

The Use of Archers in the Northern Germanic Armies Evidence from the Danish War Booty Sacrifices

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The following paper primarily examines Danish archaeological material, but in order to put the findings into a broader perspective, I have also included a survey of Roman archery equipment. I hope that it will be obvious that even though the Roman army had a distinct influence on the organisation of the northern Germanic army, there are major differences nevertheless.¹

INTRODUCTION

As C. Engelhardt excavated and published the famous finds of Thorsbjerg bog and Nydam bog in southern Jutland and Kragehul bog and Vimose on the island of Funen, a new era of Iron Age research in Denmark began.² The excavations in Ejsbøl bog and Illerup Ådal followed, and especially the latter (with its high quality documentation) made an enormous impact on the interpretation of the war booty sacrifices.³

The classical “war booty horizon” began around the birth of Christ with a small deposit in Ejsbøl bog near Haderslev in southern Jutland, followed by a couple of bigger offerings in Vimose on Funen from the late 1st century and in the 2nd century AD.⁴ Otherwise, the vast majority of weapon offerings occurred in period C1b, the first half of the 3rd century, and continued into the migration period.

The main concentration is found in present-day Denmark, particularly in eastern Jutland

and on the island of Funen, but the war booty finds extend to southern Scandinavia, northern Germany and Poland (see Fig. 1 in article by Ulla Lund Hansen).

As the weapon burial practice gradually thinned out late in the period C1a in the present Danish area, Schleswig-Holstein and part of northern Germany and Poland, the bog finds provide unique knowledge of the military equipment of the time. It proves that the grave finds do not reflect a “living culture” in Eggers’ sense of the words.⁵

Arrows that appear in massive numbers in the war booty finds have been totally neglected in the research. Only K. Raddatz has attempted to establish a typology. Unfortunately it is insufficient regarding precise definitions of the types, but until recently nobody has undertaken its revision.⁶

THE MATERIAL FROM *BARBARICUM*

Arrowheads appear sporadically in grave finds in various places in *Barbaricum* in the middle of the Early Roman Iron Age. Only from the beginning of the Late Roman Iron Age do we see massive occurrences throughout Europe north of the *limes* on settlements, in grave finds and especially in the southern Scandinavian bog finds.

Because of the unique conditions in the bogs, the arrow-shafts are frequently preserved. The

1. I sincerely thank Adrienne Murphy, Lone G. Thomsen and Helga Schütze for their kind help correcting my often inexpert English.
2. Engelhardt 1863; 1865; 1867; 1869.
3. Ørsnes 1988; Carnap-Bornheim & Ilkjær 1996; Ilkjær 1990; 1993; 2001.

4. Andersen 2003; Pauli Jensen 2003.
5. Eggers 1951, 23-24.
6. Raddatz 1963; Pauli Jensen 2002.

majority comprises split pine (*Pinus sylvestris*), the remainder is ash (*Fraxinus excelsior*) or on rare occasions hazel (*Corylus avellana*). Sometimes an impression of a feather can be seen in the tar that was used to glue the feather to the shaft. Recent research shows that some of these tail-feathers belonged to the white-tailed eagle (*Haliaeetus albicilla*).⁷

The war booty offerings include powerful longbows made of yew (*Taxus baccata*), whose qualities as bow wood have been appreciated right up to the present. The bows are the size of a full-grown man and are oval or D-shaped in cross-section. Experiments with modern copies of the bog-found bows have shown that they had a range of at least 130-140 m.⁸ Occasionally, they have ornate carvings or windings, as seen in Figures 1 and 2. Unfortunately, the

bows prove difficult to date, because of the lack of comparative material in the grave finds, and because they often have been floating in the Iron Age lake and therefore seldom are found in their primary layer.

In the following, I will focus on the arrowheads. This paper examines the southern Scandinavian group, where the arrowheads are found primarily in bogs but also in graves and different types of settlements. Of the 1,500 Roman Iron Age arrowheads known from the area of present-day Denmark, 95% are found in the war booty sacrifices. They can be divided into three main types (Fig. 3a-c), with subtypes and sub-subtypes based on outer shape, cross-section and shafting:⁹

- I. Leaf-shaped arrowheads with flat rhomboid cross-section occur in both a broad and a slim version with different shafting.

