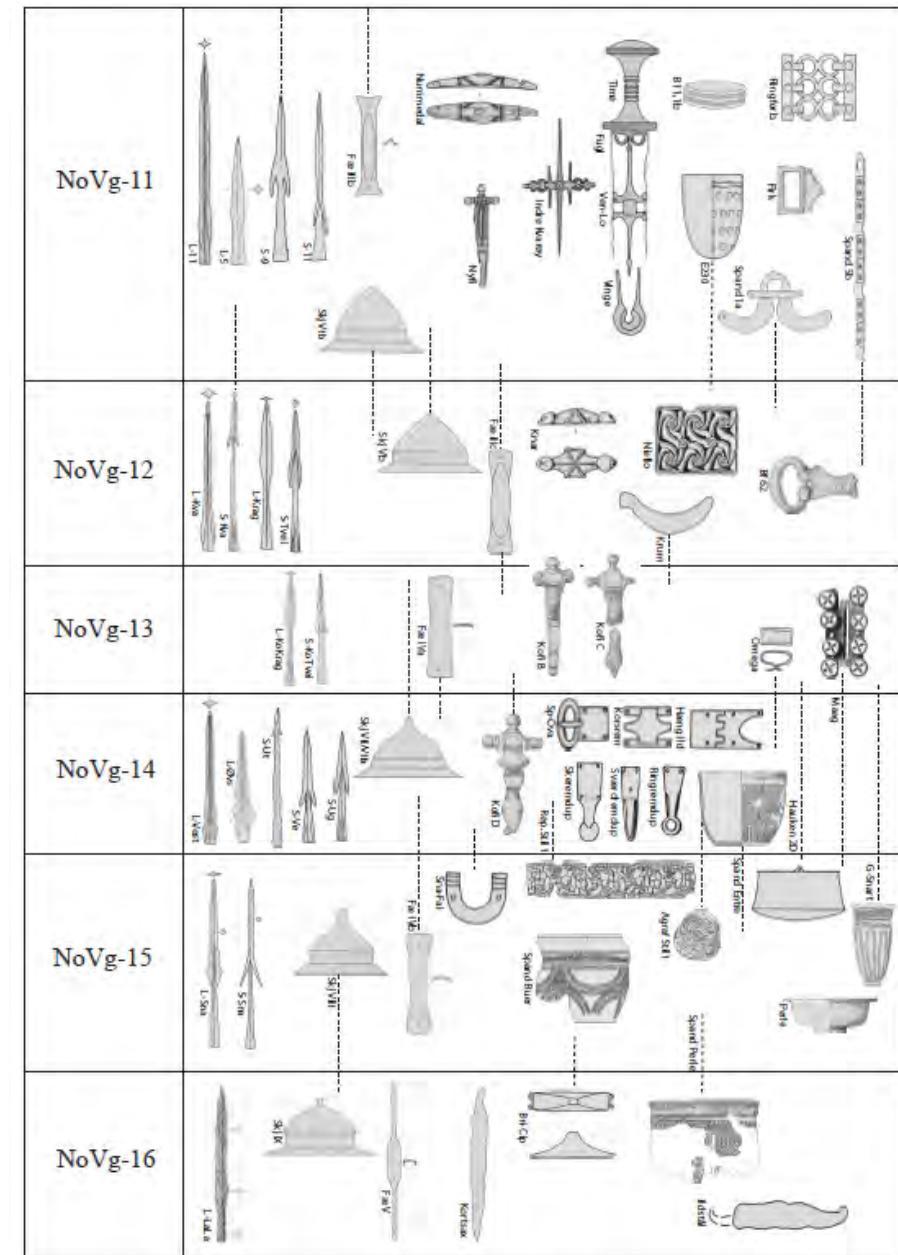
## Early Roman

### Early Roman



### Pre-Roman



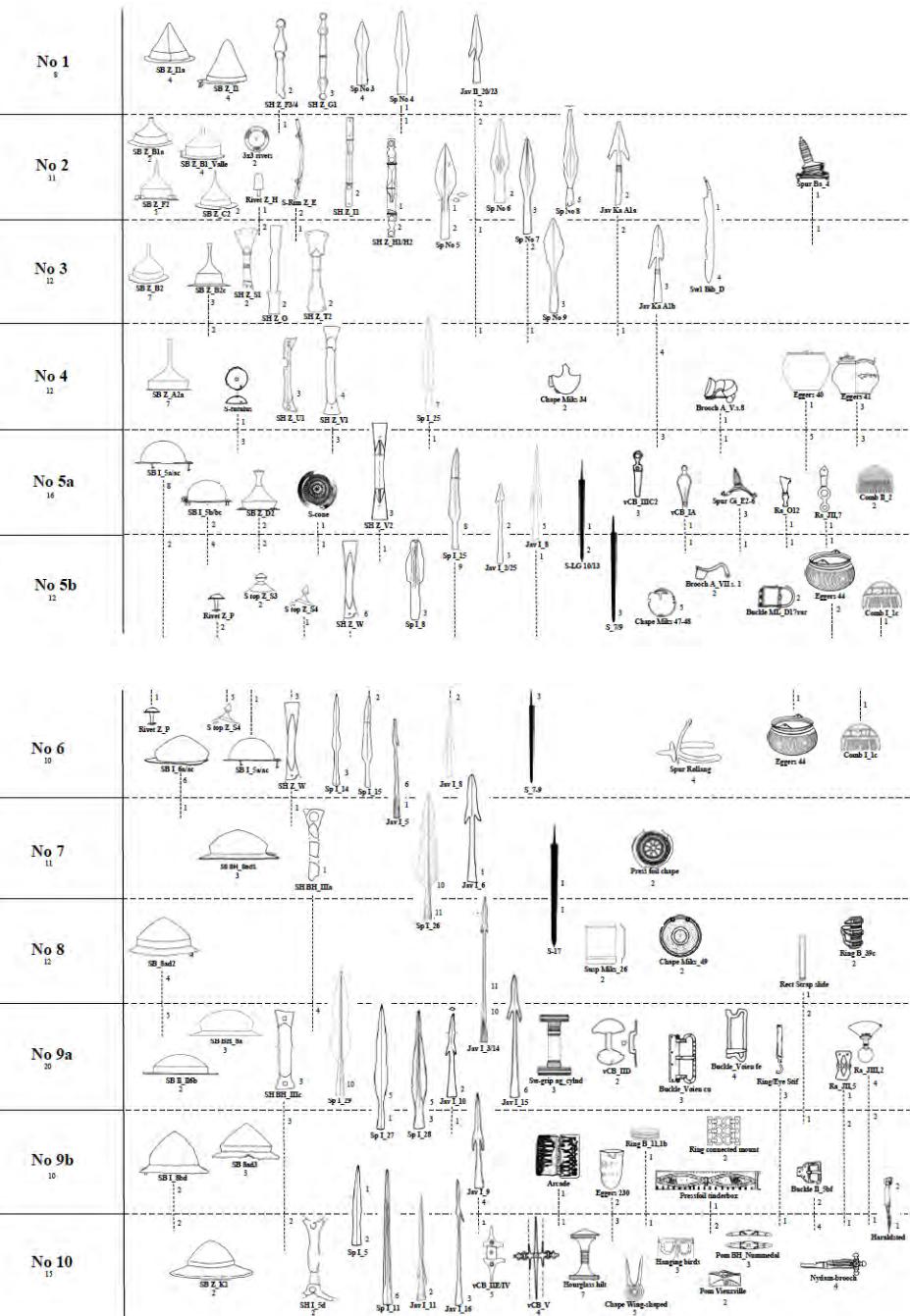


# Norway

Early Roman

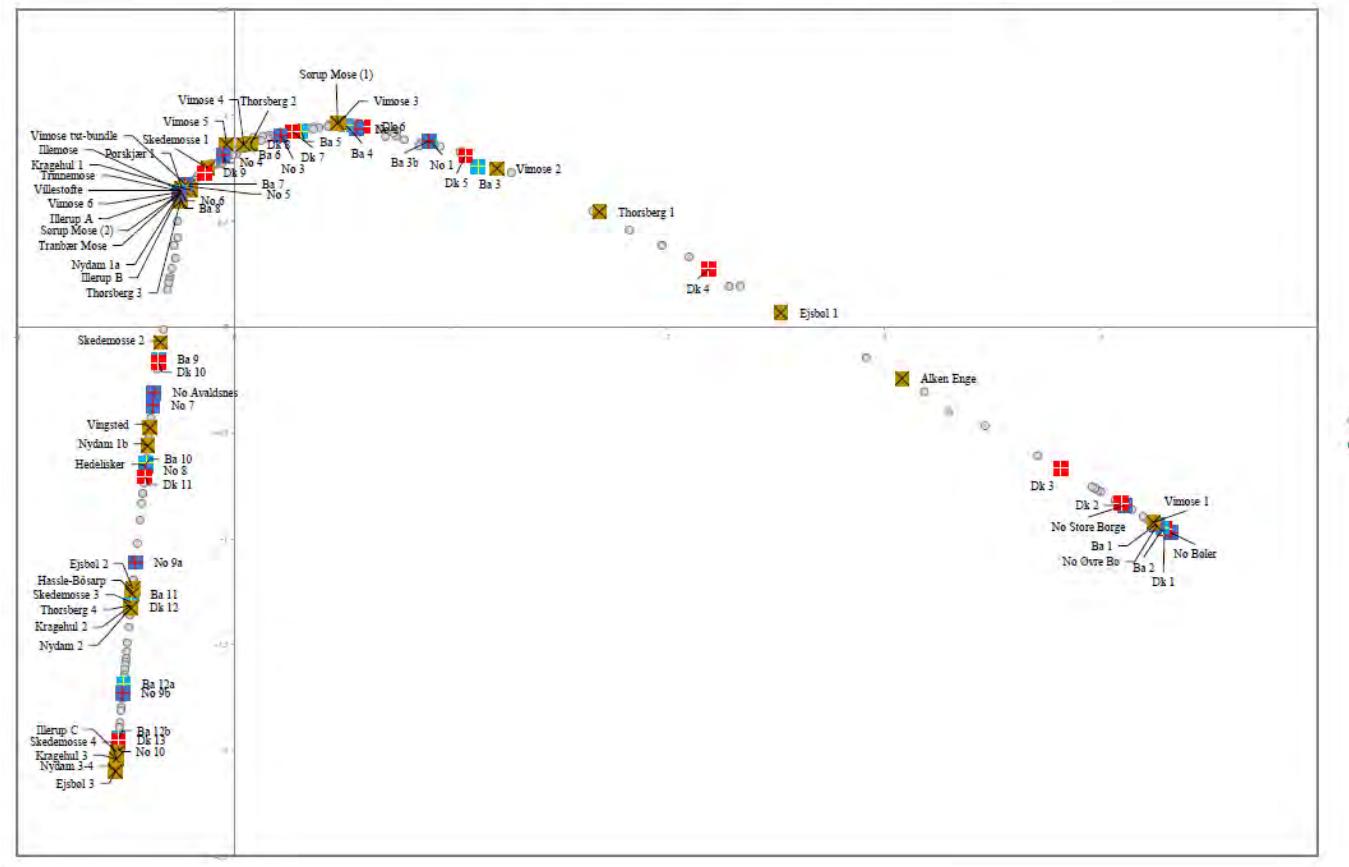
Late Roman

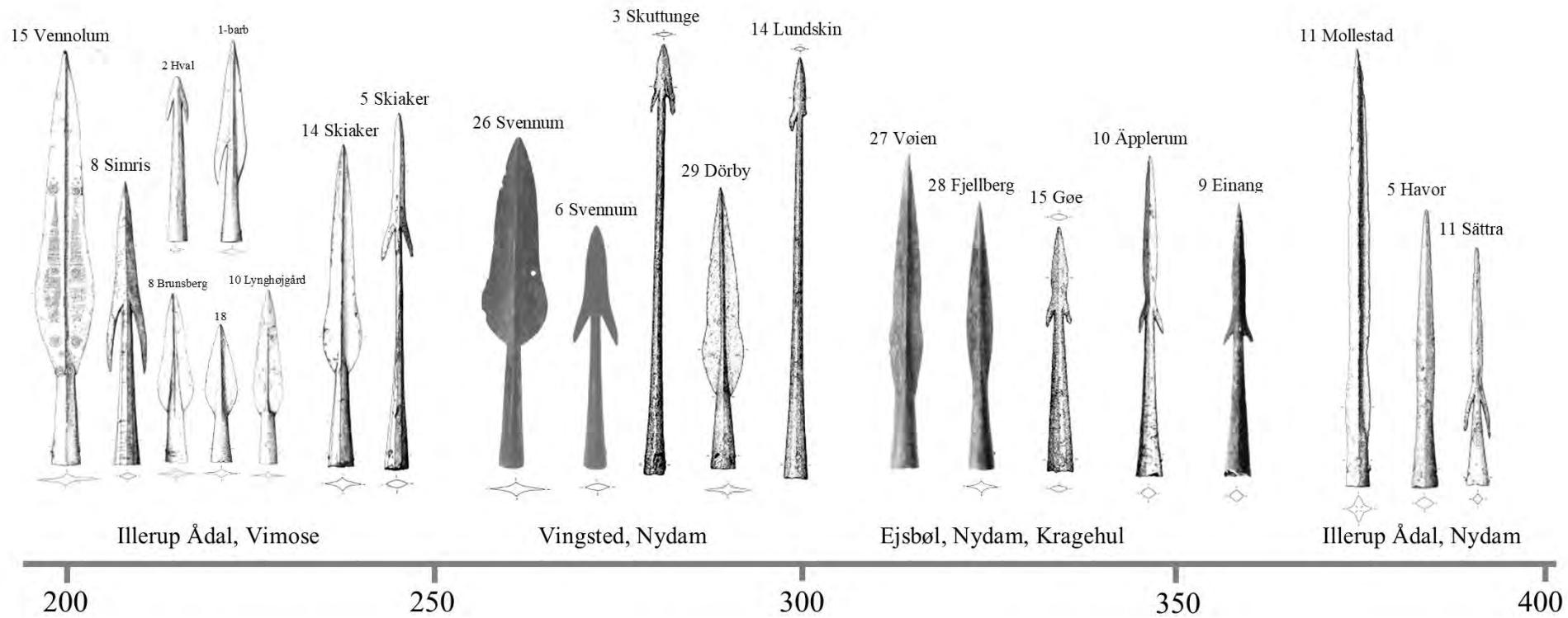
Late Germanic 1 Migration Period/Early Germanic Late Roman = No 10



Other weapon deposits	Army equipment deposits in CA	Denmark	Baltic/Sweden	Norway
Vimose I	DK 1	Ba 1		Øvre Bø
	DK 2	Ba 2		Bøler
	DK 3			Store Borge
Ejebol 1 Alken Enge	DK 4	Ba 3		
Thorsberg 1 Vimose 2	DK 5		No 1	
Vimose 3 Sørup Mose	DK 6	Ba 4		No 2
	DK 7	Ba 5		No 3
Thorsberg 2 Vimose 4 Vimose 5	DK 8	Ba 6		No 4
Skedemosse 1 Kragehul 1	DK 9	Ba 7		No 5
Porskær 1 Illerup A Illumose Trænmose Thorsberg 3 Nydam 1a		Ba 8		No 6
Sørup Mose 2 Søborg Sø	DK 10	Ba 9		No 7
Illerup B Skedemosse 2 Vingsted Nydam 1b Hedelisker Ejebol 2	DK 11	Ba 10		No 8
Skedemosse 3 Kragehul 2 Thorsberg 4 Nydam 2 Illerup C Thorsberg 5 Kragehul 3 Skedemosse 4 Nydam 3-4 Ejebol 3	DK 12	Ba 11		No 9a
		Ba 12a		No 9b
	DK 13	Ba 12b		No 10

Wetland weapon deposits and Scandinavian weapon chronology







Gladiator, 2000. Coming out of the woods....

