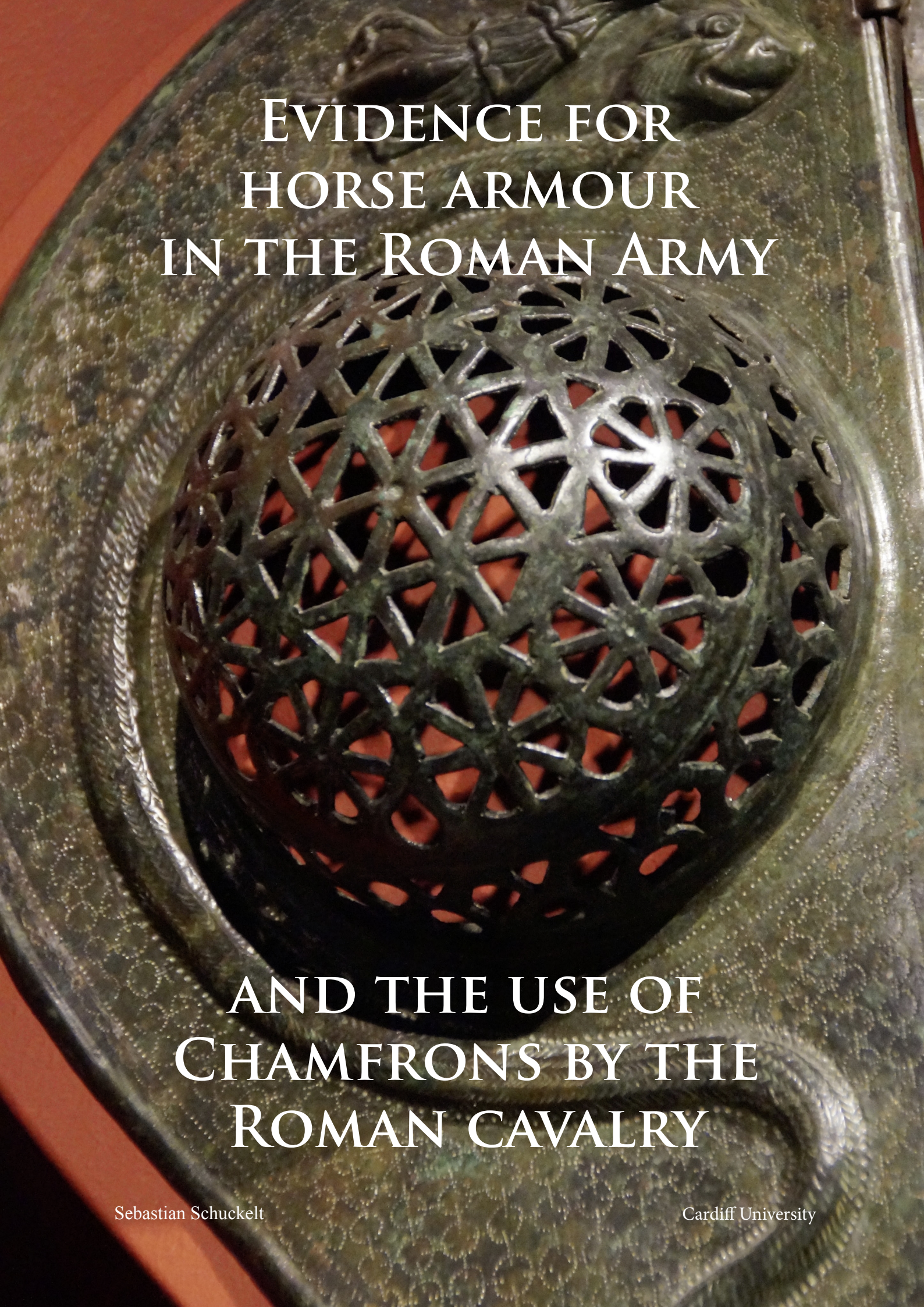

Evidence for horse armour in the Roman Army

and the use of Chamfrons by the Roman cavalry

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Introduction:

The Roman Army has been a focus of research and interest for centuries, with many scholars throughout the world researching numerous different areas of this highly interesting theme. The Roman cavalry, however, has received far less attention than other aspects of this field. Even amongst those researchers who have investigated this topic, few have specifically considered the use of horse armour in the Roman Army and how this would have influenced the way in which Rome's armies operated during war. Even in works that do cover the Roman cavalry, the specific subject of Roman horse armour has attracted very little attention.

There seem to be several reasons why, until recently, the topic of Roman horse armour seems to have attracted very little attention in the academic world. First of all, it has been widely believed that the cavalry played a far less significant role within the Roman Army of the Principate, the bulk of Rome's fighting power being focused on the Legions. Naturally then, any smaller element within this underestimated service would be considered even less interesting. Secondly, when talking about Roman horse armour most people would be forgiven for immediately thinking of heavily armoured *cataphractarii* and *clibanarii*, so vividly described by Plutarch as having defeated Crassus at the battle of Carrhae and depicted fleeing from Roman forces on Trajan's Column. These, however, are all cases of Rome's *enemies* using armoured cavalry, with very little pictorial evidence for the Roman equivalent, and in any case these descriptions and images refer only to a small proportion of the type of equipment that can be conceived of as horse armour.