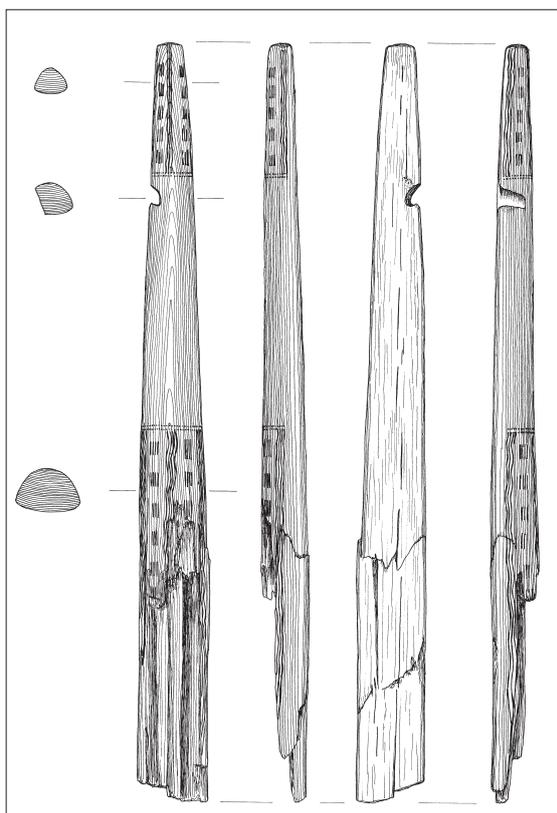


Fig. 1. Fragment of a longbow made of yew from the Nydam III find (drawing: Eva Koch. From Jørgensen & Petersen 2003, fig. 32).

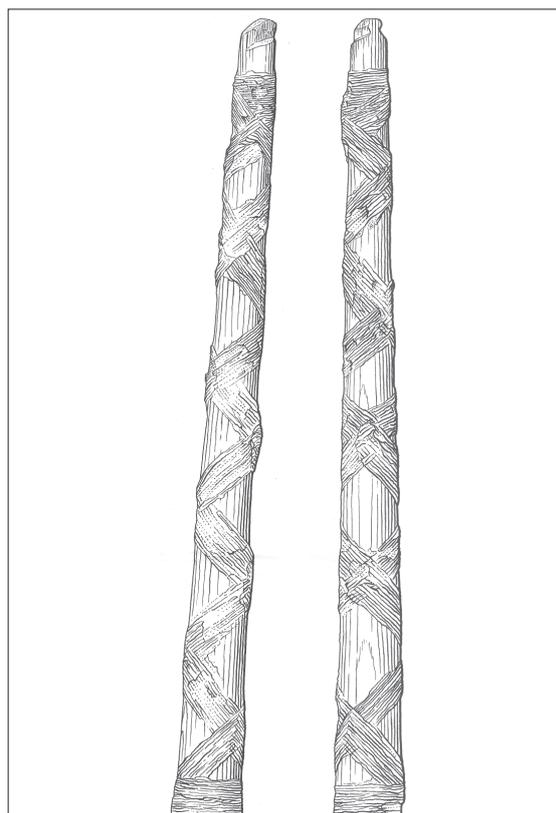


Fig. 2. Detail of a longbow made of yew from Illerup Ådal (drawing: Lars Foged Thomsen).