## THE BARBARIAN

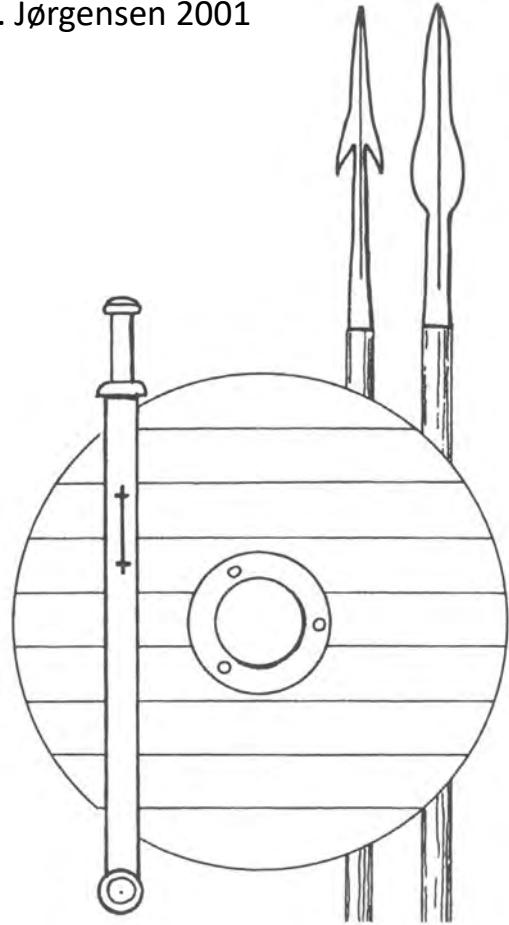
in written sources, in Hollywood  
(and from the study of weapon graves)



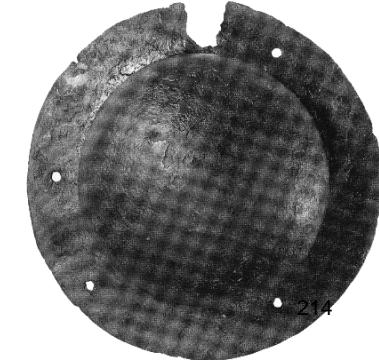
Bartosz Kontny 2008

# The panoply of the barbarian warrior

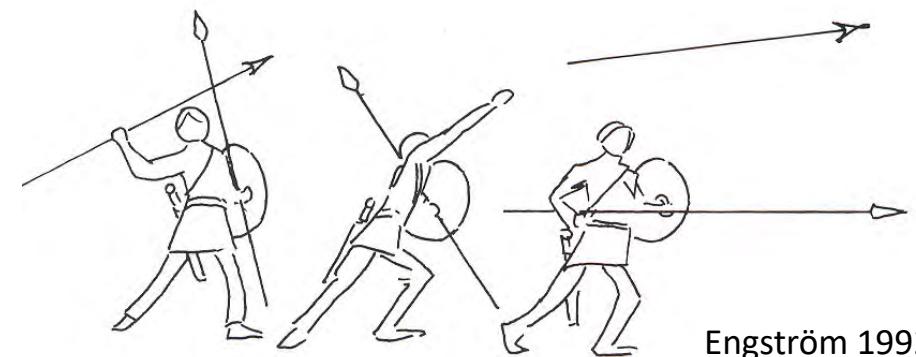
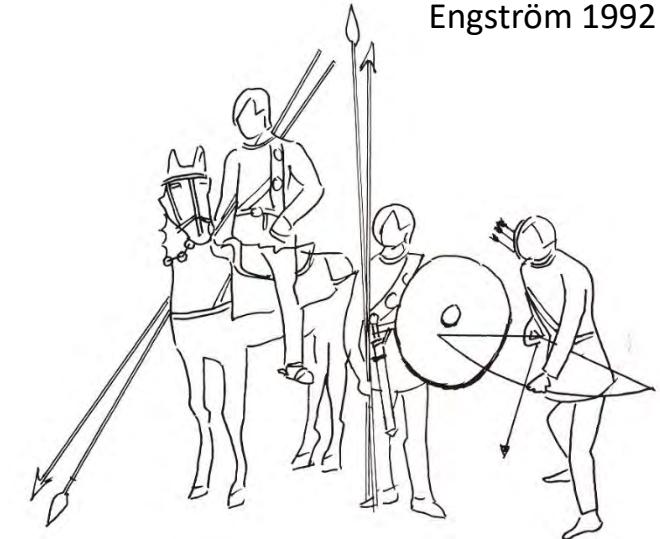
L. Jørgensen 2001



Hierarchy

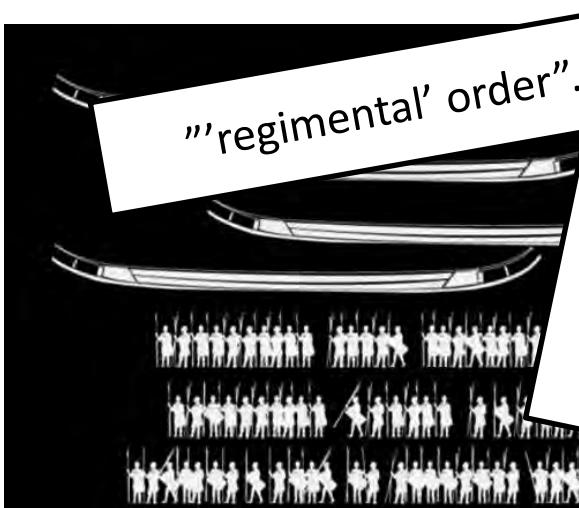


Engström 1992



Engström 1992

# Hjortspring 350 BC.



“regimental’ order”.

Words like: “platoon,  
commanders, cavalry,  
strategos, centurion,  
phalanx”

“code of combat”

“narrow-headed precisely  
aimed, deep penetration  
javelins”



Randsborg, K. 1995  
*Hjortspring. Warfare & Sacrifice in Early Europe.*  
Aarhus University Press.

138 iron  
31 bone  
11 single  
11-12 double

“Such battles [...] strikingly resemble  
a clash between hoplite or other  
phalanx infantry forces of the Greek  
Archaic and Classical periods..”

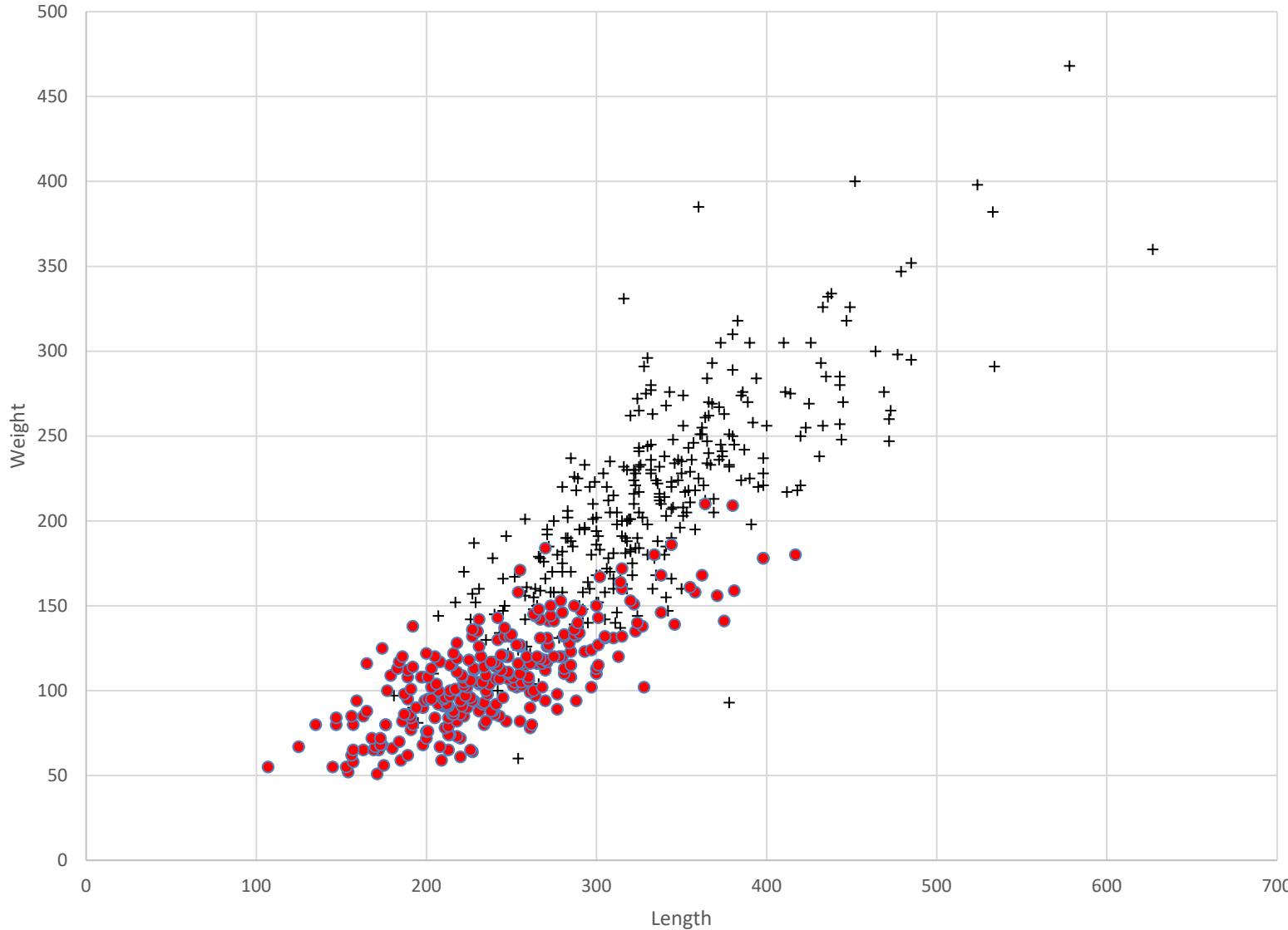


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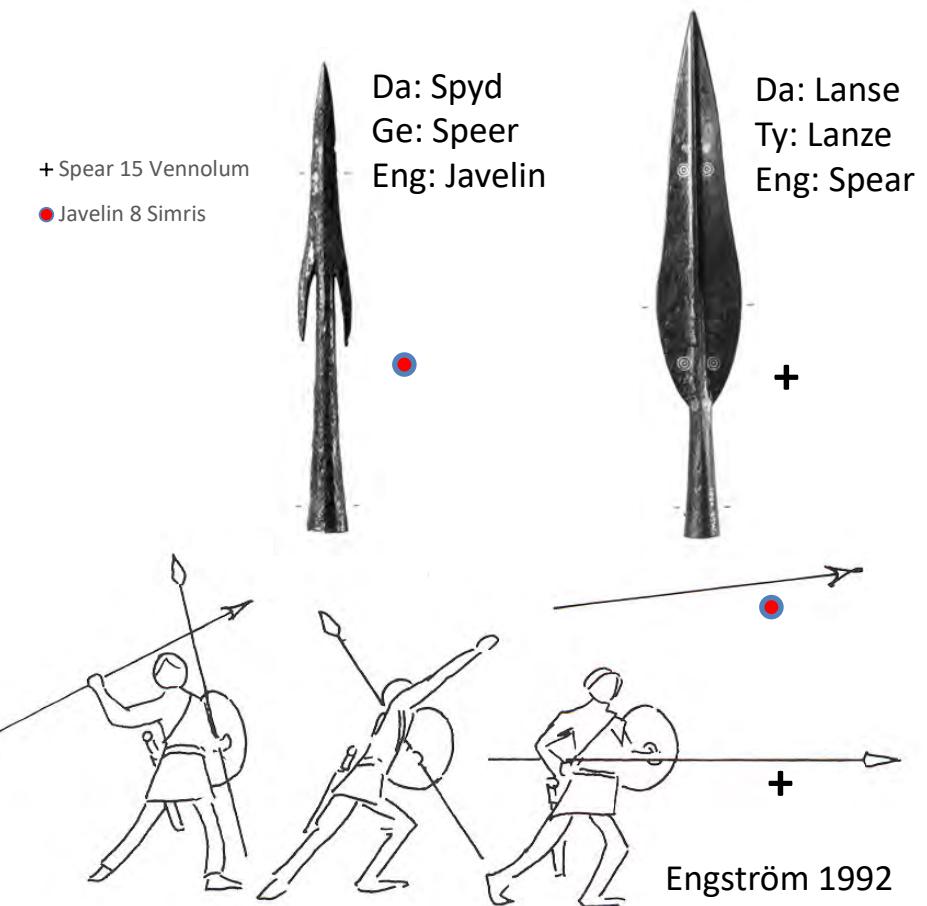
“In spite of the overall differences in  
appearance of the troops, this  
weaponry, dominated by shield and  
spear/lance, is in fact, clearly  
reminiscent of Hjortspring”.



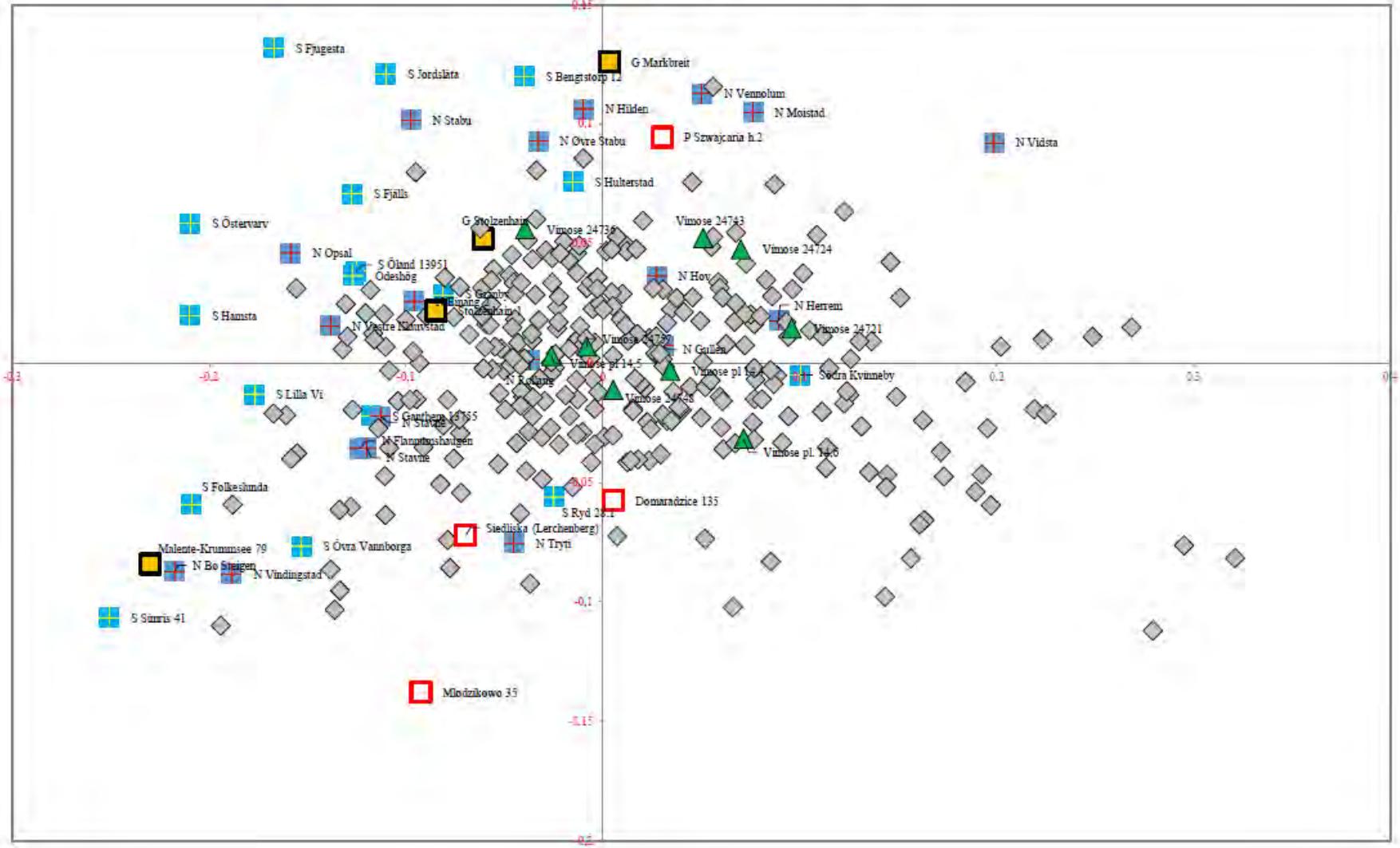
## Spear heads type 15 Vennolum/Javelins type 8 Simris