The idea of Roman horse armour only being related to the afore-mentioned extreme, and often exaggerated, cases, in which both rider and horse are clad in armour from head to hoof, is one of the mistaken assumptions that have prompted the research presented in this dissertation,

thereby reflecting the change in perspective in recent scholarship. In fact, contrary to the epigraphic evidence, the vast majority of archaeological finds that can be identified as horse armour do not fit into the picture of heavily armoured cavalry. Instead they can be seen as individual, composite pieces of protective equipment, which do not necessarily constitute full sets of armour. Sadly though, most of these finds have not been studied within the framework of this broader topic, but merely as individual finds within certain excavation reports, such as Curle's report (1913) on the chamfrons from Newstead, thereby removing them from their social and military context. Few of the authors of these reports have given any detailed consideration to their significance and their function within the Roman cavalry. Consequently, this topic has tended to be neglected by archaeologists, leaving the study of ancient armoured cavalry as a whole to ancient historians.

Nevertheless, there are exceptions to this. Some archaeologists must indeed be credited for presenting elements of horse armour as one of the main focal points of their studies, most prominently Jochen Garbsch, whose seminal work *Römische Paraderüstungen* (1978) includes a large number of chamfrons and other military equipment found throughout Europe and the Middle East. However, as the title suggests, his work mainly focused on those pieces of armour which can be interpreted as 'parade armour', a problem that is discussed throughout this dissertation. By its nature, this term excludes such objects as the impressive iron and bronze horse trappers from Dura Europos in Syria. In this specific case, Simon James's report (2004) on the excavations at Dura Europos undertaken from 1928 to 1937 offers a good presentation of these finds, arguably some of the most important ones under consideration in this dissertation. In addition to this, H. R. Robinson's *The Armour of Imperial Rome* (1975) offers an extensive overview on the topic of Roman armour in general, including horse armour, but once again focusing more on their use as 'parade' equipment, rather than their

potential role in actual combat. Hence, previous publications that have focused on or include sections concerning horse armour, most of which are several decades old, have approached the subject from a different angle than that which will be attempted here.

This dissertation aims to present a different view on the use and distribution of Roman horse armour, especially the chamfrons worn by the horses of the cavalry, whilst arguing that the parades and exercises of the type described in Arrian's *Hippika Gymnasia* are by no means the sole context in which such equipment would have been used in this period. Accordingly, the catalogue attached to this dissertation will form the basis for interpreting the distribution and function of Roman horse armour and considering how this may help us understand the role the cavalry had in Roman warfare. Furthermore, the focus will be on what the abundant evidence for such horse armour, especially in the form of chamfrons, and its distribution can tell us about the way the Roman Army employed its cavalry forces. In order to obtain a clearer picture on this issue, it will be necessary to consolidate all the known archaeological finds of elements of horse armour, and to evaluate their positioning along the frontiers of the Roman Empire, their assumed dates and the circumstances of their deposition. Moreover, some theoretical aspects such as the concept of art in the ancient world and different approaches to the question of interpretation will also be covered to a certain extent within this work.

It is hoped that this dissertation will present a modified picture of the Roman cavalry and how it protected its horses. It will be suggested that the differences between armour designed for 'parade' and war might perhaps not be as large as previously thought. Naturally, the full scale of this highly interesting topic cannot be covered within the scope of this dissertation.

However, it should act as a starting point from which to conduct further research in this field and to provide a database for the study of individual pieces of horse armour.

Discussion of Catalogue:

The catalogue attached to this dissertation contains over ninety complete or fragmentary pieces of Roman horse armour and has the purpose of serving as a database from which to gather information on Roman horse armour. It has to be said at this point that this is by no means an exhaustive collection of all known pieces of such armour, since certain elements such as chest guards have not been included. Given the limitations of this dissertation, the author has directed his research first on the Roman cavalry's use of horse armour in general and then focused more specifically on chamfrons as an individual category of military equipment. The approach taken in respect of the chamfrons, however, could equally be applied to chest guards or any other element of Roman horse armour and is therefore not exclusive to the selection presented in this catalogue. Organised in a chronological manner, the catalogue enables the reader to appreciate the development of chamfron styles and designs from the early first century to the third century AD. The details provided for every piece should enable the reader to acquire the basic knowledge to conduct their own further research should this be necessary.

Although the information provided is as accurate as possible, there are a few uncertainties prevailing which require our attention. Firstly, the exact dates of some of the chamfrons and eye guards are unknown or have a very wide range, due to the quality of excavation during which they were retrieved or other unknown circumstances. The lack of such dates therefore can potentially distort our dataset and understanding of these objects, making any interpretation more difficult. Secondly, there is potential uncertainty as to the nature of two eye guards represented, namely the ones from Lith, Netherlands (catalogue No. 25) and Megen, Netherlands (catalogue No. 26). Given the visual likeness of these pieces, it is possible that they constitute a pair of eye guards, rather than two completely separate ones, or

even potentially the same piece published with two different places of origin. Unfortunately this issue could not be resolved at the time of writing, leaving additional work to be done for other scholars. Furthermore, several other pieces in the catalogue have no known archaeological origin and are only known of from auctions (catalogue No. 34-36 and No. 63). Under these circumstances any information regarding origin, date or context is extremely difficult to acquire. This also means that there could potentially be many more chamfrons or other elements of Roman horse armour existing in private collections, of which we have no knowledge. This is also emphasised by the case of catalogue No. 58, a Type C chamfron that was seized from a smuggler in Turkey.