7. Paulsen 1998, 414; Pauli Jensen, forthcoming.

8. Nielsen 1991, 144-145.

9. Pauli Jensen 2002.

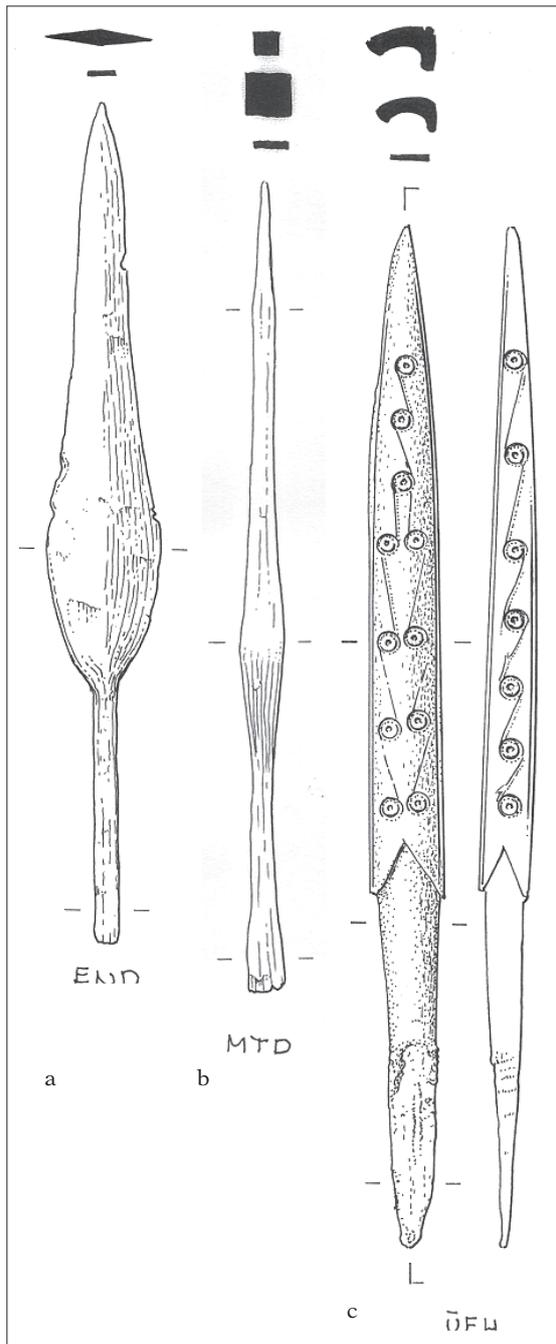


Fig. 3a-c. Arrowheads from Illerup Ådal. Left, a broad, leaf-shaped arrowhead with flat rhomboid cross-section, in the middle, a nail-shaped arrowhead with square cross-section, right, a bone-arrowhead with triangular cross-section (drawing: Lars Foged Thomsen).

The type is widely distributed in Europe north of the *limes*.

- II. Nail-shaped arrowheads with square cross-section, with or without bulb and with dif-

ferent shafting. This type is the most common in Denmark and it is mainly found in southwestern Scandinavia.

- III. Slim bone arrowheads with triangular cross-section, very often beautifully decorated with geometrical figures. They are normally found in southeastern Scandinavia.

Besides these three main types, there is a residual group that will not be included in this paper.

It is important to understand that the shape of the arrowhead plays a major role in its functional advantages. To clarify the difference between hunting and warfare, a hunter is interested in an arrowhead that cuts smoothly into the vital organs of the animal in order to make it bleed to death quickly before it moves away from the archer. A broad, cutting edge therefore is the key – the broader the head, the bigger the hole (Fig. 4).

If the purpose is to penetrate a shield, chain mail etc., impact is a priority, and a narrow arrowhead will pierce deeper than a broad one (Fig. 5).

Weight is another important functional element: the heavier the arrow, the more energy it delivers. In contrast to this, light arrows achieve higher speed, and living tissue is less resistant to penetration at high speed (archers call it the “splash-effect”).

From these facts, one can conclude that all the nail-shaped arrowheads, both with triangular and square cross-section, must be interpreted as specialised war-arrows with an effective penetration ability against living tissue, shields and not least chain mail. The leaf-shaped specimens are suitable for hunting; however the narrow types can be very effective in warfare. In my opinion, the leaf-shaped arrowheads are versatile, primarily constructed for hunting, but with the advantage of also being used in warfare.