Illerup Ådal, Site A, ca. 205-215 AD<sup>216</sup>



## The Vennolum Spear in Illerup Ådal and in grave finds



# The weapon deposits from Fæsted.

Lars Grundvad, Museet Sønderskov

# The weapon deposits from Fæsted



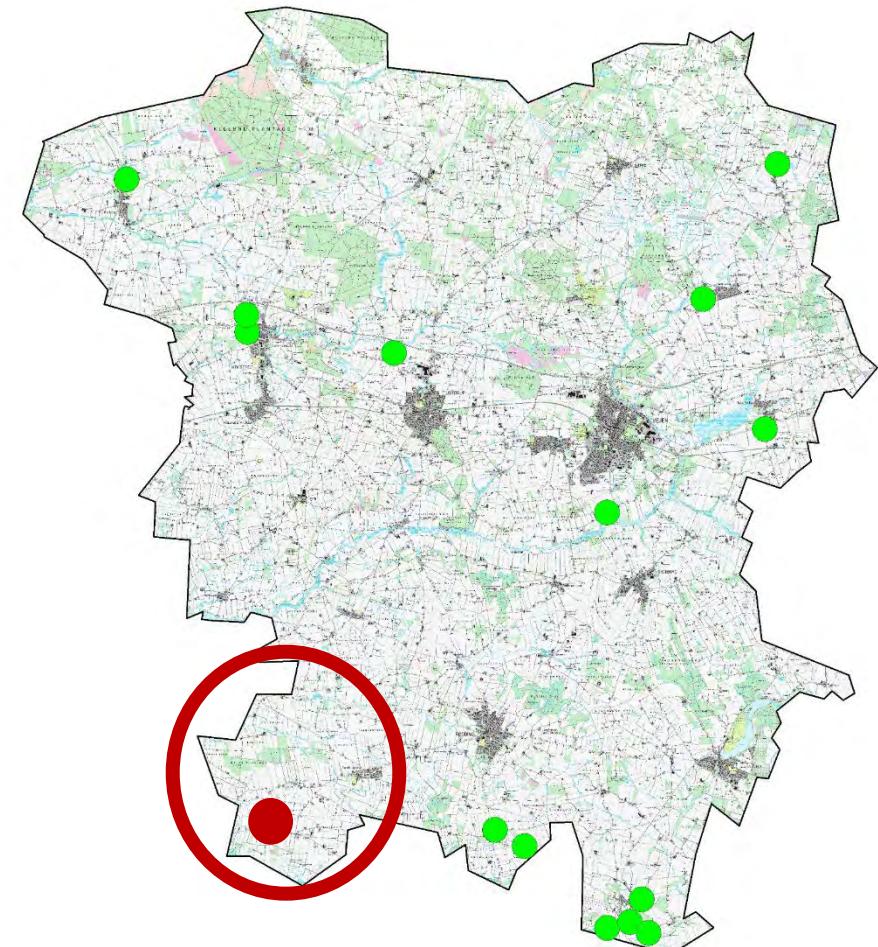
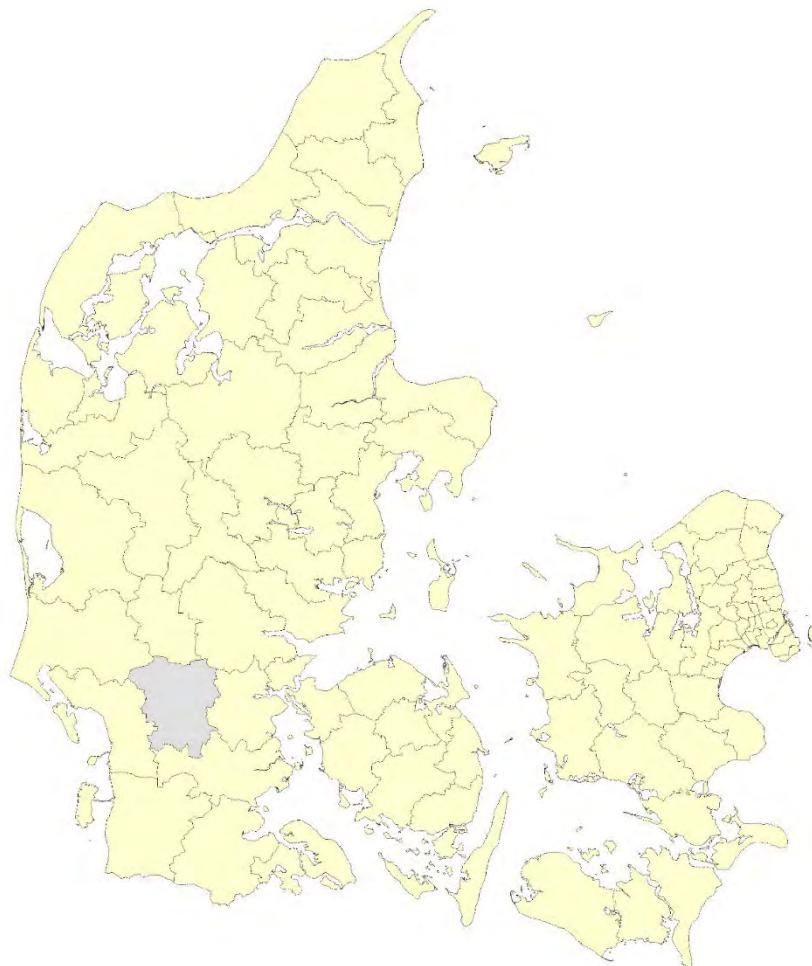
Drawing: Sune Elskær for Slots- og Kulturstyrelsen & Museet Sønderskov

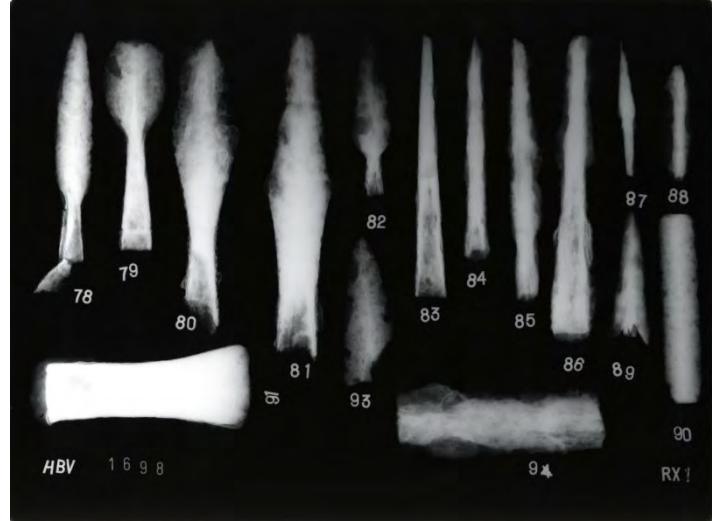
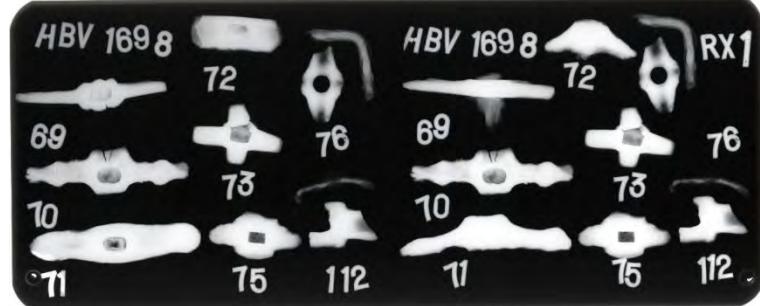
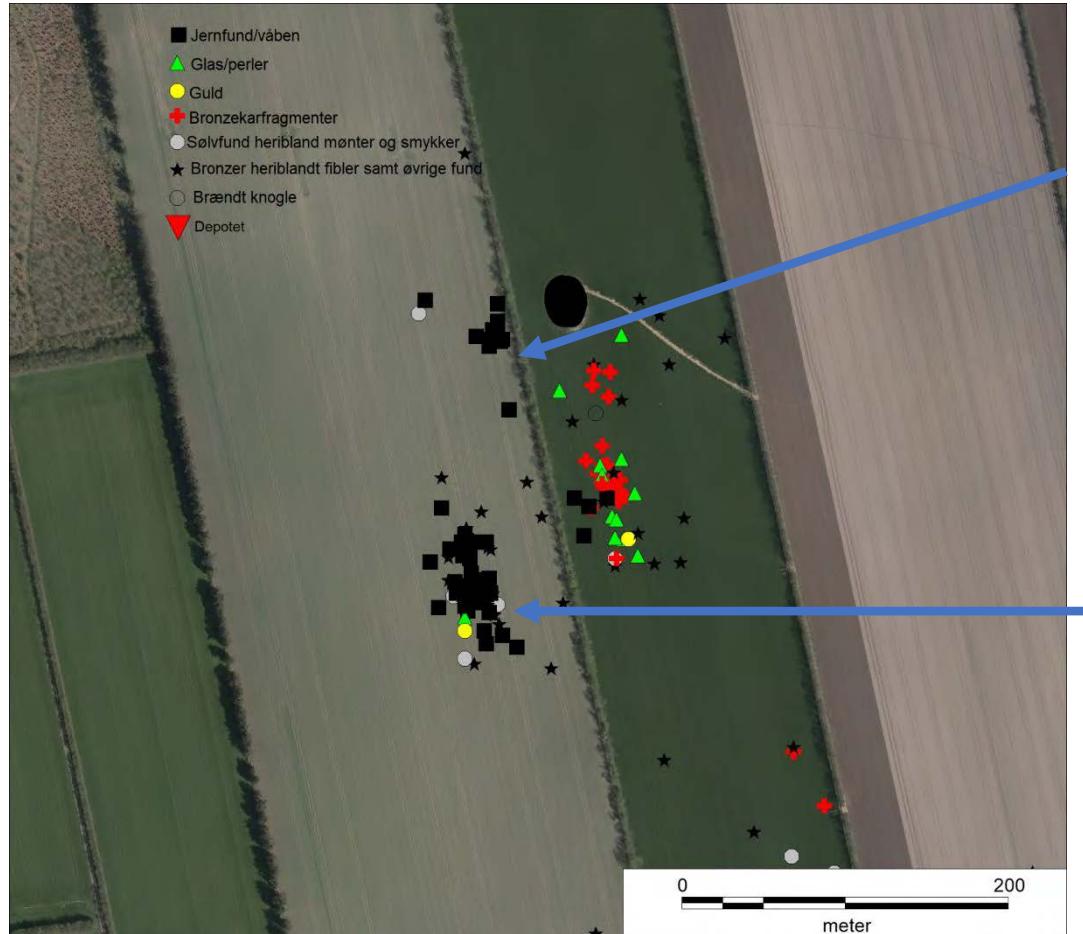
Find os på

facebook & Instagram



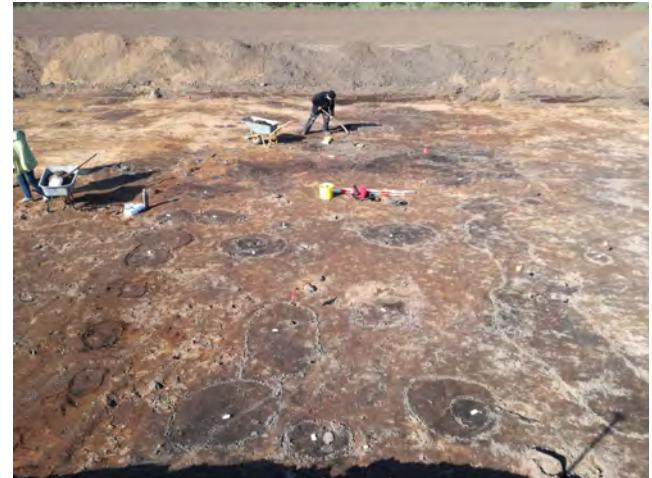
# The find spot



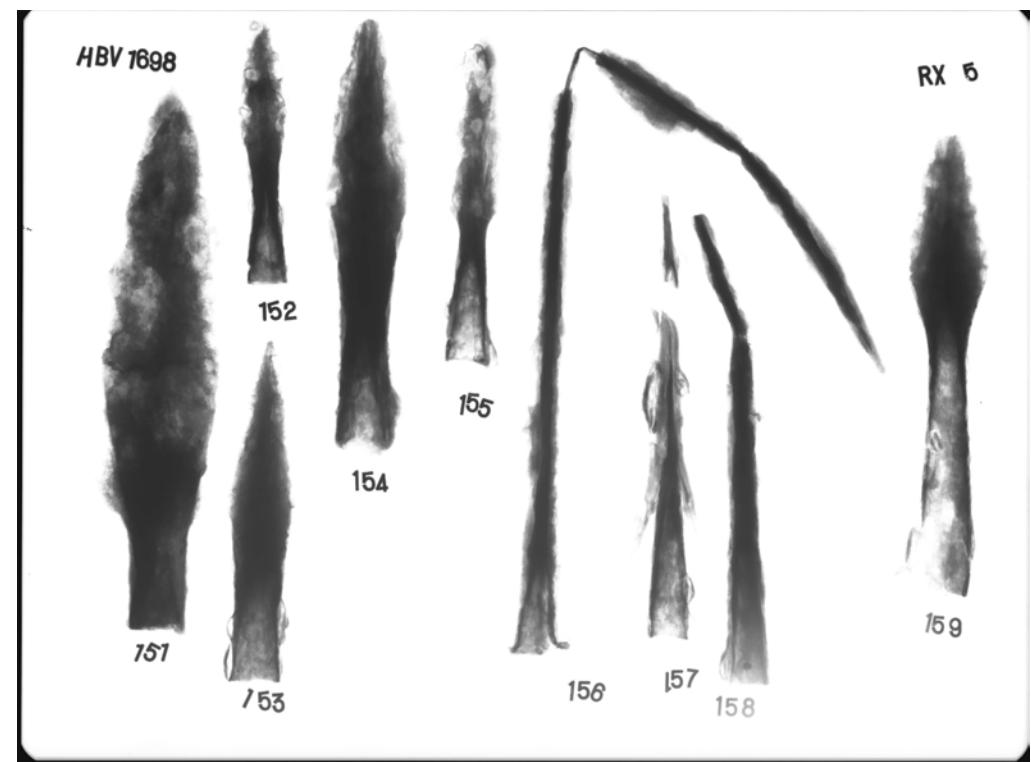


Fotos: Konserveringscenter Vejle

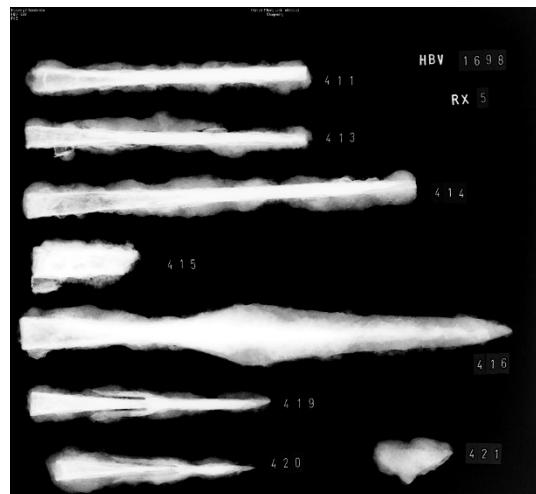
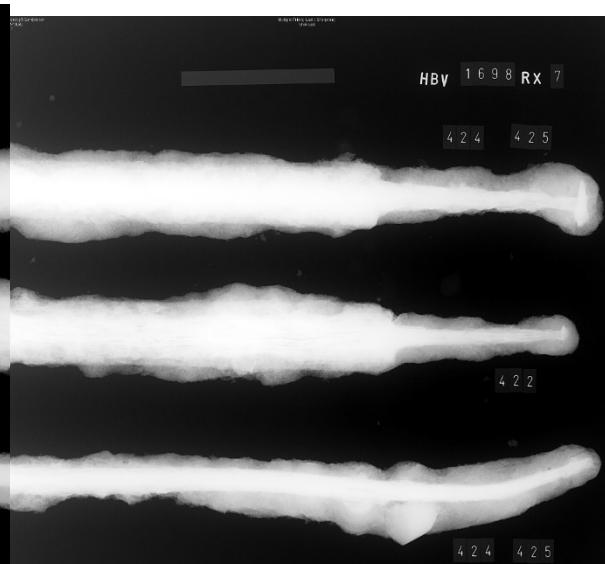
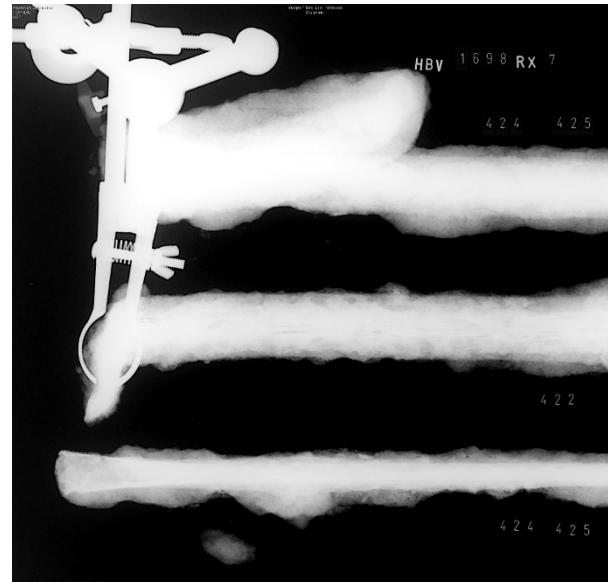
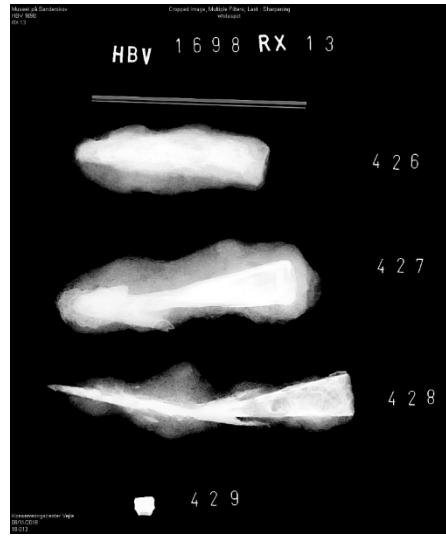
# The first excavation (2018)



