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Book Review: Pfeil und Bogen in der Römischen Kaiserzeit, by Holger Riesch

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This book closes a gap both in the documentation of the history of the Roman army as well as the history of archery in that it provides a very comprehensive overview on the use of bow and arrow in the Roman Empire. It collects and systematically discusses a wealth of information on a range of topics related to Roman archery in the imperial period and extends that discussion to previous and following periods and to cultural influences outside the Roman Empire where appropriate.

> For experimental archaeology and related fields it is a valuable source of - in many instances - very detailed information about finds, artefacts, reconstructions, and experiments which will help future researchers and practitioners to design and conduct their own projects.

This comprehensive work is reflected in the impressive size of the book, which comprises a total of 300 pages divided into fifteen chapters. After a short introduction, chapters II – V address the use of composite reflex bows, notably the Yrzi bow as an example of a Parthian style bow and the Qum-Darya bow as an example of a Hunnish style bow. Chapter VI turns to a discussion of wooden self-bows, with chapters VII and VIII discussing the types and functions of metal arrowheads, their metallography and production respectively, whilst chapter IX deals with arrow shafts. In chapters X and XI the author critically evaluates aspects of efficiency of bow use and presents a selection of experimental studies investigating the effectiveness of different types of arrows. An interesting, and perhaps less expected, addition to the discussion is chapter XII on the treatment of arrow wounds in the Graeco-Roman world. Finally, chapters XIII and XIV provide an overview of quivers and other accessories such as gloves, arm guards, but also tools for maintenance and repair of equipment. The concluding chapter XV gives a short summary and outlook for future research and reconstructions. The book provides an extensive appendix comprising endnotes with additional information and bibliographical details, a list of references, pictures and a glossary. The book is written in German, with some Latin (partly translated) and French (untranslated) quotes and a large number of quotes (untranslated) from English sources.

As a fan of both Roman history and archery I was very excited about the book and eager to read it. However, I soon discovered that getting to grips with the text was no easy feat. In the introduction it already becomes clear that the reader has to bring a substantial amount of knowledge about both Roman (military) history as well as all aspects of archery to the text in order to fully benefit from it. The introduction is already very focused, with no explanation of or introduction into the era in question, nor the possible types of bows relevant for discussion and little clarification of technical terminology either by words or illustrations. However, the reader eventually learns that the focus of the investigation into archery in the Roman Empire will initially focus on composite bows as part of military equipment. Quite how this discussion will be structured remains open, the reader is merely informed in a few sentences that relevant artefacts will be discussed in detail from a toxological and technical perspective.

Nevertheless, chapter II makes it somewhat clearer how the author intends to proceed. The author provides a detailed, more explanatory description of composite bows and in particular of the remains typically surviving in the archaeological record; these include the bone laths of the bow. Systematic comparisons with imagery found on frescoes, gravestones or other types of monuments provide valuable additional information on the bow design, but the author

rightly warns against an uncritical interpretation of the imagery as a source of authentic depictions of bow designs. Chapter II also introduces one of the most important artefacts relevant for the time period under discussion: the so-called Yrzi bow found in a graveyard in Baghouz on the banks of the Euphrat River near Dura. It is remarkable in that it is relatively complete, dated to the between the 1st and 3rd centuries AD and, for the time of its discovery in the 1930s, relatively well-documented. Thus, this bow lends itself to a detailed investigation of technical specifics of composite bow construction, as well as an interesting discussion of the divergence between the artistic representations of (Scythian) bows in comparison to artefacts. This latter discrepancy is between a more conservative and stereotypical depiction of bows and the technical advancements as evidenced by contemporary artefacts.

Chapter III continues with the detailed discussion of artefacts and broadens the view to include finds from Far Eastern cultural areas and their relevance for bow making in the Roman Empire. In its thoroughness the discussion is very useful for experimental purposes, aided by very thorough and consistent referencing.

Chapter IV turns to the appropriation of Hunnish reflex bows; again with very detailed description of the relevant artefacts, such as the Qum Darya bow found near Miran in China. A very useful summary at the end of chapter 4.2.1.1 lists the most important characteristics of Hunnish bows that appear across cultural boundaries, such as a straight plate at the base of the riser and long, slim, tapering ear-laths made of bone. The final part of this chapter is taken up by a discussion of mounted archers on imagery originating in regions as far off as China.

In chapter V, the discussion takes up the topic of the Hunnish equestrian bow and its development during the European migration period towards the end of the Roman Empire. A central find for this period are the fittings or laths found in a grave of a Roman auxiliary soldier of possible Mongolian origin in Vienna-Simmering. The remains suggest an asymmetric bow of about 160 cm length of which the two bow ends are of different design. After discussing variants and models of appropriation for the use of late Hunnish bow technology by the Romans, and the depiction of such bows in iconographic sources, the author introduces a reconstruction of the Vienna bow. The author provides detailed information on the material used, the parameters of the finished bow, and the measures gained in shooting experiments.

Chapter VI moves away from composite bows in the eastern regions towards the use of wooden self-bows in the Roman army. Lacking significant finds from the Iron Age, the investigation relies on iconographic sources, which imply self-bows in Italy as one of several possible options available to the Roman imperial army. Searching for evidence of self-bows in other areas of the Mediterranean, research suggests a highly sophisticated tradition of archery on Crete which might have involved the use of wooden self-bows. Although self-bows

of Gallic origin are scarce, arrowhead finds suggest that the use of bow and arrow was commonplace, and that auxiliaries with archers of Gallic origin would have had their place in the Roman army. The author reports that the archaeological record of self-bows as well as arrowheads from the Germanic regions is slightly better, supported by iconographic sources that suggest that the bow was a valued weapon. In section 6.4.2.3 the author puts forward the idea that the Oberflacht bow design dating to early Alemannic times was not an independent development, but had its roots in late antiquity. However, the idea seems very hypothetical, as there is no archaeological evidence, only assumptions based on circumstantial historical events which merely suggest contact between Alemannic tribes and Roman military bases. The argument for such a development requires further substantial evidence and not just a reference to a geographical map of Roman and Germanic positions.