If we now return to the war booty offerings, it appears that two thirds of the arrowheads are specialised for war, while less than one third is effective for hunting. Furthermore, the hunting arrows only dominate the early deposits, i.e., the Vimose find (Pl. XVI), for which the largest deposit

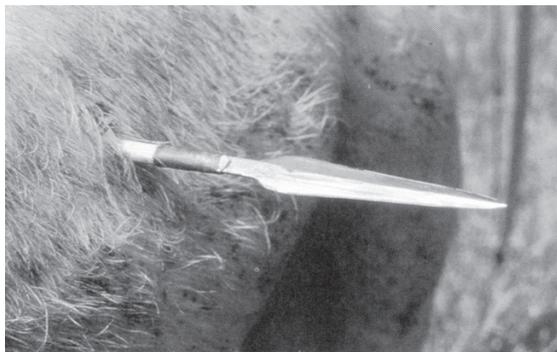


Fig. 4. Shooting experiments with a dead pig without chain mail (photo: Historical-Archaeological Research Centre Lejre/H. S. Rasmussen, Nielsen 1991).

dates to period C1b, and in Illerup Ådal offering A, which was deposited shortly after AD 200.

There is no doubt whatsoever that the specialised war arrows made of iron dominate all the deposits from the late 3rd century and on. They clearly show signs of batch production and they form a very homogenous group, thus signifying increased specialisation and uniformity of war arrowheads emerging during the Late Roman Iron Age.

Archers in the northern Germanic army

The appearance of arrows in the war booty and grave finds takes place almost at the same time as a number of other changes in weaponry are apparent at the transition of the Early to the Late Roman Iron Age. The short *gladius* swords and the single-edged swords are replaced by the longer *spatha*, which in the Nordic area is carried in an individually fitted cross belt.¹⁰ Very often, one or more spears now supplement the lance, which had hitherto been the absolutely predominant attack weapon.¹¹ Furthermore, the cavalry becomes an integrated part of the army in Late Roman Iron Age.

The vast amount of arrows that appears in the bog finds marks the appearance of a special unit – the archers. Archers had long been a part of the Roman auxiliary-units,¹² but around AD 200 we can detect their presence in the southern Scan-



Fig. 5. Shooting experiments with a dead pig wearing chain mail. Note that some arrows have pierced the chain mail (photo: Historical-Archaeological Research Centre Lejre/Nielsen 1991, fig. 13).

dinavian armies as well. Their presence in the army indicates that the military tactics changed towards a looser formation with smaller mobile units. I totally agree with J. Engström that the archers primarily play their tactical part in the introductory phase of the battle, where they send a shower of arrows over the opponents from a distance of at least 150 metres by shooting 45° up into the air.¹³ As such, the archers function as a support weapon for the infantry.

The question is did the appearance of bows and arrows have any impact on other types of weaponry? Investigations of shields from Illerup Ådal show that the shields from the Late Roman Iron Age were constructed differently from those of the Early Roman Iron Age. The new feature was a layer of gut, which was drawn over the shield, making the surface waterproof and at the same time effectively holding the shield boards together. Modern experiments that shoot arrows at shields with this surface treatment show that they are much better able to withstand a shower of arrows (Fig. 6a-b).¹⁴

It is striking that this new construction technique appears at exactly the same time as bows and arrows are introduced in the war booty offerings. I do not think this is a coincidence.

10. Carnap-Bornheim & Ilkjær 1996.

11. Ilkjær 1976, 150.

12. Erdmann 1976.

13. Engström 1992.

14. Ilkjær 2001, 361-362.

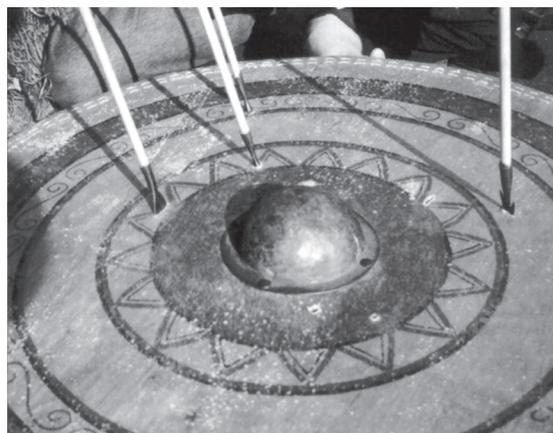
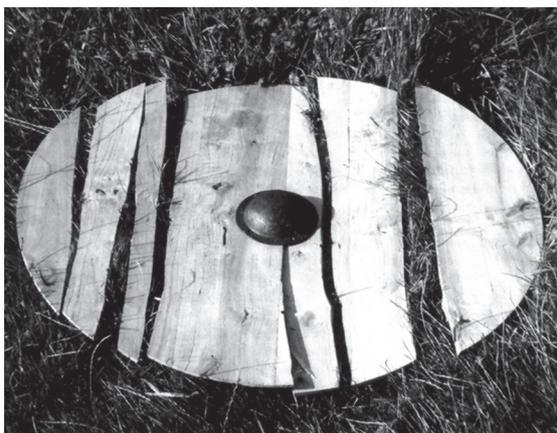