# Weapons in postholes







# Sword depositon next to mound (2018)



# Only seen by the pommels

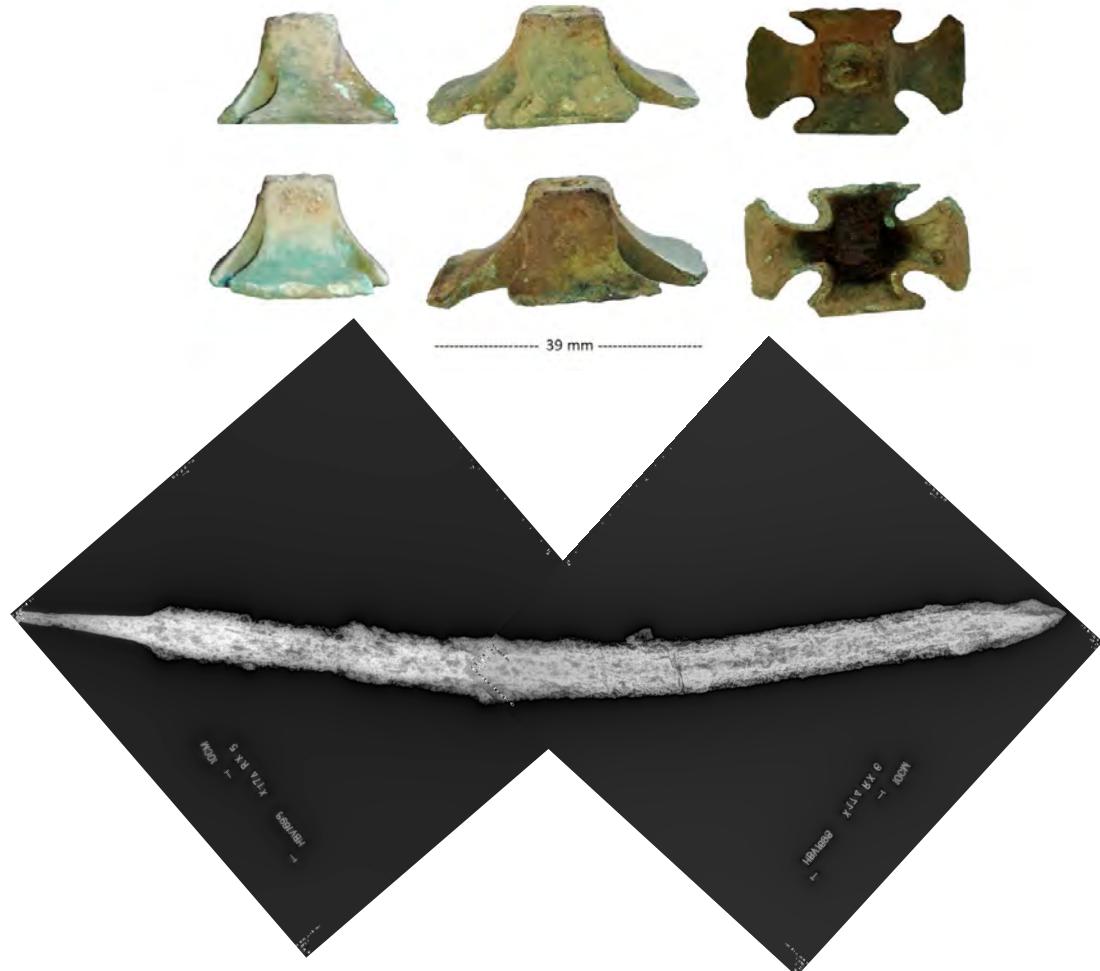


Fotos: Flemming fabriciussen  
for Museet på Sønderskov

# 2019 campaign



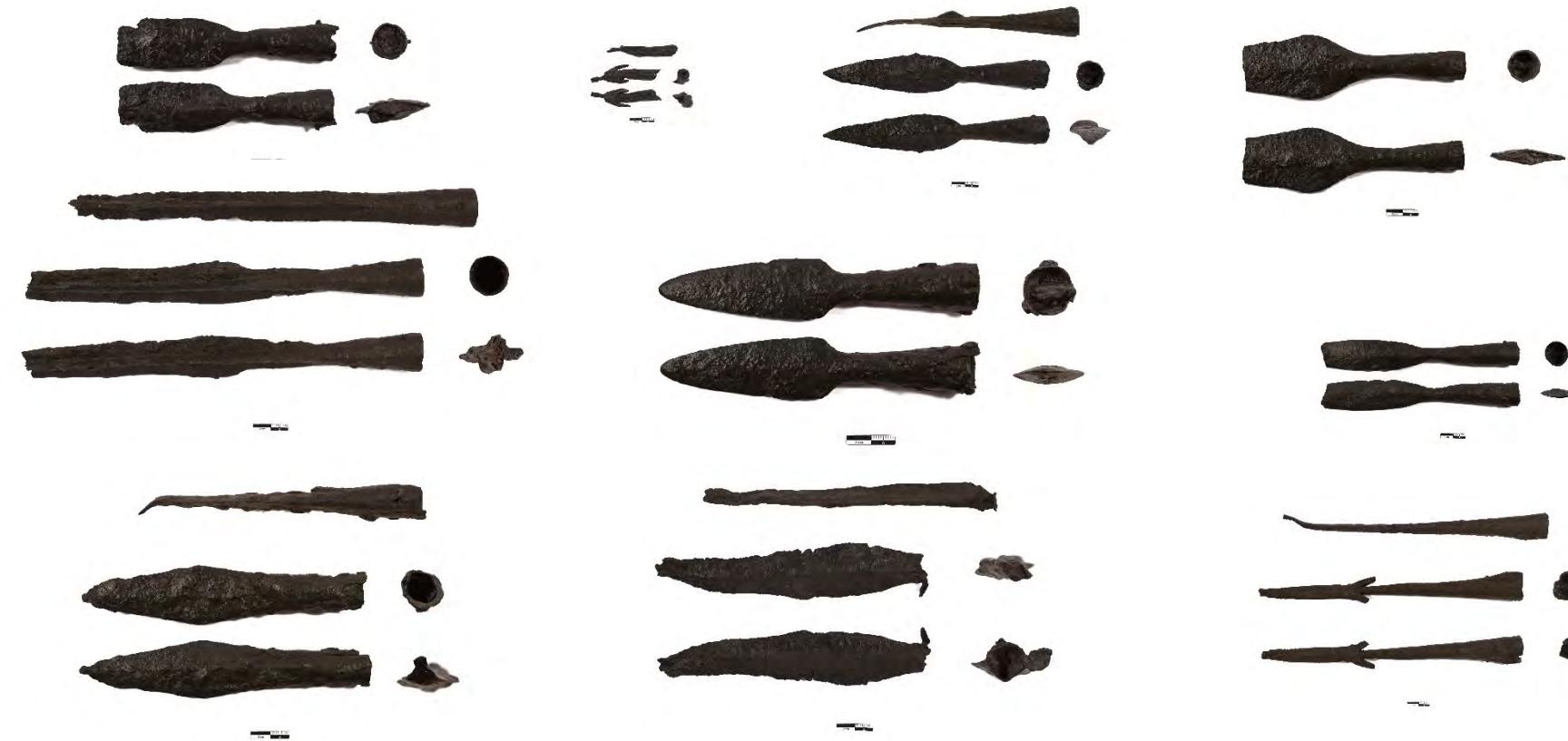
# The final and youngest deposition



# The contexts



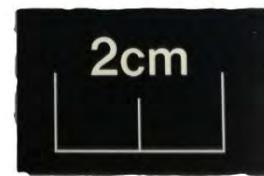
# Initially everything was about the 215 weapons



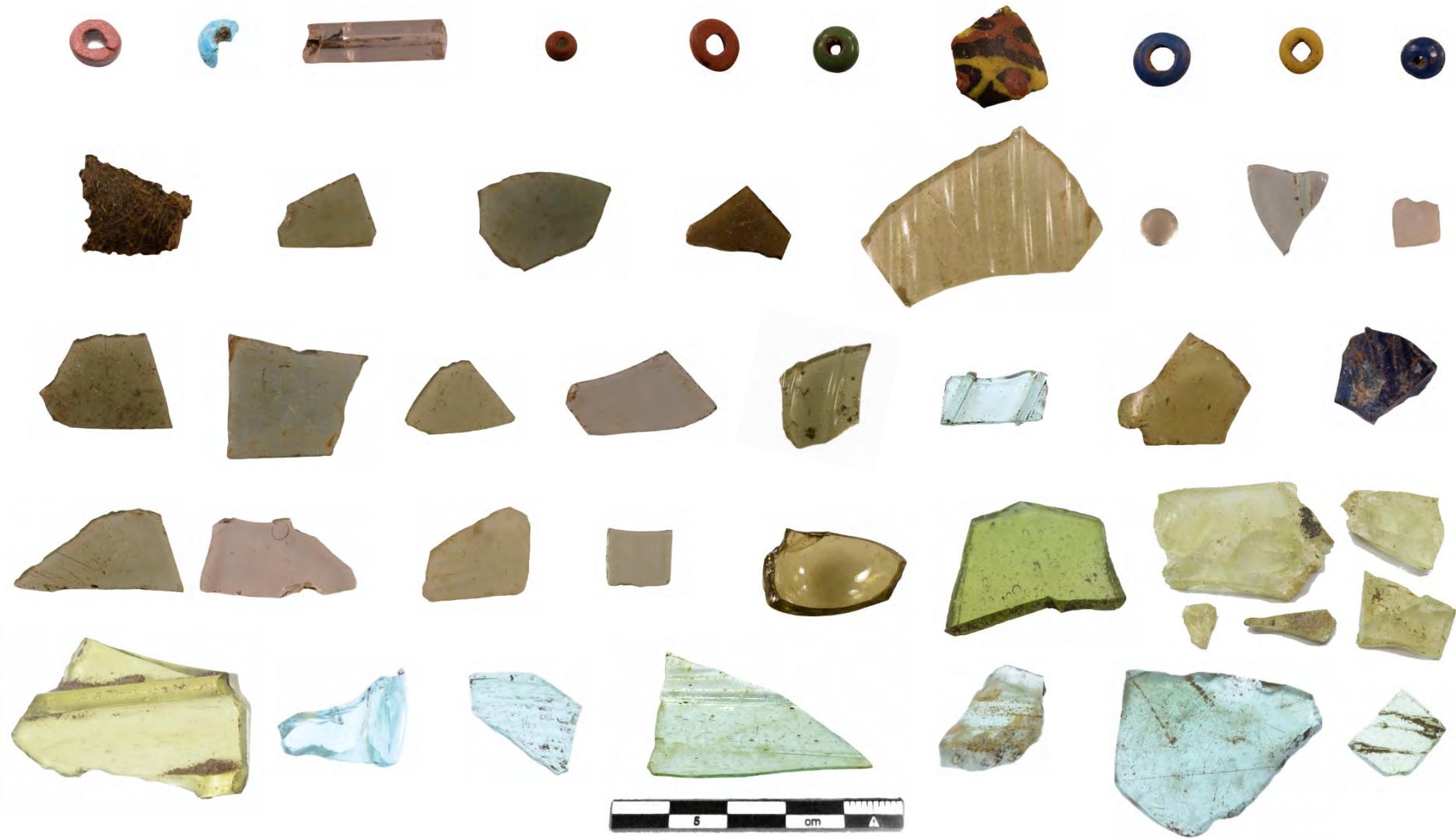
# Riding equipment



# Gold from postholes



# Glass sheards



5 cm A

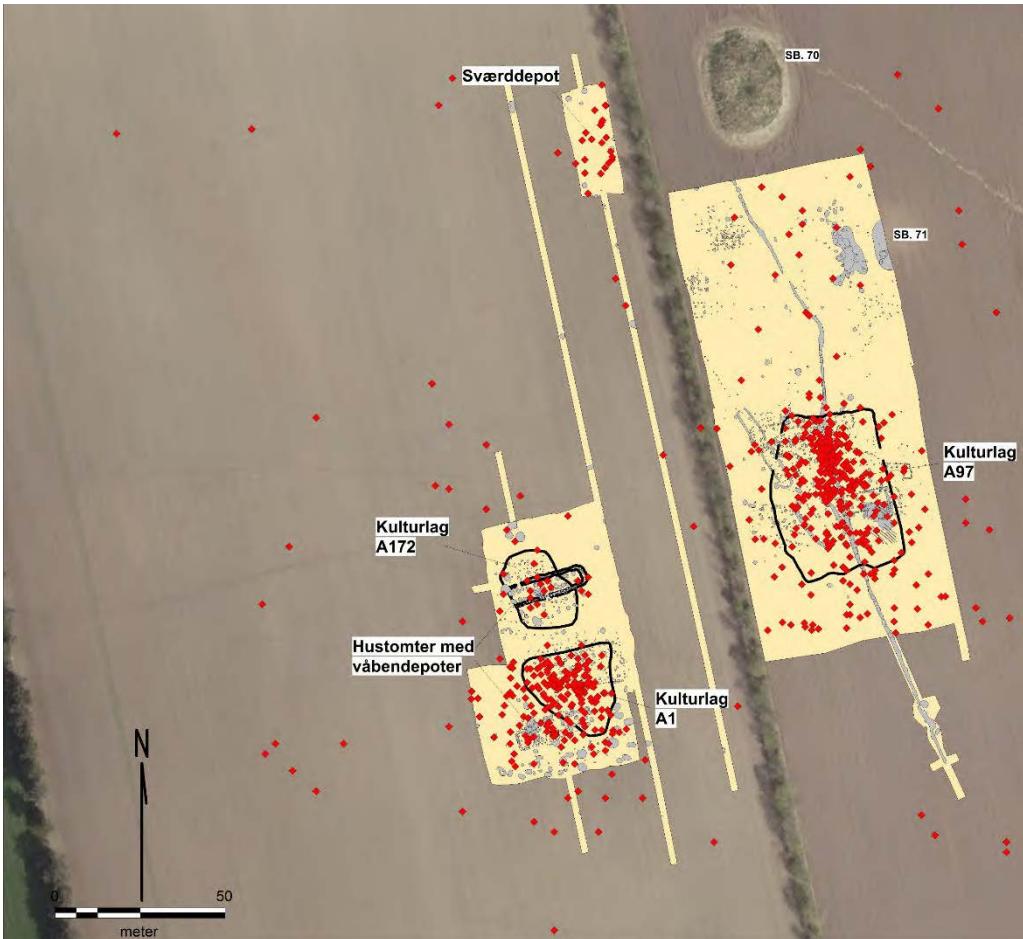


Museet Sønderkov<sup>235</sup>

# The excavations finished in 2022



# Final plan drawing with all finds



# Main facts and numbers

- Stavsager Høj was in continuous use from 500 BC – AD 550
- Approx. 15 phases of "temple".
- 215 weapons, 1 shield boss.
- 3 bridles and maybe one harness.
- Two gold deposits.
- Roman imports (coins, drinking glass, cut bronze statues etc.)
- Personal equipment (tweezers, drinking horn, jewelry etc.)
- “Tons” of pottery.



# Thank you

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# The Germanic Flat Round Shield Tradition.

Rolf Fabricius Warming, PhD stud.  
Stockholms Universiteit. Society for  
Combat Archaeology



Stockholms  
universitet



Swed  
Defen  
Unive

# The Germanic Flat Round Shield Tradition



Rolf Warming, PhD Student

Department of Archaeology and Classical Studies, Stockholm University/

Society for Combat Archaeology/  
Swedish Defence University

[Rolf@combatarchaeology.org](mailto:Rolf@combatarchaeology.org)

[www.combatarchaeology.org](http://www.combatarchaeology.org)

# The Germanic Flat Round Shield Tradition

- Shields and why we should care
- Shield types and chronology
- The Germanic Flat Round Shield Tradition defined
- Main features
- Impressions of features from the
  - Beginning: Roman Iron Age
  - Middle: Viking Age
  - End: Middle Ages

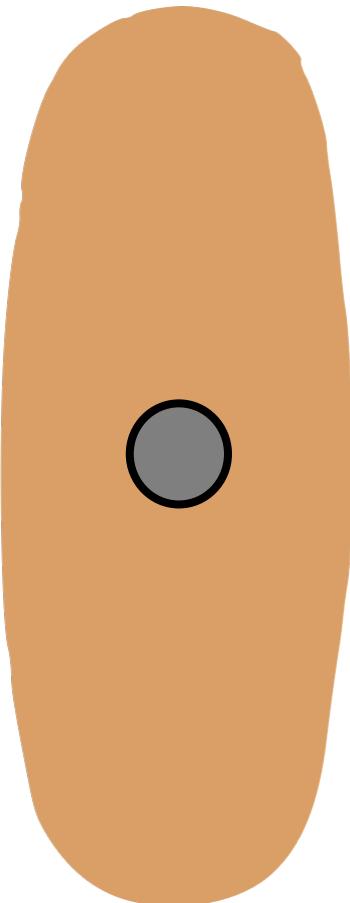
# Shields and why we should care

- An integral component in combat
- The largest singular piece of standard infantry equipment on an individual level.
  - Entail affordances and constraints that influence movement and combat.
- Embedded with symbolism and social significance