Chapter VII addresses the various types of arrowheads and their functions, with a considerable part of the chapter spent on trilobite arrowheads, their material qualities and their production. Trilobite arrowheads are seen as a mass product used by the Roman army, which have to date not been systematically sorted into categories according to specific qualitative characteristics. The author thus makes an attempt at establishing such a typology, including deviating forms of an otherwise very uniform design. Of particular interest is the discussion exploring the differentiation between arrowheads, crossbow bolts and spearheads. The author points out that such a differentiation is notoriously difficult, and presents several archaeological examples whose interpretation as one or the other is equally possible. He comes to the conclusion that shaft profiles up to a diameter of 1.1 or 1.2 cm could be possible for arrowheads, beyond that it is more likely that a point was used as a (light) spearhead.

Of particular value for experimental archaeologists is chapter VIII, in which the author elaborates on the metallographic qualities of arrowheads and gives detailed information on the possible production process. This discussion of the chemical composition as well as the production process of iron arrowheads is comprehensive and very accessible even for the non-expert reader.

Chapter IX turns to the topic of arrow shafts and discusses the properties and suitability of different types of wood as shaft material before presenting archaeological examples of shafts of different areas of origin, such as the remains of arrows footed with Cherrywood which were found in Windisch, Switzerland. The author also provides a very useful overview of the types of bone nocks found in Dacia and of the different materials used for bowstrings. However, the reader has to be familiar with the different methods of drawing a bow, as the terms are not explained. Also, there is no explanation of the relationship between nock type and manner of drawing or release. Another aspect that requires clarification is the considerable number of terms used for the bowstring (*Nerv, Sehne, Schnur, Sehnenschnur, Bogensehe, Bogennerv* etc.). While their use might be motivated by material and/or type,

such a motivation is not discernible from the text. Although the author provides a wealth of detailed information on all the subjects he addresses, he does not expand on the practice of tapering arrow shafts, as evidenced by finds from Eurasia. It would have been a bonus to learn more about the various ways of modifying and shaping shafts.

In chapter X, the author critically evaluates historical written sources commenting on the efficiency of bows and arrows. Many sources have contributed to the creation of myths which persist into modern times, for instance in the way military archers are depicted in contemporary movies such as Gladiator. Nevertheless, written sources also shed light on the philosophy and training methods of archers, as well as giving information on their equipment. Occasionally, the archaeological record as well as historical texts inform us of items that were used for target practice, notably an Eastern Roman measuring device constructed of a wooden plate mounted vertically on a wooden base. The aim was to hit the edge of the plate so that it moved along a scale drawn onto the base, measuring the effectiveness of the shot.

Moving on from the literature review, chapter XI presents a comprehensive overview of experimental research on the effectiveness of arrows. The author sets two criteria for the selection of experiments to be included in the survey: a) they have to meet scientific standards and b) they have to be published. This is extremely helpful as the reader can read up on the experiment in the original publication. Experiments primarily focus on the effectiveness of different kinds of arrowheads shot at various types of armour, in particular plain wooden and laminated shields and armour made of linen and metal.

As a logical consequence of ineffective armour, injuries sustained through arrow impact are inevitable, the treatment of which is the topic of chapter XII. Again, historical written sources dating to the Roman period and beyond not only report on such injuries, but are also rich in information on how to best treat them, including the presentation of suitable and often very specialised medical equipment. The archaeological record quite often reveals evidence of injuries through arrow impact, and the author uses some well-known examples to hypothesise on how exactly the injuries might have been inflicted. He also mentions the plants and plant extracts that were used to poison arrows, mostly for hunting.

The last two chapters before the final short conclusion deal with the archer's equipment. Chapter XIII provides an overview of the different types of quiver, notably the tube quiver with lid known, amongst others from Iron Age graves in Germany, and the combined bow-and-arrow cases that were used by the Scythians and Sarmatians. An innovative type of quiver of a trapezoidal shape of late Hunnish origin is also discussed, as well as the variety of quivers found in the *Germania Magna*. Finally, Chapter XIV introduces other accessories such as arm guards or bracers, evidence for the use of thumb rings, including the more mysterious spike rings (*Stachelringe*) of Etruscan origin.

Chapter XV provides a very short summary of the main findings and points of discussion of the previous chapters and sets out some desiderata for future (experimental) research.

In terms of language and style the text occasionally seems slightly inconsistent, with very formal and, in some cases, even archaic expressions mixed with more colloquial language. Particularly trying are the consistently wrong use of the question mark at the end of declarative sentences, occasional errors in word order and lexis, as well as the many typing and spelling errors in particular English quotes. With more diligent and rigid editing, these could have been avoided.

Its complexity makes it, as claimed in the preface, certainly a very useful resource for archaeologists and historians, but the recommendation to interested laypersons might be slightly optimistic. My own experience showed me that even with a fairly sound knowledge of Roman history and archery, the text can be considerably challenging. However, for experimental archaeology and related fields it is a valuable source of - in many instances - very detailed information about finds, artefacts, reconstructions, and experiments which will help future researchers and practitioners to design and conduct their own projects.

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