Fig. 6a-b. Experiment shooting arrows at shields covered with gut and uncovered. The uncovered shield is split in many pieces, while the shield with gut protection is intact, even though the narrow war arrowheads still are quite effective against the shield (from Ilkjær 2001, Abb. 320-321).

A SURVEY OF ROMAN ARCHERY EQUIPMENT

Contrary to the situation in northern *Barbaricum*, much more information is available on the use of archers in the armies of the Roman Empire, and it includes both written and archaeological sources plus depictions. An example where archaeological and written sources support each other is one of the most famous battles between Romans and Barbarians in Alésia around 50 BC. The written sources tell us that the chieftain Vercingetorix sent for archers, and when archaeologists excavated the site near the French town of Dijon, a number of arrowheads showed up, both of Roman and Barbaric origin.¹⁵

The most common Roman archers are the eastern – often Scythic – auxiliaries with their small, curved bows, especially known from depictions on the columns of Trajan and Marcus Aurelius in Rome. The columns depict Trajan's wars against the Dacians in the years AD 101-105 and the later part of Marcus Aurelius' so-called Marcomannic Wars in AD 166-180.¹⁶ Images of eastern archers are also known from tombstones, like the famous specimen from Housesteads on Hadrian's Wall in northern England. This Hamian archer carries a bow in

his left hand and an axe in his right. He could have been part of the Scythian unit that was stationed at Hadrian's Wall.¹⁷ It is important to mention that the Roman auxiliary-units not only used eastern European archers, but also recruited from the rest of *Barbaricum*.¹⁸

The archaeological material comprises a large amount of archery equipment, such as arrowheads, quivers, wrist protection and bone-stiffeners from composite bows. The main area of distribution of Roman equipment in general is the *limes* on the Continent, in England and around the Mediterranean (Fig. 7).

What do these eastern bows look like? They are not the same size as the northern longbows, but are small bows of the "recurve-type". This type is characterised by the fact that the outer ears of the bow are turned away from the archer, thus providing an extra push at the release of the arrow. The recurve-bow will always be made from two or more materials in combination; archers call it a "composite-bow". The principle is widely used, both geographically and historically, and varies from gluing sinew to the back of the bow in order to increase effectivity and strength, to combining many different materials, e.g., wood, antler, bone, sinew etc. Bone stiffeners from composite-bows are