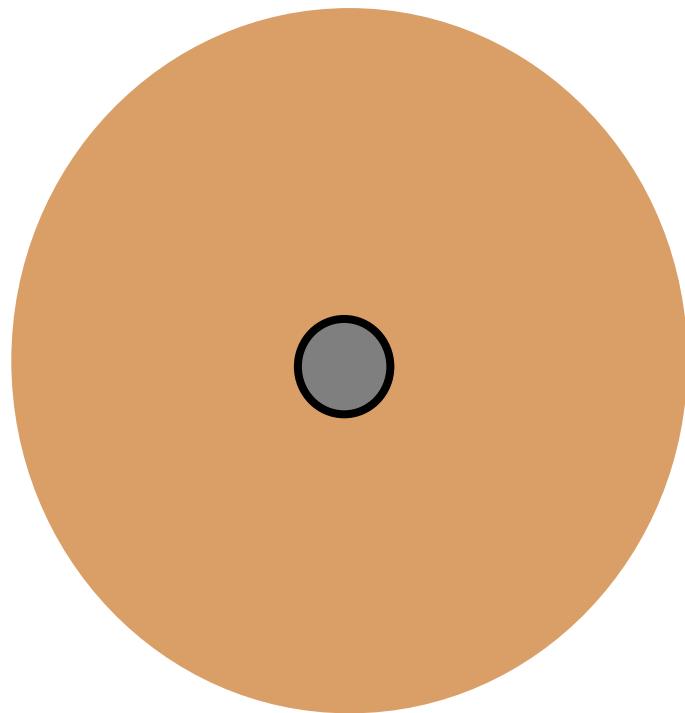


Shield from the Gokstad ship burial,  
c.900 AD Photo: Unimus

# Shield types and chronology

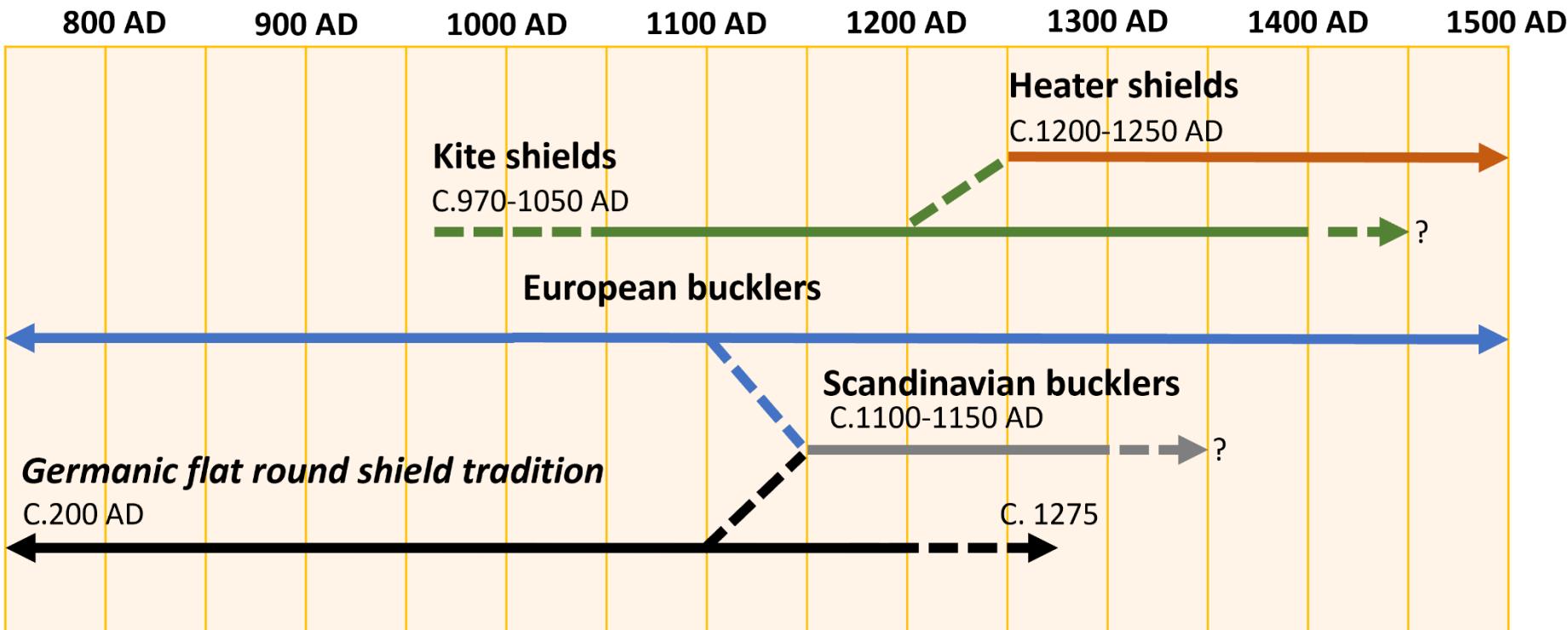


Oblong shields ('Celtic shields')



Round shields

# Shield types and chronology



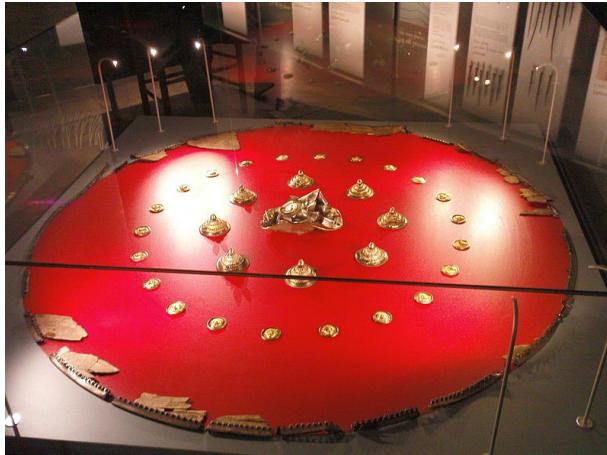
Chronological overview of main shield types in Denmark alongside buckler shields in Europe (blue). (Warming 2022)



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universitet

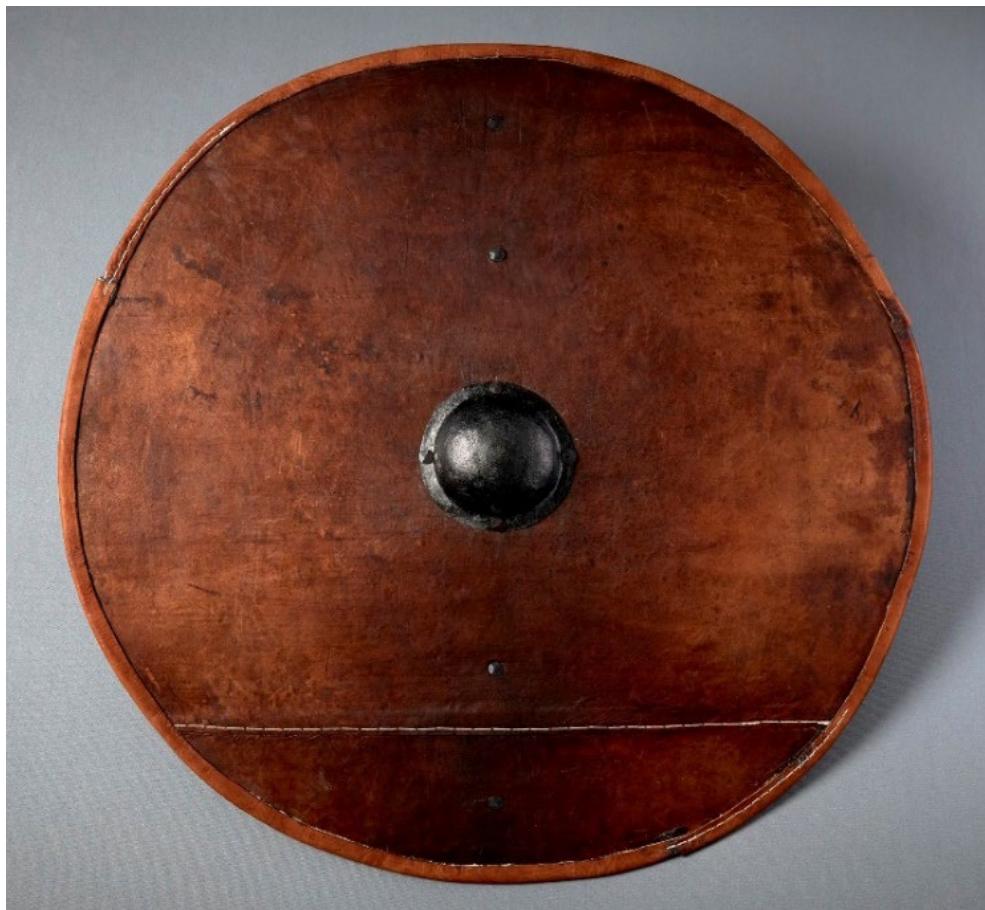
# The Germanic Flat Round Shield Tradition

- **Definition:** A continuous method of shield construction in Northern Europe that produce shields consisting of a single layer of several relatively thin wooden planks (max. c. 1 cm) that are butted together, forming a roughly flat and round shield board with a diameter of c. 70 cm or more which is equipped with a central handle and a boss that covers the central hole.
- **Timeframe:** Early 3<sup>rd</sup> century – late 13<sup>th</sup> century AD



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# The Germanic Flat Round Shield Tradition



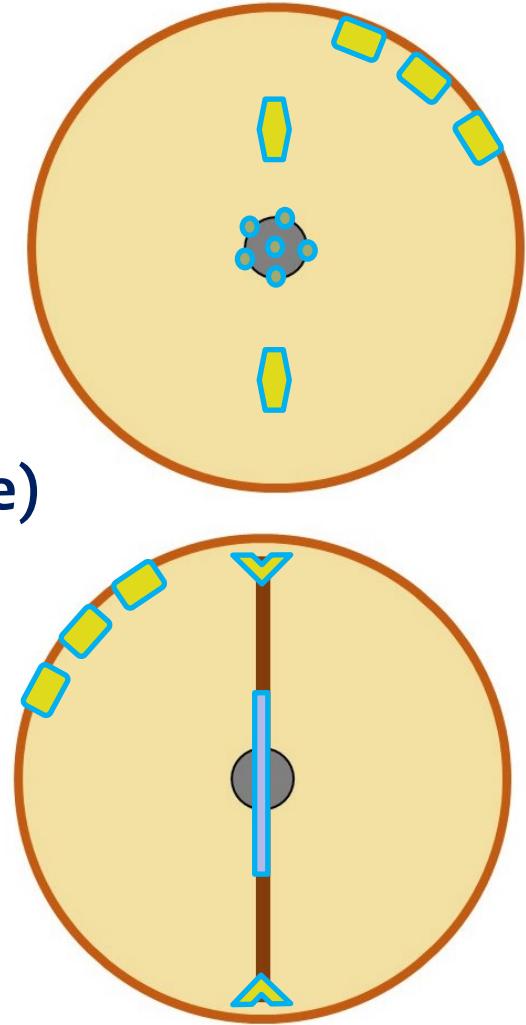
Shield reconstruction from the *Viking Shield Project*, undertaken in collaboration with Trelleborg Viking Fortress (National Museum of Denmark). Photo: Tom Jersø/The Viking Shield Project

2023-09-12 Rolf Warming, PhD Student,  
Department of Archaeology and Classical Studies

- **Find contexts:**
  - Depositions
  - Weaponry burials
  - Settlements/trading sites
  - Stray finds
  - Shipwreck (direct and indirect evidence)
- **Use:**
  - Combat
  - Social roles
- **General impression:**
  - Different degrees of decorative elements but essentially the same shield design.
  - There does not seem to be a particular strand of shields or shield design that is exclusively reserved for one context, for example burials.

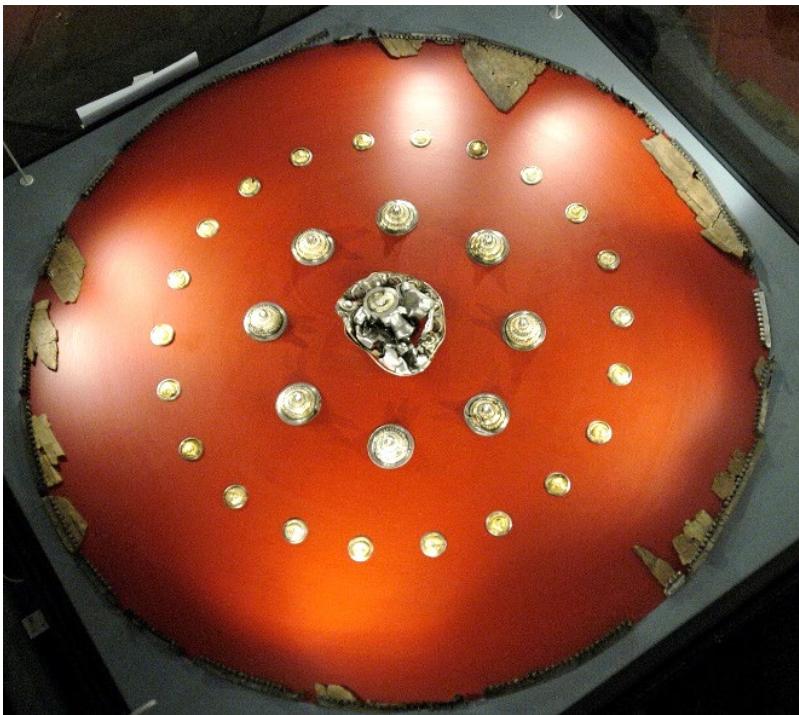
# Overview of main features

- **Shield boss**
- **Boards**
- **Facing (skin)**
- **Central handle (wood, metal, composite)**
- **Rim reinforcement (metal/skin)**
- Board fittings (decorative and repairs)
- Handle fittings
- Handle terminal fittings
- Rim clamps
- Decorative shield rivets
- Pigments/carvings



# The Beginning: Roman Iron Age

- E.g. Illerup Ådal, deposition, early 3rd century AD
- Large round shields
- Short central handles
- Lots of fittings!



Shield from Illerup Ådal (photo: Martin Dam Kristensen)

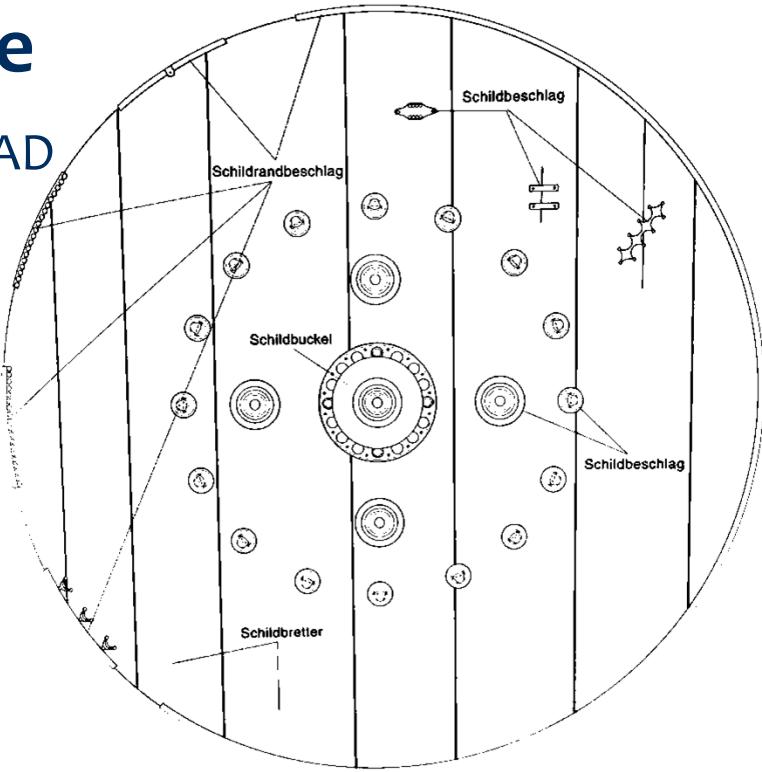


Illustration of a shield from Illerup Ådal.  
(from Ikkjær 2001: 15)

## Shields as hierarchical indicators:

**Level-1 warriors:** bosses of gold and silver (5 shields)

**Level-2 warriors:** bronze bosses (c. 40 shields)

**Level-3 warriors:** iron bosses (c.300).

# Roman Iron Age

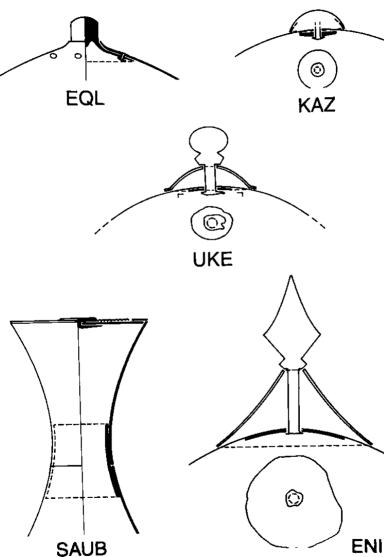
- Fittings:
  - Shield board
  - Repairs
  - Handle
  - Rim
- Elaborate bosses



Shield fittings from Thorsberg (Matešić 2015)



Handle fittings from Thorsberg (Matešić 2015)



Shield boss apices at Illerup Ådal.  
(from Ilkjær 2001: 335)

# Roman Iron Age



Shield rim ffrom Baunegård, c. 350 AD

Photo: Jacob Nyborg Andreassen/Society for Combat Archaeology

2023-09-12

Rolf Warming, PhD Student,  
Department of Archaeology and Classical Studies

# The Middle: Viking Age

- Generally, less elaborate shield bosses
- Less fittings
- Long handles



R562



R563

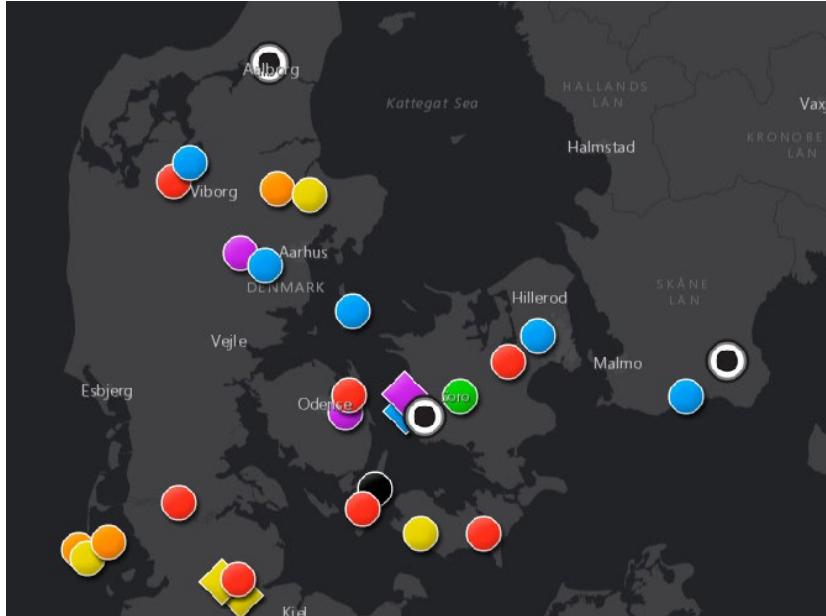


R564



R565

Four shield boss types of the Viking Age (Rygh 1885)



Catalogued finds. Warming 2016.