Lastly it is worth taking a closer look at a specific chamfron, namely one found at the legionary fortress of Caerleon in 2009 (catalogue No. 90). In this particular case, the chamfron was discovered within a warehouse, the collapse of which could be dated quite accurately to the middle of the fourth century AD. The materials and design of the chamfron, however, are reminiscent of those found at Vindolanda and Newstead. This raises serious questions concerning the longevity of use of chamfrons and other military equipment, as well as our interpretation of stratigraphic relationships within the archaeological record.

Overall, however, it is hoped that this catalogue will provide scholars with a comprehensive collection of all currently known finds of Roman chamfrons and trappers and enable future research to focus on solving some of the problems discussed above as well as expanding our knowledge of this highly interesting element of Roman military equipment.

The Available Evidence:

Although the evidence for the distribution and use of chamfrons and other elements of horse armour might not be as plentiful as one would wish, there are still ample sources, ranging from iconography and historical accounts to the material remains in the ground, to allow careful analysis and interpretation to be undertaken. This can potentially help archaeologists gain a clearer picture of the use of horse armour by the Roman Army, especially with respect to the so-called 'parade armour', and determine whether our current interpretations are still applicable. For this study, three main categories of sources can be identified as being useful for our understanding of the topic.

Historical sources:

Throughout Roman history many ancient writers wrote about the Roman Army, yet only few sources are of paramount importance for this study. One of the most important authors is Arrian, whose description of the *Hippika Gymnasia* in his *Ars Tactica* provides a vivid account of Roman cavalry equipment employed during training exercises and hence usually referred to as 'sports equipment' (Stephenson and Dixon 2003). This text stands at the centre of the attempted answer to the question of the use of the 'parade' equipment that Arrian describes. The theory that elements of horse armour, including chamfrons, were more wide-spread than has previously been assumed, and that their use was not just confined to the training ground, is one of the core aspects of this study, and evidence in support of this theory will be sought from a variety of sources.

Another important author is Ammianus Marcellinus, who provides several useful insights into the use of armoured cavalry by the Romans and their enemies in his work on the later Roman Empire. Other sources, such as Julius Caesar's *Gallic War* are only helpful in understanding

certain side issues connected with this topic, all of which will be discussed throughout this study. However, no single historical account exists that can provide us with enough detailed understanding of the use of Roman horse armour other than on the training ground as described by Arrian. Therefore, it is necessary to re-interpret other writings, some of which contain valuable clues that may contribute to our understanding, but which force us to look further afield for information than might be expected. It must also be taken into account that the sources used for the study of this subject cover a vast chronological spectrum, from the late first century BC to the fourth century AD. This results in a wide range of problems concerning the use of these sources for our understanding of a different time period, a fact that will remain apparent throughout this study.

Iconography:

The use of iconographic evidence for research on Roman military equipment can be very misleading at times. One only has to think of the carvings on Trajan's Column in Rome to realise that every image must be evaluated critically. However, iconographic evidence from tombstones or monuments does provide visual references to the use of chamfrons and horse armour, albeit less numerously than archaeological evidence, which will be discussed below. Hardly any representations of horse armour, or indeed of chamfrons, are known from tombstones or large monuments, exceptions of course, such as a scene on Trajan's Column depicting Sarmatian cataphracts using eye guards (see Figure 1), only proving the norm. The lack of evidence for horse armour on tombstones could certainly be explained by aesthetic considerations (Junkelmann 1992, 202), meaning that it could have been the personal choice of the deceased or his commemorators to not depict the full array of the soldier's military equipment. This could be due to the fact that the main function of a tombstone was to preserve the memory of the deceased soldier (Hope 2001, 2), not to display his military attire.

This theory is backed by the presence of a tombstone found in Germany in 1930, dedicated to two members of the *Ala Firma Catafractaria* (Spaul 1994, 82 and Wiegels 2013b).

Figure 1. Scene 37 from Trajan's Column showing Sarmatian cataphracts using eye guards.
Source: http://www.dartmouth.edu/~trajan/?page_id=107 Accessed: 24.04.2014

Additionally, a sadly lost grave inscription mentions a Decurio of the same unit who was killed during the Germanic campaign of Maximinus Thrax (Gamber 1968, 16). In these two cases we can certainly associate the soldiers with a heavily armoured cavalry unit and yet neither the man (only one is depicted on the tombstone) or the horse in the first example are shown with any kind of armour. An exception to this lack of depictions of horse armour is a graffito from Dura Europos (see Figure 2), showing a possible Roman cataphract on his horse. In light of this evidence, we can assume that our perception of the lack of use of horse armour within the Roman Army, based on iconography, is substantially flawed, and so we need to turn to the archaeological material in order to get a clearer picture of the situation.