15. Duval 1970; Sievers 2000.

16. Rossi 1971; Caprino *et al.* 1955.

17. Webster 1998, plate XVI.

18. Erdmann 1976.

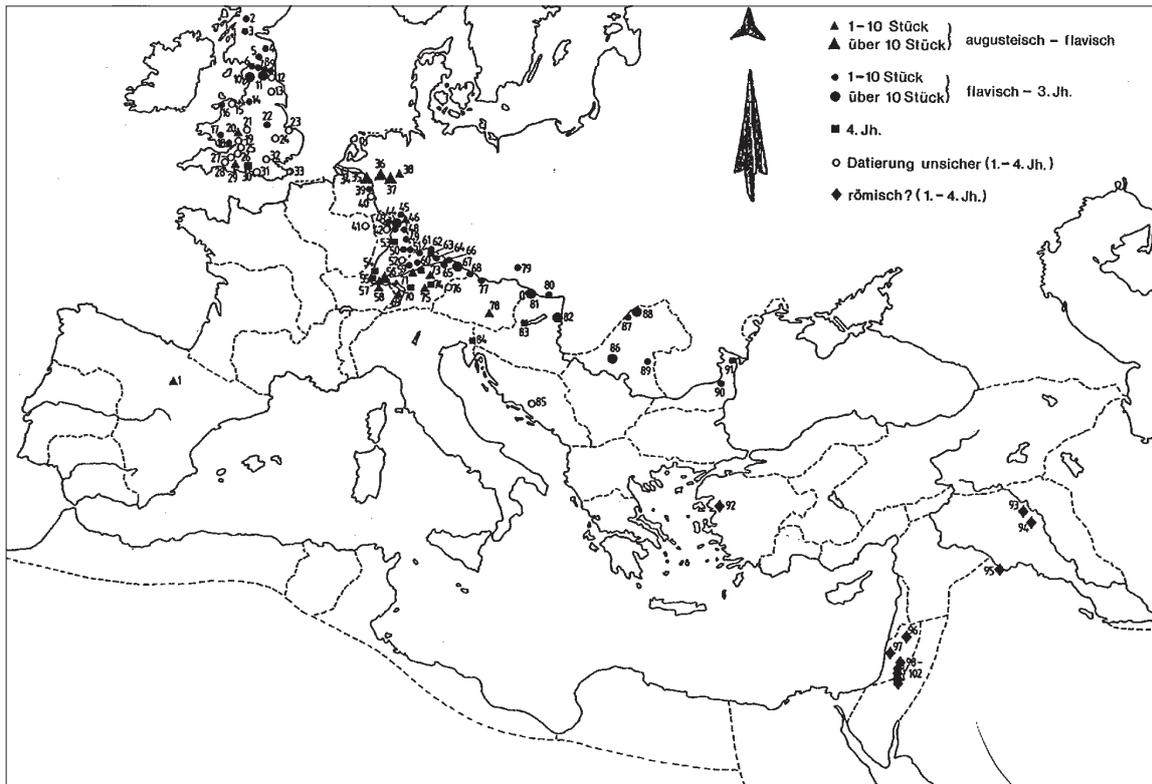


Fig. 7. Distribution of Roman three-winged arrowheads from 1st-4th century AD. The other types of arrowheads and the bone stiffeners from the composite bows show a similar distribution (from Zanier 1988, Abb. 2).

quite common,¹⁹ like the specimen in Figure 8 from Bar Hill by Glasgow in Scotland. It is possible to observe a certain development of the “Roman” bow during the first couple of centuries AD, but this issue will not be discussed here.

The Roman arrowheads are leaf-shaped or three-winged with socked or rounded tangs and are made from iron or bronze (Fig. 9a-b).²⁰ The nail-shaped arrowheads exist, but these have proved difficult to divide from the specimens used for the catapults.²¹ Still some researchers regard the northern Germanic nail-shaped arrowheads as an example of Roman influence.²² There are some differences though: the Germanic arrowheads from north of the *limes* are a great deal longer than are the Roman specimens, which almost never exceeded 8 cm, plus a

number of less striking features that will not be mentioned here.²³

CONCLUDING REMARKS

To summarise the results from above, we now can divide the archery equipment in Europe into three major groups:²⁴

1. Arrowheads with flat tangs characterise the northern area. This group includes both leaf- and nail-shaped arrowheads of iron or bone and bone arrowheads with a triangular cross-section. The bows are longbows made of yew.
2. Broad, leaf-shaped arrowheads with sockets dominate Europe north of the *limes*. Nail-shaped arrowheads also occur here, but the