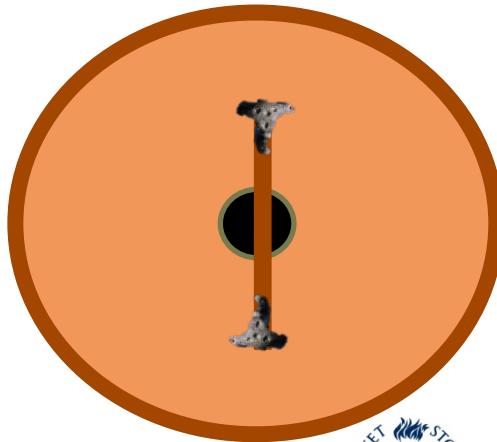
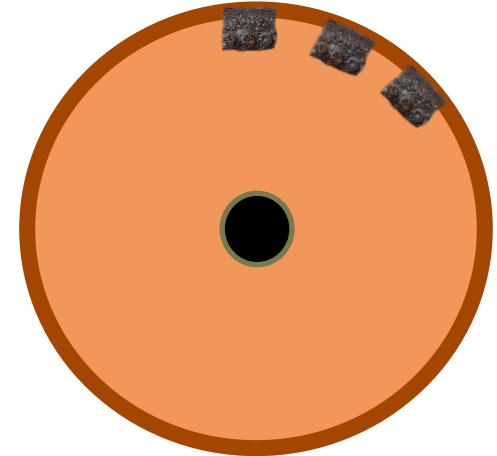
# The Middle: Viking Age



*Shield rim clamp from Lindholm Høje  
(Warming 2016, courtesy of Bodil Frandsen,  
Nordjyllands Historiske Museum).*



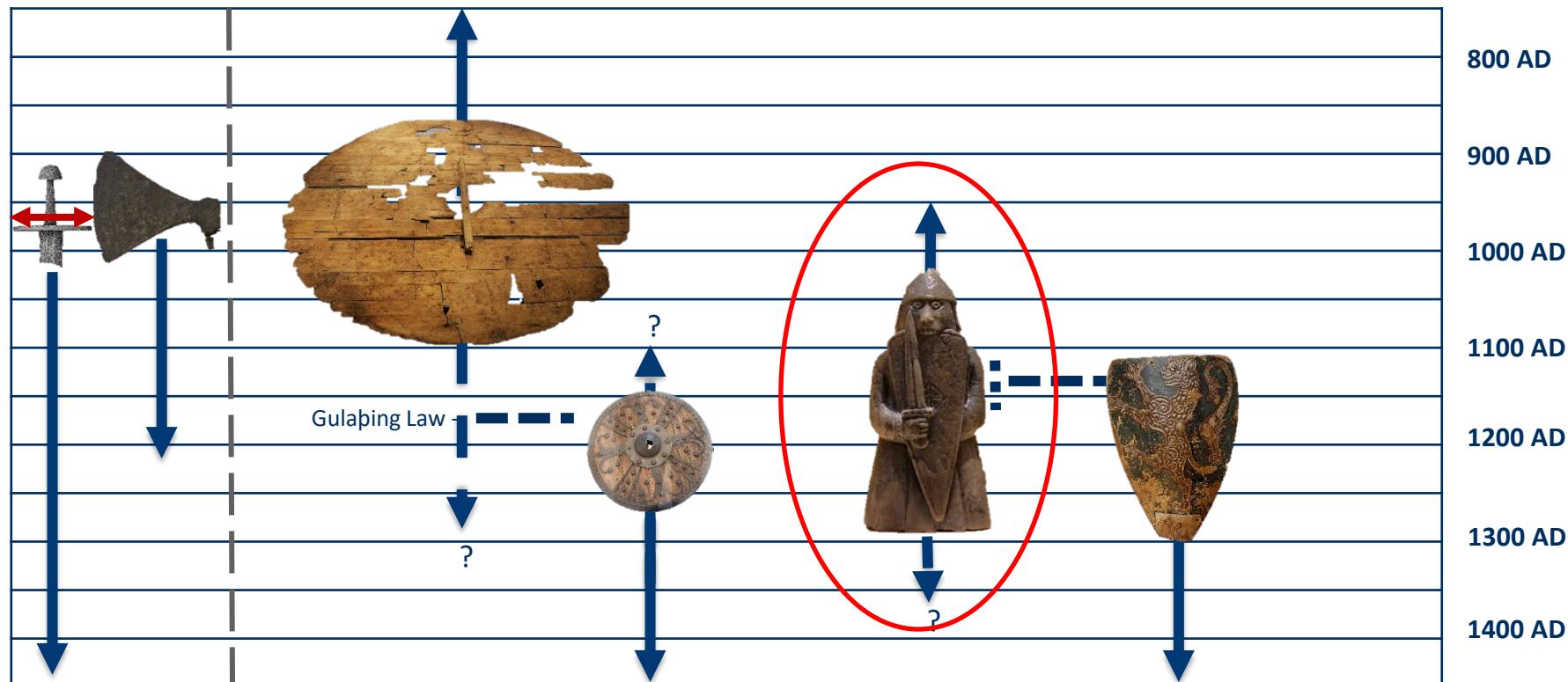
*Handle terminal fittings of copper-alloy.  
Doctor find from Havsmarken, Ærø  
(Warming 2016, courtesy of Peter Pentz,  
National Museum of Denmark).*



Stockholms  
universitet

# The Middle: Viking Age

- Notable weaponry developments between the 10th and 11th century entails that the round shield loses its dominant role on the battlefield c.1000 AD



# The End: Middle Ages

- Much less information due to the lack of finds
- Smaller shields
- Romanesque fittings



Small round shield from the shipwreck,  
Knösen, c.1175 AD. Diam: 53 cm



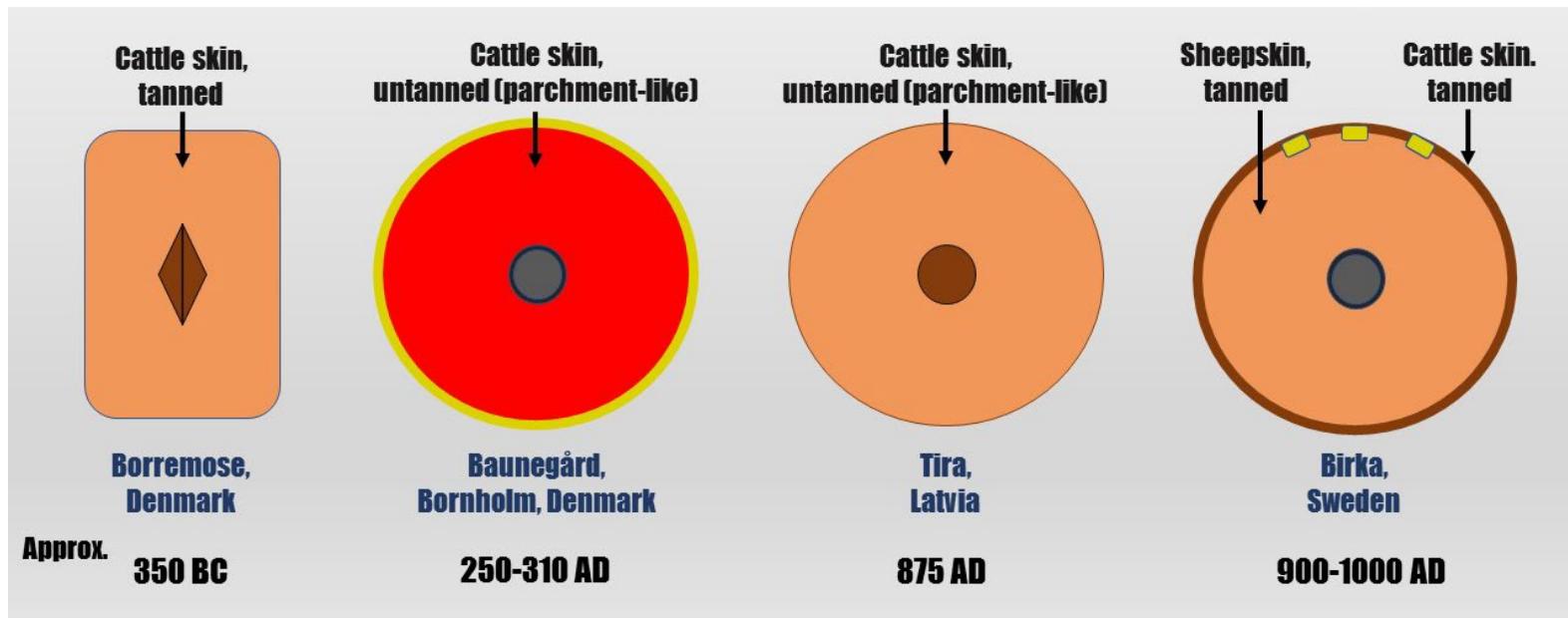
Grötlingbo Church. Gotland, late 12th century



Large 13th(?) century buckler or small  
round shield from Rike, Norway.  
Diam: 48 cm . Photo: Unimus

# Conclusion

- A +1000 year continuous weaponry tradition that should not be studied in terms of synthetic temporal boundaries
- It underwent a number of subtle developments throughout this period but retained its general design
- The majority of shields are simple but more elaborate versions, expressed mainly through different metallic fittings, also exist, signalling differences in terms of status.



Visual summary of results from 'Shields and Hide',

undertaken together with Xenia Pauli Jensen, Dorte Sommer, Luise Ørsted Brand and René Larsen

2023-09-12 Rolf Warming, PhD Student,

Department of Archaeology and Classical Studies



*Thank you!*

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2023-09-12 Rolf Warming, PhD Student,  
Department of Archaeology and Classical Studies

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- Warming, R. 2022.** "Bucklers in Scandinavia: A Case Study." In H. Schmidt (ed.), *The Medieval and Renaissance Buckler*: 83-93. Bregenz: Sofa-Books.
- Warming, R. 2023.** "The Viking Age shields from the ship burial at Gokstad: a re-examination of their construction and function." *Arms & Armour* 20 (1): 1-24. Available here (accessed 18.04.2023): <https://www.tandfonline.com/doi/full/10.1080/17416124.2023.2187199>.

# Germanic Iron Age



Decorative shield rivets. Bornholm



Shield board fitting, DIME-nummer 109659  
DIME ([metaldetektorfund.dk](http://metaldetektorfund.dk))

# Mail armour from the first millennium: occurrence, visibility, and recognisability.

Dr. Martijn A. Wijnhoven, Archaeological  
Institute of the Czech Academy of Sciences