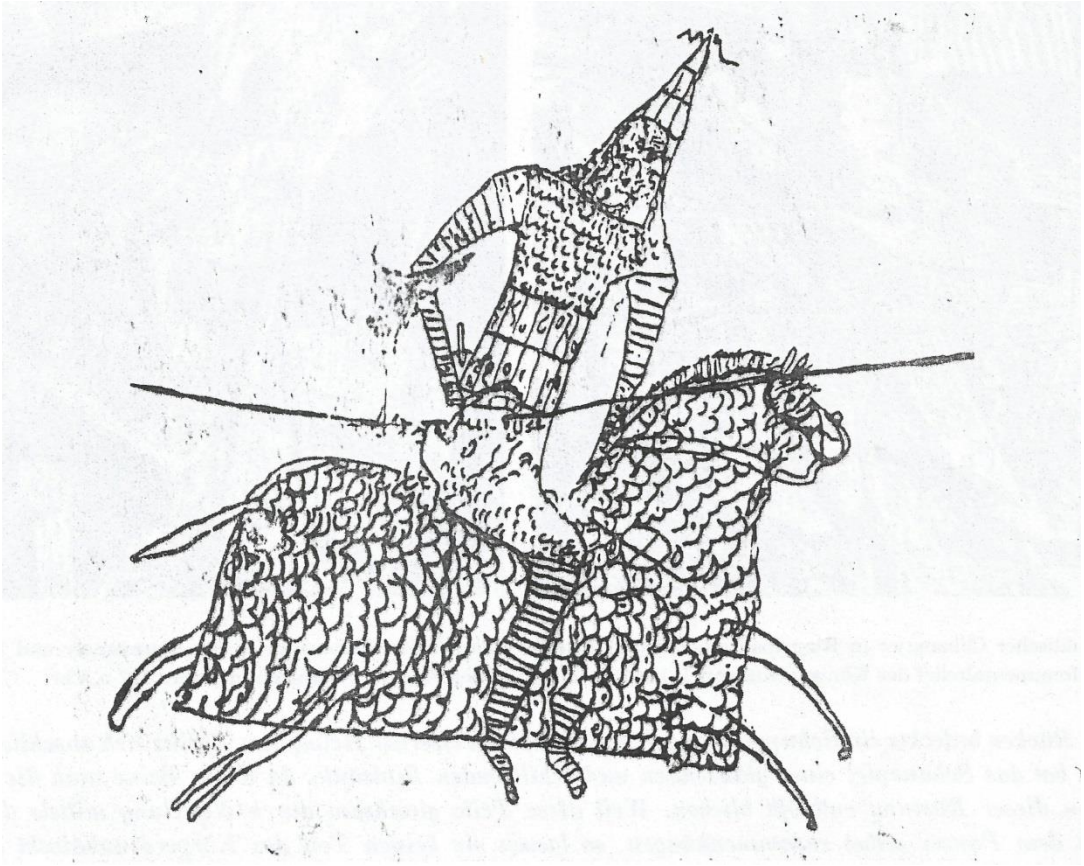


Figure 2. Graffito from Dura Europos showing a heavily armoured cataphract on his horse. Source: Gamber 1968, 30.

Archaeological evidence:

Without counting breast plates, which have not been included in the catalogue, over ninety examples of Roman horse armour have been found since the late eighteenth century, ranging in date from the late first century BC to possibly the fourth century AD. The vast majority of these finds are chamfrons, protective head gear for horses made usually of either leather or copper alloy. The majority of these chamfrons were found in Britain and southern Germany, most famously in the hoard deposits of Straubing and Eining. The only finds of actual horse armour trappings are from Chatalka in Bulgaria (Bujukliev 1986 and D'Amato 2009, 198) and the famous siege site of Dura Europos in Syria (see James 2004). This uneven distribution of horse armour finds across the former Roman Empire makes the detailed analysis and interpretation of these finds all the more difficult. Nevertheless, certain patterns of distribution

and chronology are clearly discernible, the details of which will be outlined in the following section. It is hoped that, with a structured approach, it might be possible to determine the development of the use of horse armour by the Roman cavalry, its distribution along the various frontiers and, to a certain extent, the typological classification of these often highly decorative pieces of horse armour, especially in relation to the chamfrons.

The following sections will discuss the above-mentioned aspects of Roman horse armour and attempt to answer the question of whether, given the evidence, the term ‘parade armour’ is still applicable to some elements of this type of Roman military equipment.

The use of horse armour by the Roman cavalry:

A short history of the use of horse armour:

Armour worn by horses was certainly nothing new for the Romans when the army of Marcus Licinius Crassus was defeated at the battle of Carrhae in 53 BC (Schuckelt 1998, 9). The heavily armoured cataphracts, which Plutarch describes as having charged through the ranks of Crassus' legions (Plutarch, Crassus XXIII-XXVII), probably originated from amongst the steppe nomads of central Asia in the sixth century BC (Rubin 1955). The evidence for armour used on horses and other animals, however, goes back even further, to around 2,500 BC in Mesopotamia (Demmin 1893, 182; see Figure 3).

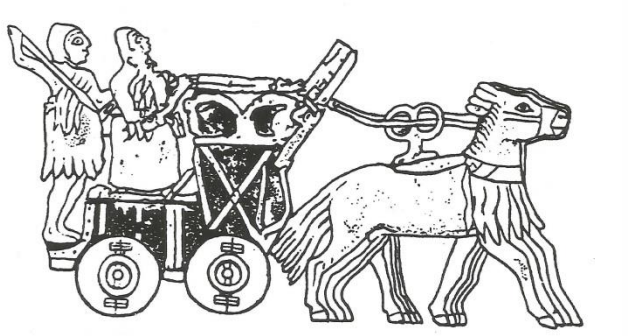


Figure 3. Scene from the 'war panel' on the Standard of Ur depicting a chariot pulled by lightly armoured Onager.
Source: Schuckelt 1998, 7

The invention of so-called 'heavy cavalry' of the type described by Plutarch and Ammianus, and its tactical combination with infantry, on the other hand, can most likely be attributed to the Assyrians (Eadie 1967, 161) and there is certainly a consensus that this type of warfare originated somewhere in the East (Mielczarek 1993, 47). From there, this type of equipment and its ensuing tactical changes spread westwards, the Greeks using chest guards and chamfrons by the sixth century BC (Gamber 1968, 11 and Junkelmann 1992, 204; see Figure 4).