19. Werner 1932; Coulston 1985.

20. Erdmann 1976; 1982; Davies 1977; Zanier 1988; Gudea 1994.

21. Erdmann 1982, 6.

22. Raddatz 1963; Haberstroh 2000.

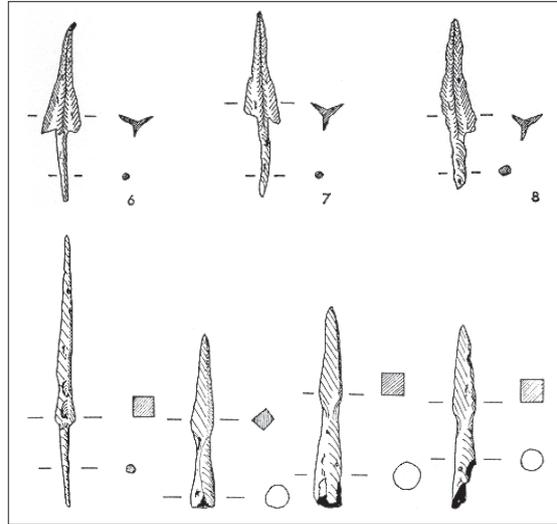
23. Pauli Jensen 2002.

24. Pauli Jensen 2002.



Fig. 8. A bone stiffener from a composite bow found at Bar Hill, Scotland. The bow probably belonged to one of the Scythian archers from "Cohors I Hamiorum Sagittatorum", who stayed at the fort in the 2nd century AD (from Webster 1998, fig. 25).

Fig. 9a-b. Roman three-winged and nail-shaped arrowheads from Saalburg, Germany; all specimens measure under 8 cm. Probably they are dated to the time AD 135-260, when "cohors II Raetorum civium Romanorum (equitata)" were situated at the fort (from Erdmann 1976, Abb.1, 6-8; 1982, Abb. 1, 4-7).



bone arrowheads are practically non-existent. Bows have not been found in this area.

- Roman arrowheads are often three-winged or nail-shaped with sockets or rounded tangs. The bows are composite-bows of eastern European type. The main area of distribution is the *limes*.

From the analyses above, we can conclude that the Roman archery equipment is different from the southern Scandinavian material. I see no connection whatsoever between the Roman fort at Straubing/Sorviodurum and the Vimose find, as suggested by J. Troeng.²⁵ On the contrary, I find that the material from the *limes* area represents a homogenous group in which Straubing fits naturally. There is quite a difference between the longbows of Vimose and the other war booty sacrifices of the North, and the bone stiffeners from Straubing and other Roman *limes* forts.²⁶ Likewise, the term "three-sided" arrowheads used on the bone-specimens from Vimose (Fig. 7) does not describe the "three-winged" Roman arrowheads of Straubing, again as suggested by Troeng.²⁷ The proposed connections between the Roman and the northern Germanic archers therefore have no basis in the material themselves.

On the other hand, I do see a more subtle connection between the use of archers in the Roman and the northern Germanic armies. I find that the massive occurrences of bows and arrows in the northern Germanic area in the early 3rd century, period C1b, alone are remarkable, and in my opinion the use of archers in the northern Germanic army must be understood in connection with the other changes in army structure of the time. We have seen above that the appearance of the archers affects other weaponry, i.e., the shields, and thus the southern Scandinavian armies experience a sudden, new focus on long-distance weapons. The arrowheads appear in large numbers in the early 3rd century, but the standardised war-arrowheads only dominate the finds from the late 3rd century and on, interpreted as the emergence of a specialised unit. This situation is somewhat similar for the other weaponry, as C. von Carnap-Bornheim and J. Ilkjær have observed analysing lances, spears and shields from Illerup Ådal deposit A, from the earliest part of the 3rd century.²⁸ Only the archery equipment was delayed in this standardisation process.

The appearance of a number of special forces and the standardisation of arrows, shields, lances and spears, in my opinion, must be in-

25. Troeng 2003.

26. Walke 1965, Taf. 105: 25-30.

27. Walke 1965, Taf. 105: 5-8; Troeng 2003.

28. Carnap-Bornheim & Ilkjær 1996, 484-485.

terpreted as the emerging of professional armies in the southern Scandinavian area in the Late Roman Iron Age.

The striking uniformity of the war arrows must be the result of a superior control of military production and management. With the present state of research, it is impossible to ig-

nore the Himlingøje complex on eastern Zealand, Denmark, that clearly controls the civilian import from the Roman Empire.²⁹ Is it possible that this princely dynasty, whose contacts were widely spread over the whole of northern Europe and beyond, also controlled the military production, at least for a time?

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