# MAIL ARMOUR FROM THE FIRST MILLENNIUM

OCCURRENCE, VISIBILITY AND RECOGNISABILITY

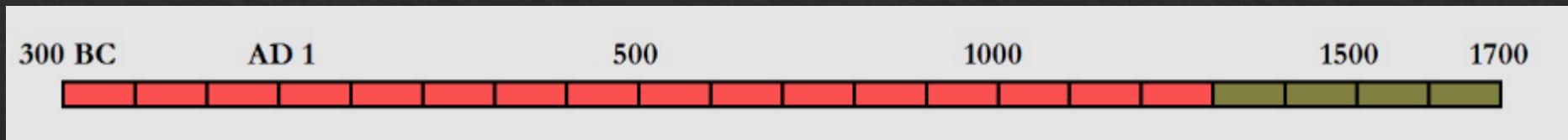
MARTIJN A. WIJNHOVEN



Institute of Archaeology  
Czech Acad Sci, Brno

Show me yours, I'll show you mine  
08.09.2023

# A CINDERELLA COMPLEX



Kalkar (Germany) – Roman period



Wallace Collection – AD 1425-1450

# RECOGNISABILITY



# 1. MATERIAL

## IRON

- Always main material of the armour



## COPPER ALLOY

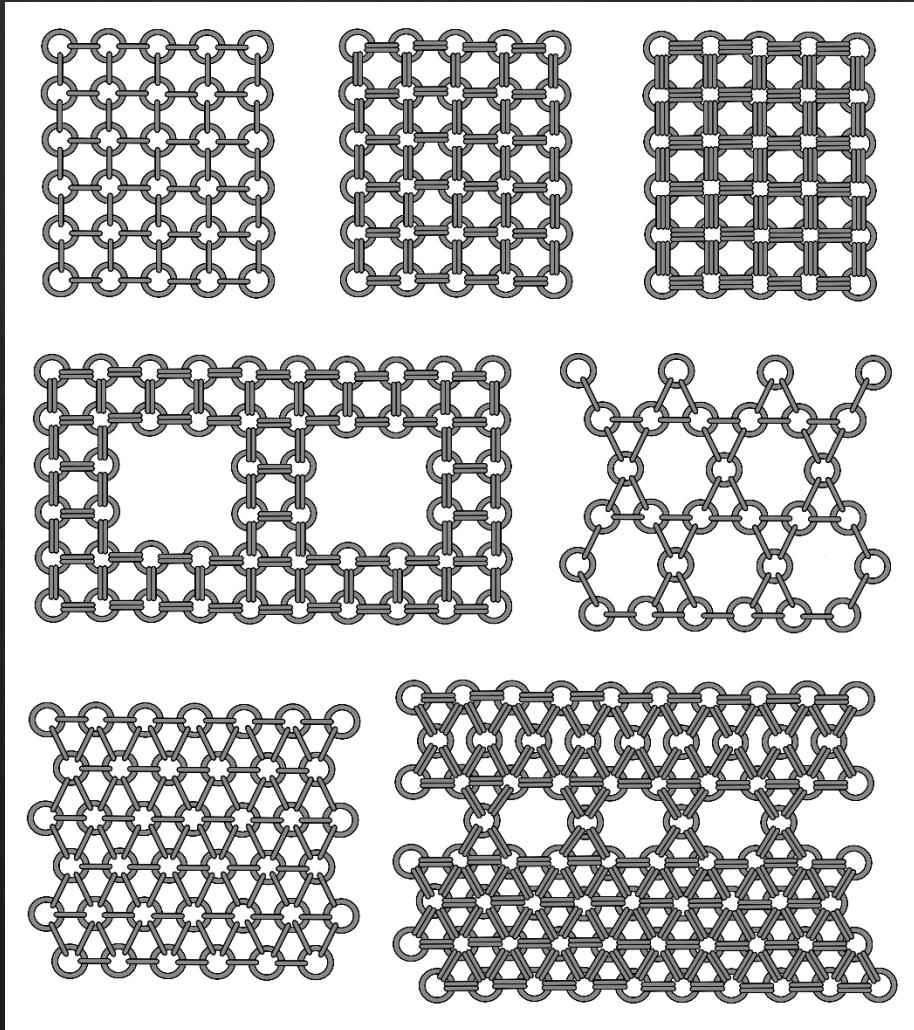
- decorative elements

## RECOGNISABILITY 1:

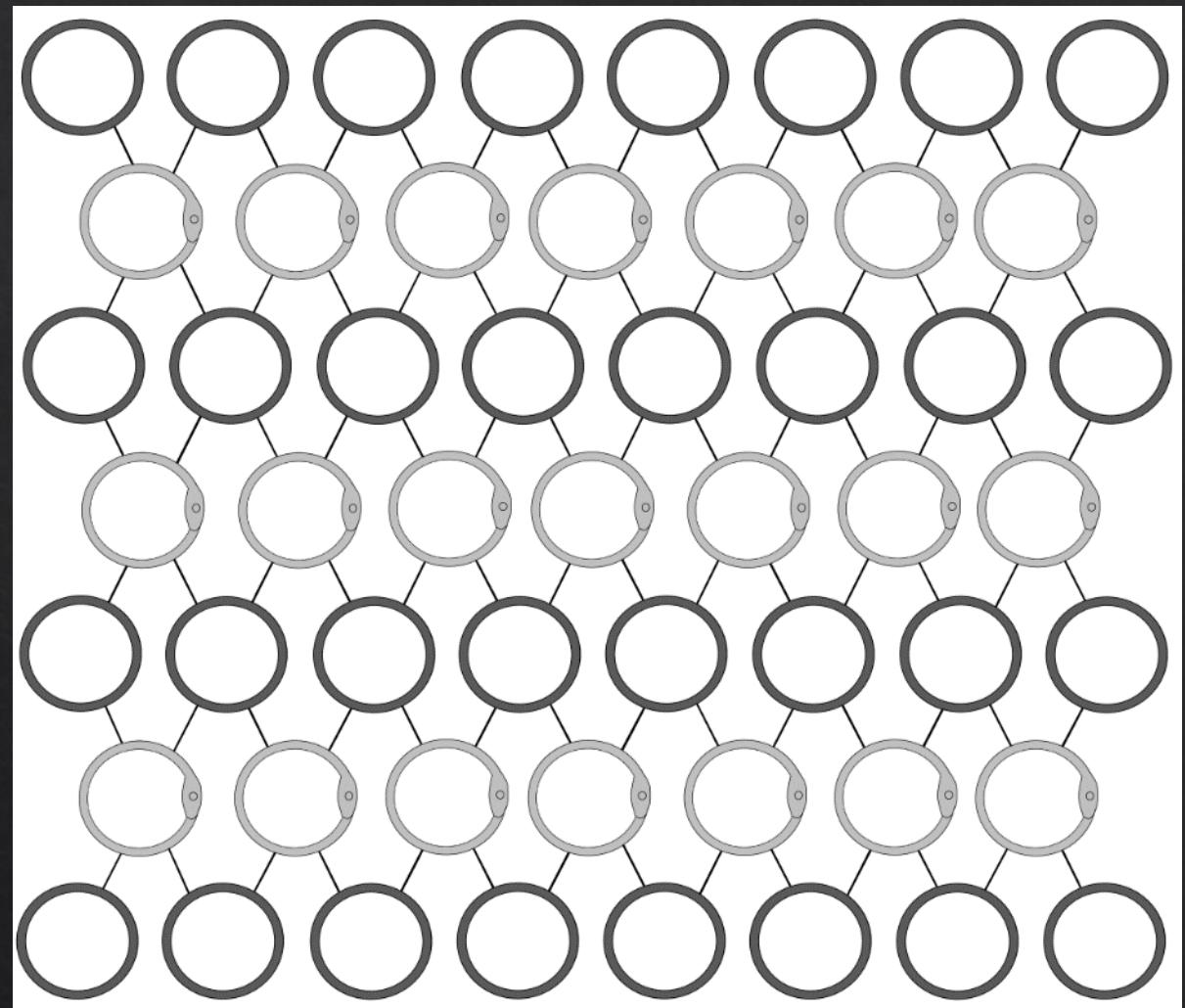
If only copper alloy rings, it is either a decorative element or it is not mail armour



## 2. WEAVING PATTERN

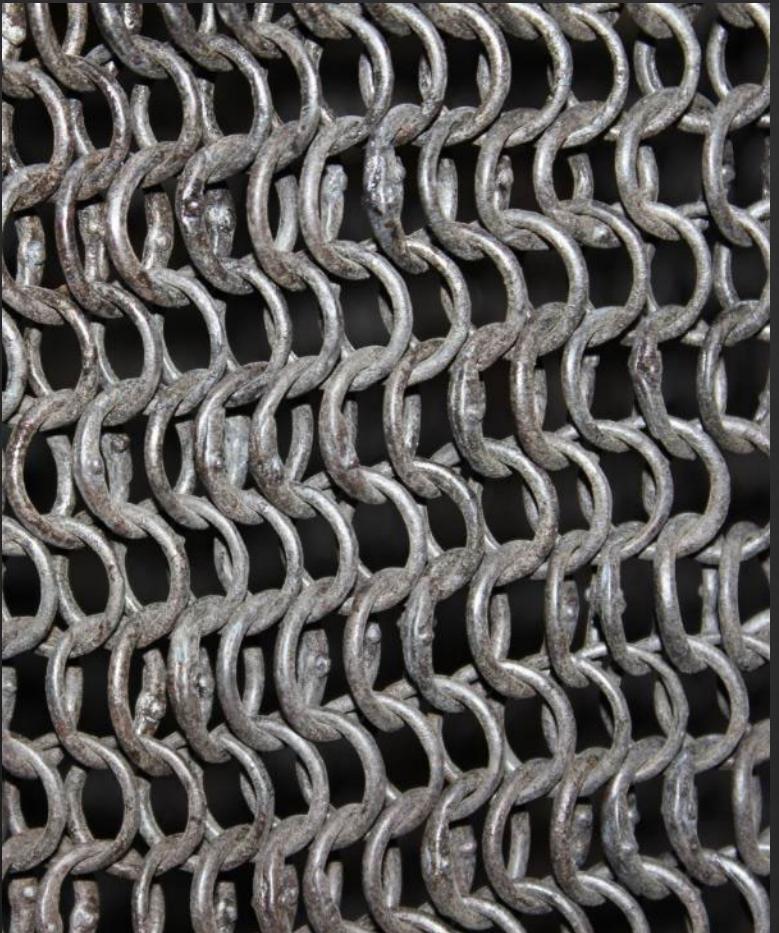


Many weaves are possible (Japan)



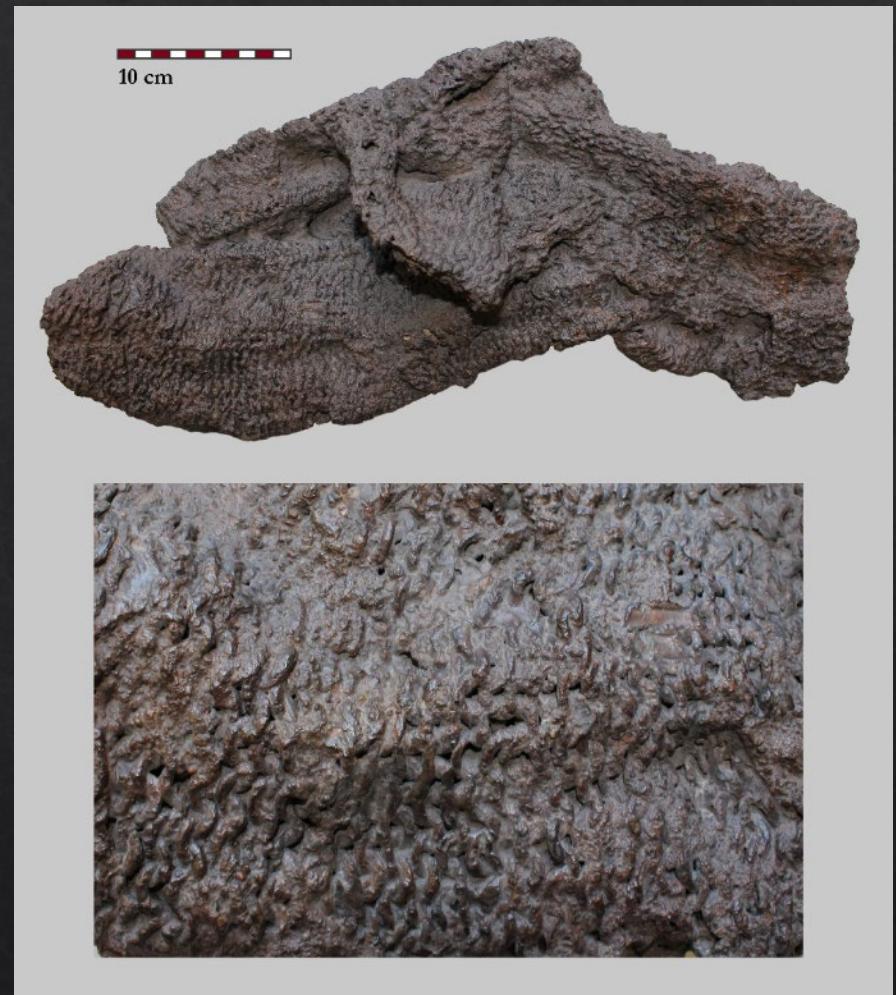
Outside of Japan only one pattern

# 4-IN-1 WEAVING PATTERN



Vimose,  
AD 150-220

Weissenburg  
mid-3rd century AD



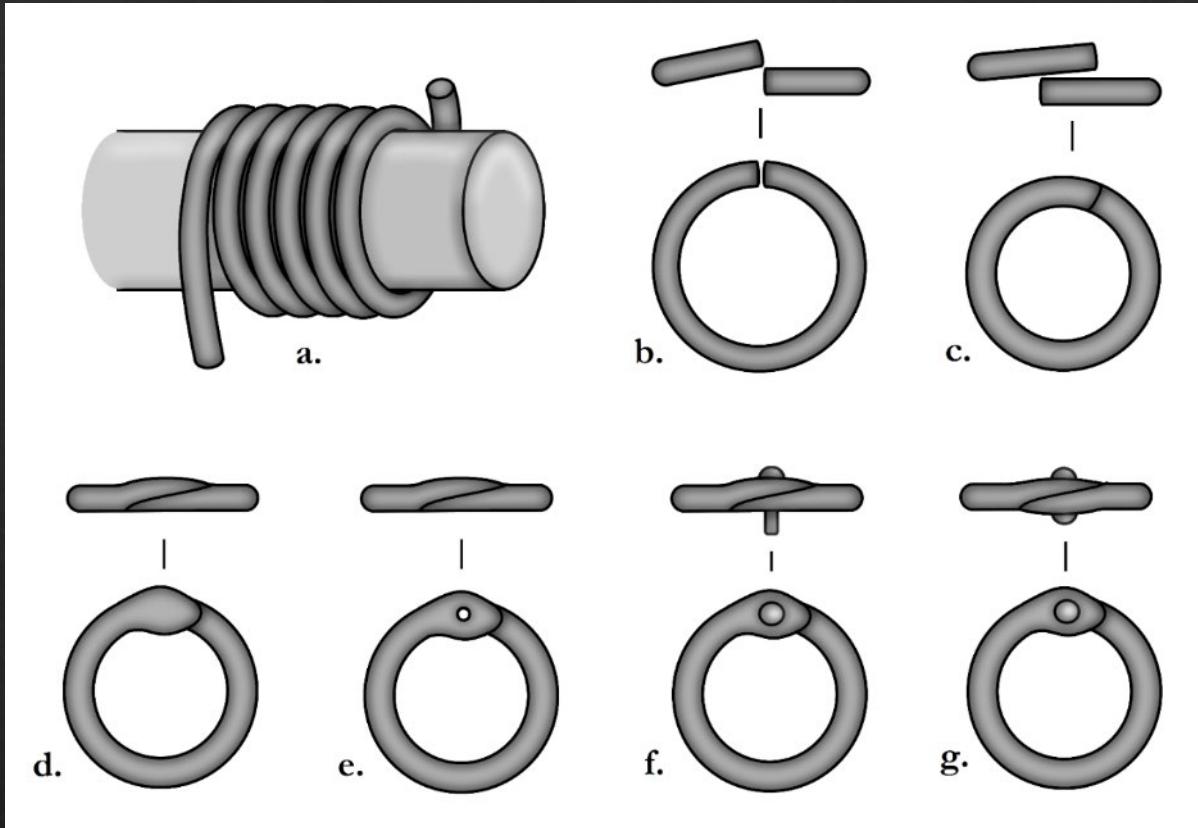
RECOGNISABILITY 2:  
It needs to be woven in a 4-in-1 pattern

### 3. MAIL RINGS



# RIVETED RINGS

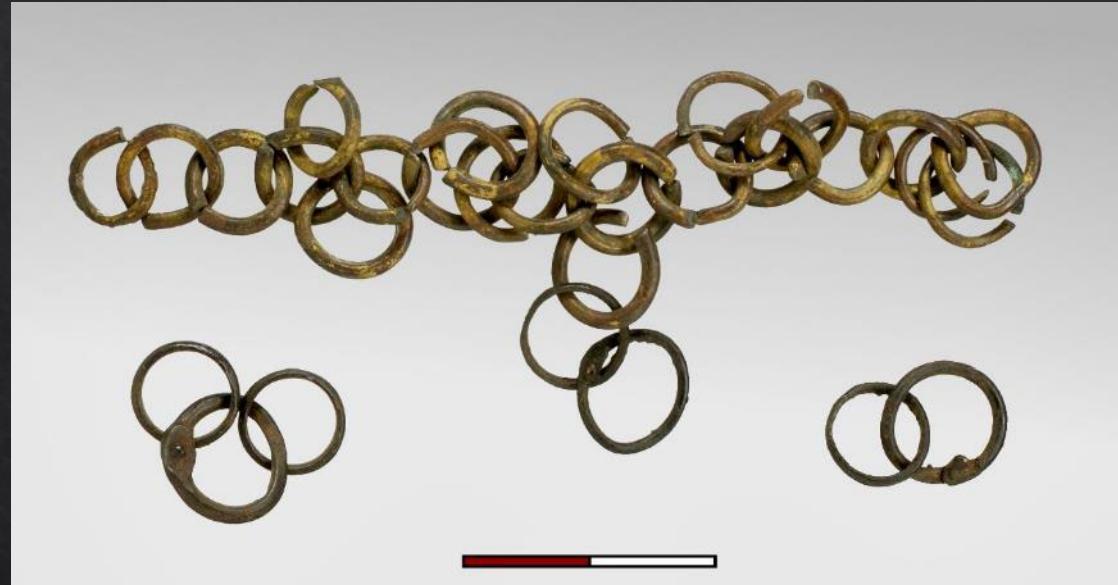
Process of  
making riveted  
rings



RECOGNISABILITY 3: all mail armour is made with riveted rings.  
No riveted rings, then probably not mail

# CAVEAT: RIVETED RINGS

Thorsberg – mid 2<sup>nd</sup> – early 3<sup>rd</sup> century AD



Tiefenau – LT D



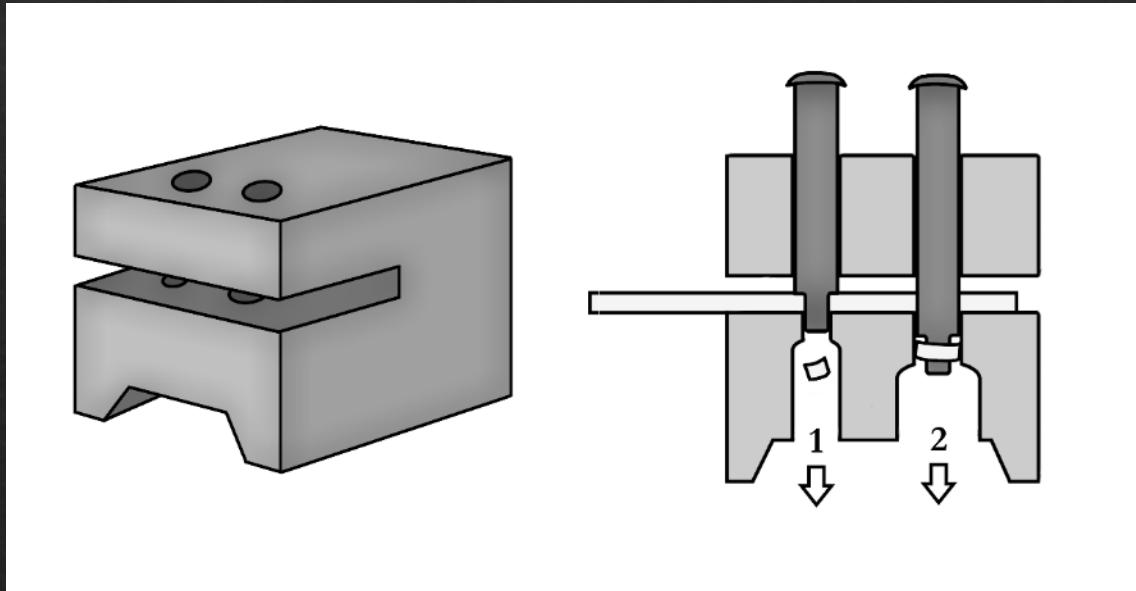
Butted rings can be observed in mail armour:

- As repairs
- As decorative elements

Always consider the condition of the artefact:

- Impedes sometimes seeing rivets, even with technological aids

# SOLID RINGS



## Punched rings

- Large specialised workshops
- Requires less skill



## Welded rings

- Small generalist workshops
- Requires more skill

## 4. RING SIZE

Average ring size through the centuries



RECOGNISABILITY 4:

Outer diameter rings: 6 – 16 mm (extremes 3 - 25 mm)

NB: the minimum and maximum size changes through time/place

# NUMBER OF RINGS IN ONE COAT OF MAIL

WHAT IS THE MAXIMUM NUMBER OF RINGS FOUND IN A ROMAN MAIL COAT?