Figure 4. Greek chamfron and chest guard, found in Lower Italy, sixth century BC.
Source: Gamber 1968, 11

When exactly the Romans began using horse armour is not certain, given the very fragmentary nature of the evidence for horse armour itself and the bias in the distribution of this evidence, of which more will be said later. The first use of armoured cavalry units distinguishable by name is attested during the time of Hadrian, with the founding of the *Ala I Gallorum et Pannoniorum Catafractata* probably already under Trajan (Eadie 1967, 167; Gamber 1968, 14; Mielczarek 1993, 73 and Roxan and Eck 1997). According to Arrian (Tactica, 4), who served under Hadrian in the late 130s AD, there were two types of cavalry, armoured and unarmoured, the armoured horses being equipped with side-protectors and forehead-protectors. Arrian could, therefore, be describing the first recorded use of such armoured cavalry by the Roman Army; such cavalry would have potentially filled a perceived capability gap that had existed before. Apart from the Sarmatian influence (Negin 1998, 65) - which is most obvious given Hadrian's predecessor's experiences in the Dacian Wars - Parthians, Sassanids and Palmyrenians equally inspired the Romans in this important military

development (Nikonorov 1998, 134). This continued into the later phase of the Roman Empire, and by the third century, when we again have epigraphic and literary evidence (Speidel 1984, 154 and Fischer 2012, 100; see Figure 5), armoured cavalry had become a regular occurrence within Roman armies (Coulston 1990, 139 and Mielczarek 1993, 75) and was used in battles such as Strasbourg in 357 (Gamber 1968, 29; Hoffmann 1969 and Speidel 1984).

Figure 5. Grave stele from Stuttgart-Bad Cannstatt depicting a member of a *cataphractarii* unit.
Source: Wiegels 2013b

In terms of this apparent increase in evidence for armoured cavalry in the later Roman Empire, it is perhaps worth considering the tactical changes the Roman Army underwent in this time. During the Principate the main task of Roman cavalry had been more in a combat support role, meaning conducting foraging and reconnaissance operations on campaign or generally policing the borders of the Empire (Dixon and Southern 1992, 137-140 and Penrose 2005, 251). With the majority of Rome's forces being stationed directly on or close to the frontier up until the late third century, the need for heavily armoured cavalry units would have been less great and only become apparent during active campaigning. This make up of Roman armies changed, however, during and after the reign of Constantine (312 – 337 AD). With his division of the Roman Army into frontier troops (*limitanei*) and field armies (*comitatensis*), an opportunity would have arisen for the increased use of armoured cavalry in the latter. This is indeed the case in the Eastern Empire, where the *Notitia Dignitatum* informs us that the majority of armoured cavalry units there were part of the *comitatensis*, whereas in the West they formed part of the *limitanei* (Mielczarek 1993, 78). This development can already be seen under Diocletian, whose creation of the post of *magister equitum* (master of the cavalry) indicates the increasing importance of cavalry troops during this period (Penrose 2005, 243). With the focus of the *comitatensis* on full scale battles, rather than frontier control, it would therefore have been easier to employ heavy cavalry for this role. It also seems that, in order to support the increased use of such troops, the Emperor Diocletian created *fabricae* in the cities of Antioch, Nicomedia and Caesarea, which specialised in producing armour for heavy cavalry (Gamber 1968, 30).

It seems therefore, that the apparent increase of armoured cavalry from the late third century onwards is related to a change in strategy and battle tactics across the Empire, sparked by the developed threat of enemy cavalry across multiple borders of the Roman world (see Figure 6).

Despite this evidence, the historical sources do not allow us to understand the entire breadth of the use of horse armour in the Roman Army, neither chronologically nor geographically. The next section will therefore take a closer look at the distribution of the archaeological finds of horse armour throughout the Roman world, providing an insight into both the scale of the potential use of such armour, as well as the apparent changes over time.

Figure 6. Artist's reconstruction of Parthian and Armenian cataphracts.
Source: Penrose 2005, 224.

The distribution of Roman horse armour:

As has already become apparent and can be seen very clearly in the catalogue, the horse armour used by the Roman cavalry can generally be divided into two distinct categories, namely trappers covering the body of the horse and chamfrons for the head. Unfortunately, the archaeological evidence for trappers, unlike the literary accounts, is very scarce indeed. In

fact, only two sites are known to have produced metal horse trappers in the archaeological record. Those sites are Chatalka in Bulgaria (catalogue No. 33) and Dura Europos in Syria (catalogue Nos. 87-89).