Ring diameter 12 mm (Vimose, Denmark)

**19,247 rings**

Ring diameter 7-8 mm (average during the 3<sup>rd</sup> century AD)

**150,000 rings**

Ring diameter just over 3 mm (15 BC – AD 180)

**350,000 rings!**

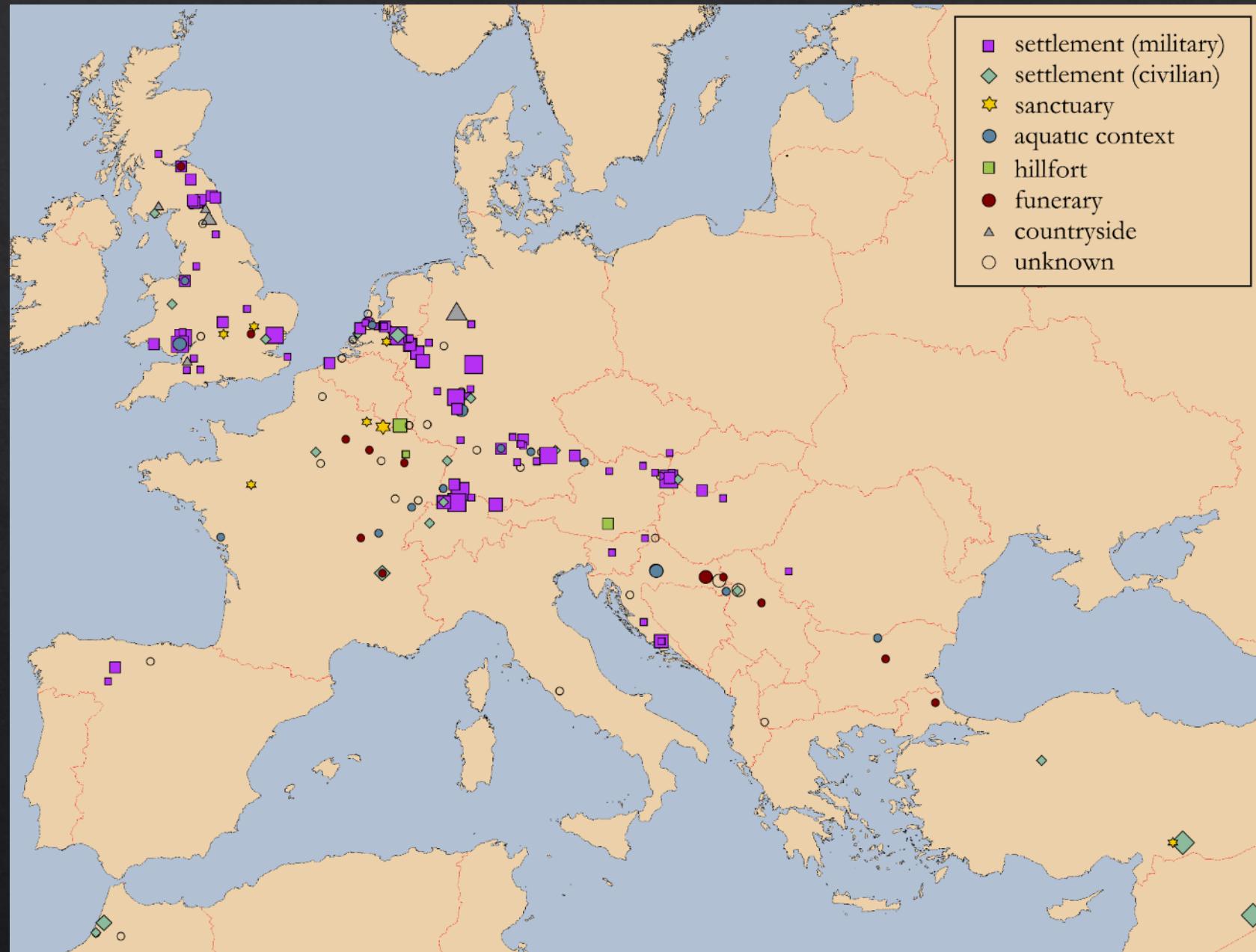
## 5. LOCATING A MAIL ARMOUR WORKSHOP

Caerleon  
Mid-3<sup>rd</sup> century  
AD



RECOGNISABILITY 5: finding large clusters of loose single rings, many of them misshapen or unfinished is the best evidence for mail making activity

# OCCURRENCE AND VISIBILITY ROMAN PRINCIPATE



# OFTEN ONLY SMALL FRAGMENTS - RECYCLING



Re-use of mail patches:

- To fix other mail garments
- As an abrasive?

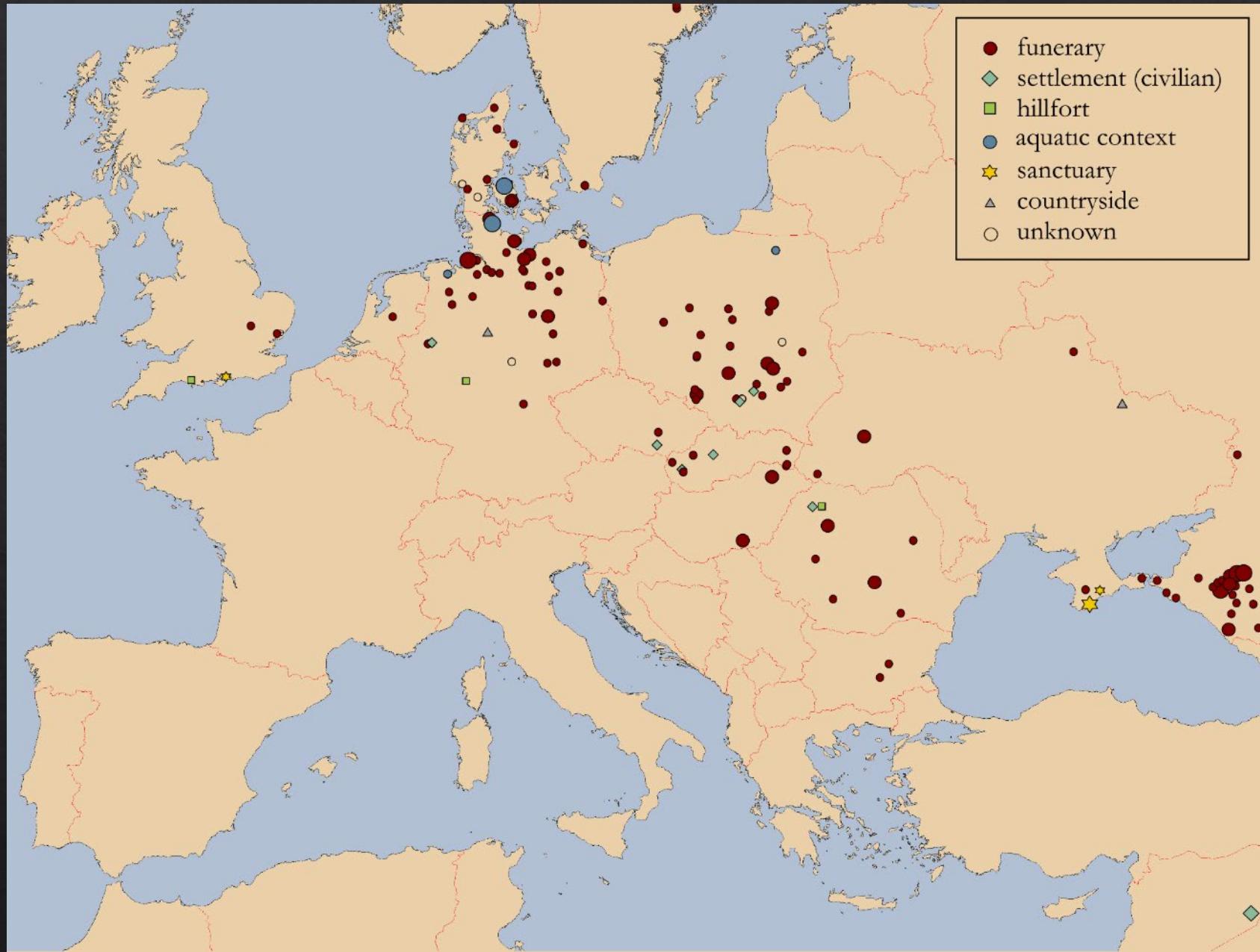
Loughor, United Kingdom, c. AD 260-310

Gnotzheim, Germany, 2nd-3rd century AD

Newstead, UK, AD 140-180

Sisak, Croatia, Roman Principate

# OCCURRENCE AND VISIBILITY ROMAN IRON AGE



# WAR BOOTY SACRIFICES



# FUNERARY CONTEXT



Hagenow 3 (burial 9/1995) in Germany, AD 100-110

# PHENOMENON: c. AD 70 – 9<sup>TH</sup> CENTURY AD



Map of burials with  
mail armour

Over a **quarter** of  
belongs to women and  
children

344 burials

75 female

19 infant

250 male or  
unidentified

# DIFFERENT TRADITIONS



## WEAPON GRAVES WITH MAIL

- ❖ Male/undetermined
- ❖ Complete items of mail
- ❖ Presence of other *militaria*
- ❖ Rich, ornate grave goods
- ❖ 62% contains gold or silver items



## WEAPONLESS GRAVES WITH MAIL

- ❖ Male/female/infant
- ❖ Small pieces of mail
- ❖ No *militaria* present
- ❖ Wider social range
- ❖ 12% contains gold or silver items

# ROMAN MAIL FROM THE PRINCIPATE

Is completely **functional**, but also **sloppily** made



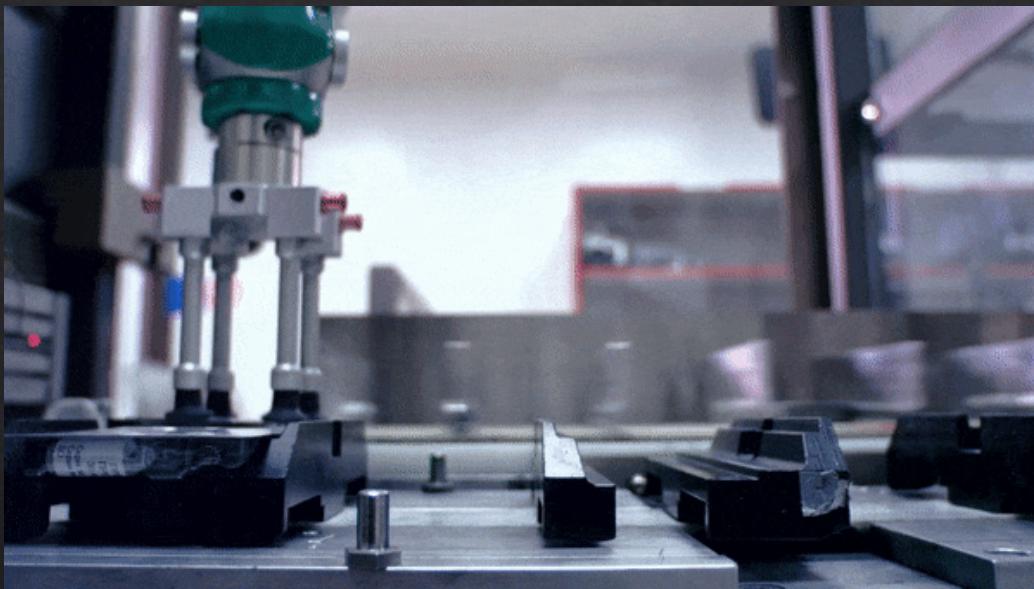
Newstead, United Kingdom 2<sup>nd</sup> century AD



Carlingwark Loch in the United Kingdom, AD 80-200



# MAIL AS A CULTURAL PRODUCT



Mail is a **mass product** in  
the Roman army



Mail is a **luxury product** in the  
Barbaricum

# Mange tak

*Contact:*

Martijn A. Wijnhoven

The Institute of Archaeology, Brno  
Academy of Sciences of the Czech Republic

[wijnhoven@arub.cz](mailto:wijnhoven@arub.cz)



Iron Age helmets.

Matthias Frisk, Bohusläns Museum

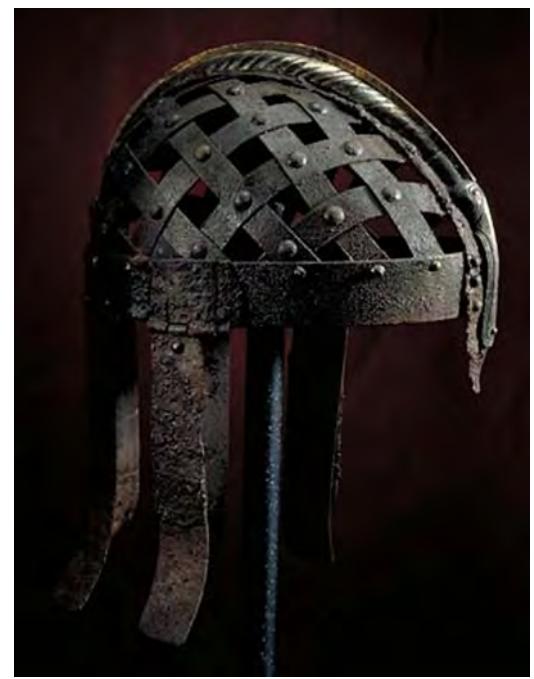
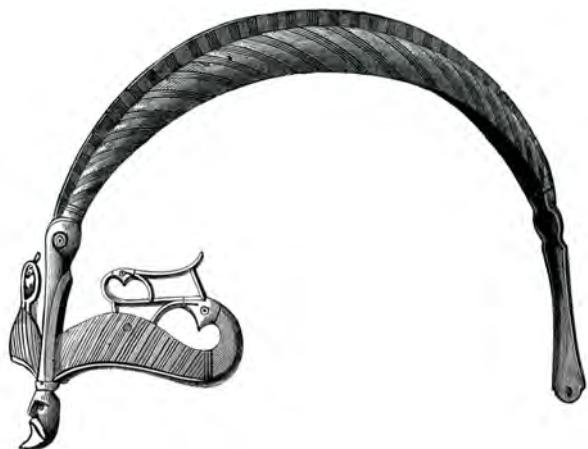
**If I can see yours,  
you can see my...**

**Weapons and riding gear in the  
first millennium**

***IRON AGE HELMETS***

**Mattias Frisk  
Bohuslåns Museum**

# Introduction



# Older finds – Migration Period

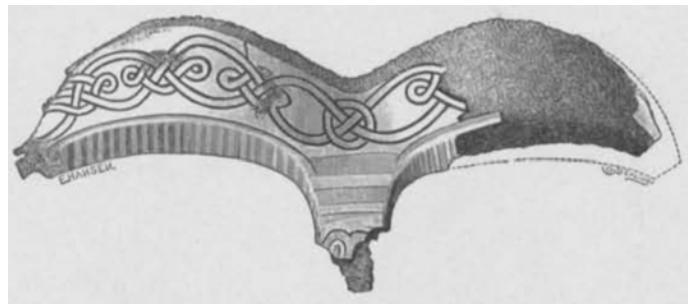


288

# Older Finds – Vendel Period



# Older finds – Viking Period



# Recent finds - Norway



291

# Recent finds - Denmark

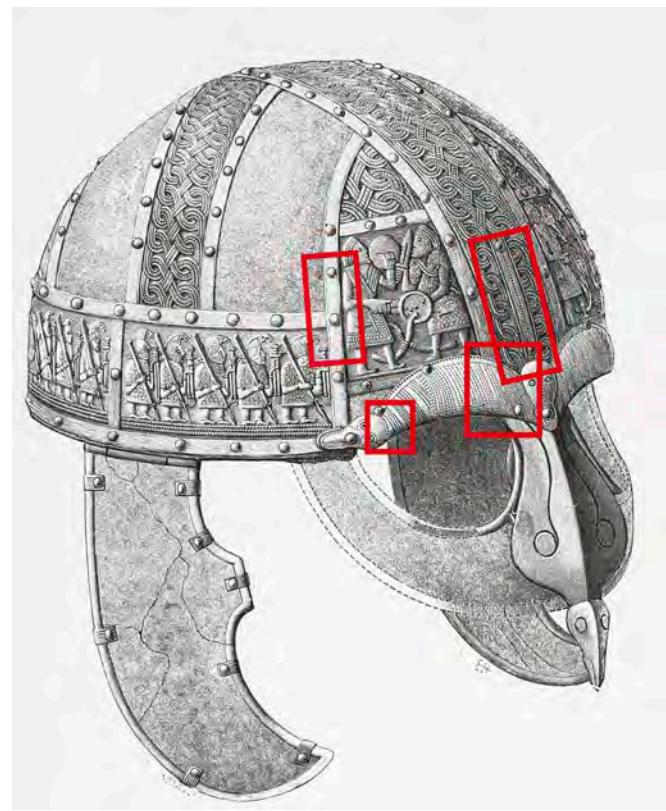


# Recent finds - Sweden



293

Ströja 2019  
Fnr: 503 682:1



294

Image credit: Anton Seiler, Arkeologerna SHM.



# Summary



296

Image credit: Wikipedia CC BY



Warrior of Scandinavian Vendel culture, c.550-800

A

Thank you!