Although these finds are extremely rare, they certainly prove that, by the second century at the latest, Roman soldiers were using metal armour to protect their horses. The trappers from Dura Europos can potentially be identified as Roman, since the three examples excavated there were found on the ground floor of the collapsed Tower 19, the tower which the attacking Sassanids had been undermining (James 2004). It has been argued that these trappers were most likely being kept in the tower awaiting repair (James 2004, 115), when the tower collapsed and buried them. Military equipment is generally far more likely to be deposited in the archaeological record if it is being kept in storage for repair or reuse, or if it has been abandoned (Coulston 1990, 146; see also Hill 2013), which is why we must rely on special archaeological circumstances for the discovery of more such equipment. There is, of course, the possibility that these trappers had previously been captured from the Sassanids. However, if the Romans had wanted to repair and then use these trappers themselves, it is reasonable to assume that a certain amount of knowledge and expertise on the use of horse armour must have already existed. Whatever the origin of the Dura trappers, given the existence of so few examples of such horse armour, any attempt at a typological evaluation would be futile. This, however, is not the case with chamfrons.

Chamfrons have often been associated with so-called ‘parade armour’, a term inspired by Arrian’s description of the *Hippika Gymnasia*, and which consisted of the afore-mentioned chamfrons, parade helmets, and highly decorated breast plates for both men and horses, as well as greaves (Garbsch 1978; see Figure 7). Whether these chamfrons can only be attributed to these training events will be discussed below, but they certainly make up the vast majority

of finds related to Roman horse armour. Typologically, there is certainly a substantial degree of variation between the discovered chamfrons, both over the time of their use and their perceived function. The typology that will be employed in this dissertation is as follows.

Figure 7. Artist's reconstruction of a complete set of Roman parade armour.
Source: Künzl 2008, 110

Type A chamfrons are the leather examples found at Newstead, Carlisle, Vindolanda and Caerleon, as well as the round eye guards, which were most likely intended for flexible use with these leather chamfrons (Robinson 1975, 190; Junkelmann 1992, 205 and Jackson and Craddock 1995, 81). The type B category consists of those small three-piece chamfrons (e.g. catalogue Nos. 66 & 67), as well as the pointed eye guards intended for attachment on the bridle (e.g. catalogue No. 9) which would therefore have offered very limited protection, to the horse's eyes only. Type C will constitute those large, three-piece metal chamfrons, the most famous examples of which were found in Straubing (e.g. catalogue No. 55). Lastly, Type D represents a slight deviation from the other categories. This type represents those single-piece metal chamfrons without eye guards in the Greek style (see Figure 4), of which the only two Roman examples were found at Neuss (catalogue No. 2) and Nijmegen (catalogue No. 3), which date to the first century AD. This typology has also been proposed by other scholars. Nicolay (2007) for example, has likewise divided chamfrons into three main types, although his Type B category does not include the small three-piece chamfrons and he dismisses the Type D chamfrons entirely. Fischer (2012) offers a very similar typology to that suggested here, including the leather chamfrons. For this reason, the system proposed above by the author and by Fischer and Nicolay will be used for the purposes of this dissertation.

Having established a basic typology for the chamfrons, it is now worth taking a closer look at the distribution and chronological development of the various finds of Roman horse armour. Geographically, there is certainly a strong bias in the archaeological evidence, both for chamfrons and horse armour in general. Leather chamfrons, for example, have so far only been found in Britain, namely in Carlisle, Newstead, Vindolanda and Caerleon (see

catalogue). It is worth noting here too that the only likely metal chamfron from Britain was found in Caerleon, dating to the second or third century (see catalogue No. 56).

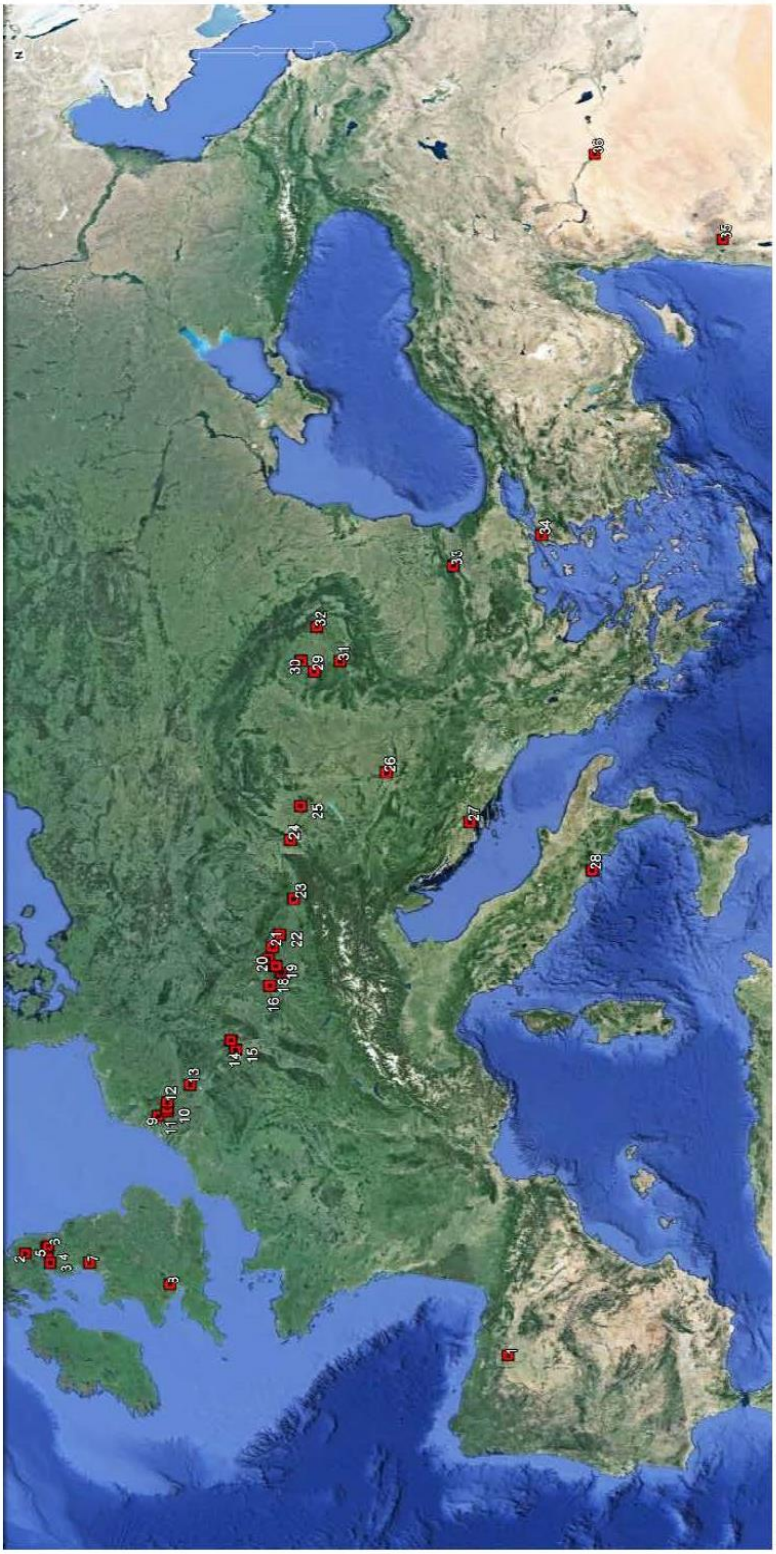


Figure 8. Map of the locations where elements of Roman horse armour have been found.

Locations:
1 Herrera de Pisuerga; 2 Newstead; 3 Carlisle; 4 Vindolanda; 5 Chesters; 6 Corbridge; 7 Ribchester; 8 Caerleon; 9 Vechten; 10 Lith; 11 Megen; 12 Nijmegen; 13 Neuss; 14 Nida-Heddernheim; 15 Mainz; 16 Weißenburg; 17 Manching; 18 Sittling; 19 Eining; 20 Regensburg; 21 Straubing; 22 Künzing; 23 Enns-Lorch; 24 Carnuntum; 25 Szöny; 26 Dalj; 27 Trilj; 28 Pompeii; 29 Gilău; 30 Gherla; 31 Alba Iulia; 32 Inlăceni; 33 Chatalka; 34 Lapseki; 35 Tell Oum Hauran; 36 Dura Europos

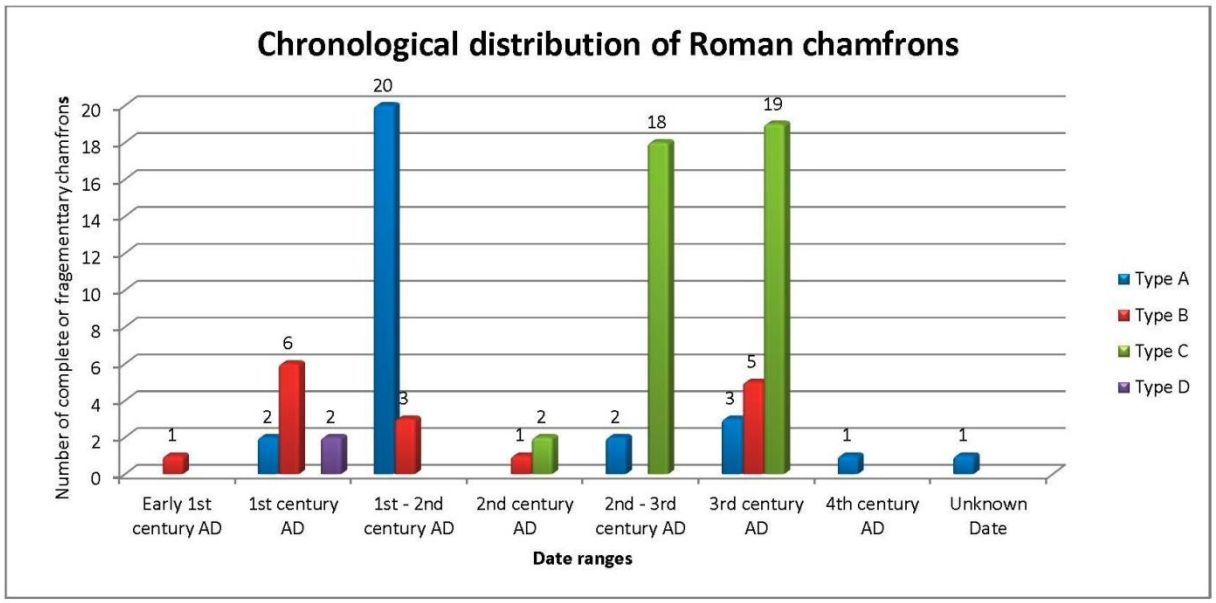


Table 1. Diagram showing the chronological distribution of Roman chamfrons.

This, however, is probably not a true reflection of the distribution of these chamfrons, but is more due to the fact that leather only survives under special circumstances (Van Driel-Murray 1985, 43). Round metal eye guards, however, appear more widely in the archaeological record, thereby enabling us to recognise a wider distribution of type A chamfrons than otherwise thought (Negin 2010, 159). The other bias we must consider, however, is connected with the level of archaeological research undertaken in various parts of the former Roman Empire. The vast majority of chamfrons are found in the provinces of Britannia and Raetia, modern day Britain and southern Germany and Switzerland respectively (see Figure 8). These are countries in which archaeological research and heritage have a long and distinguished history. Other areas which had a very long and substantial Roman military presence, such as modern day Syria or Libya, lack this level of archaeological research and, given the political situation in the region at the time of writing, are not likely to increase this research very soon. Any interpretation of the distribution and use of horse armour within the Roman Army must therefore be undertaken very cautiously and with this problem in mind (Haynes 2013, 247). It must be emphasised, however, that the use of chamfrons in the Roman Army was probably a

lot more wide spread than the iconography on tombstones or monuments suggests (Junkelmann 1997, 79).

The amount of material available does allow us to propose a potential chronology for the chamfrons and possibly even for the horse trappers. As can be seen in Table 1, a chronological development is certainly discernible concerning the use of the different types of chamfrons. The earliest known chamfron is a type B example found in Herrera de Pisuerga in Spain (catalogue No. 1) and dating to the late first century BC to the very early first century AD (Aurrecoechea 2010, 89). Type B chamfrons continue to be used uninterruptedly up until the third century, with just a short lack of evidence for the late second to early third centuries.

From the first century AD onwards, however, and especially in the late first century, the use of leather type A chamfrons seems to have prevailed. It must be said, however, that the larger number of type A chamfrons for this period is largely derived from the finds in Vindolanda, Newstead and Carlisle, again making an Empire-wide prediction more complicated. From the second century onwards, type C chamfrons begin to dominate the archaeological record of concern. Interestingly, the first known example of such a chamfron originates from Tell Oum Hauran in Syria (catalogue No. 38), dating to the second century. Chronologically, the next example of a type C chamfron is from Alba Iulia in modern day Romania. All type C chamfrons found west of Romania date to a later period. It might therefore be conceivable to think that the large metal chamfrons originated in the Eastern Empire, before spreading westwards. Sadly though, there is not enough evidence from the Eastern provinces to fully back this diffusionist theory, but it is worth considering such a development, given the influence peoples such as the Parthians had on the development of Roman armoured cavalry as a whole.

The same development, from leather to metal (Robinson 1975, 192), might be suggested for the trappers worn by the horses of the Roman cavalry. Whilst Chatalka and Dura Europos

have revealed the only examples of trappers made of metal scales, a possible leather trapper was discovered at Carlisle (catalogue No. 14), along with the corresponding leather chamfrons (Winterbottom 1989). Dated to between the late first and early second century AD, this leather horse armour substantially pre-dates those examples from Dura Europos. The possibility that the Roman cavalry might have used leather armour is backed by Arrian (Tactica 34), who states that during the *Hippika Gymnasia* the horses were protected from missiles by their armour. Since it is hard to imagine a cavalryman burdening his mount with heavy metal armour for an exercise, it is reasonable to assume that this armour could have been made of leather. Furthermore, Ammianus Marcellinus describes Persian horses being protected by leather 'housings' in combat (Ammianus 24.6.8). Once again, it is necessary to note that the large discrepancy in the dates of our sources and the material evidence makes a clear interpretation and analysis very problematic, but it is certainly not inconceivable to think that the Roman cavalry could also have utilised this type of horse armour over a longer period of time and far earlier and in greater proportion than would otherwise be assumed (Junkelmann 1992, 210).

One final aspect of the distribution of horse armour, especially of chamfrons, must be considered, namely the potential association of this equipment with particular units of the Roman Army. This dissertation argues that horse armour was used far more widely throughout the Roman Army and was not just reserved for special units. The question of whether horse armour was used only by certain units can be resolved by looking at the unit affiliations of the places of origin of some of the chamfrons. Whilst some finds, such as those from Ribchester or Weißenburg, can certainly be associated with *alae*, units which Bishop (1988) refers to as 'true cavalry', others such as those from Straubing, arguably the most elaborate and therefore expensive examples, are not associated with any *ala*, but rather

coincide with the posting of the *Cohors I Canathenorum Milliaria Sagittariorum* (Spaul 2000, 427 and Prammer 2012), an infantry unit of archers. Other finds, such as those from Mainz and Carnuntum, could potentially be associated with Legionary cavalry, even though Feugère (2010, 133) claims that auxiliary cavalry were better equipped than their legionary counterparts. Even the armour from Dura Europos cannot be associated with any special armoured cavalry regiment, but perhaps more likely with a mixed cohort of infantry and cavalry (James 2004, 248-249). It has been attempted to see the division of the Roman cavalry into *equites alae*, *equites cohortes*, and *equites legionis* as a Roman effort to separate its cavalry according to quality. If this were true, one would expect to find the majority of finds of Roman horse armour in places where a certain type of unit had been stationed. This is not the case, however, which means that this theory can no longer be supported. There is therefore no tangible evidence to suggest that the use of chamfrons and horse armour was reserved for just a small part of the Roman cavalry, and it is moreover conceivable that the majority of Rome's cavalry might have been equipped with at least a basic level of horse armour (Stephenson and Dixon 2003, 113) and that cavalry units with the word *cataphractarii* in their name, may only indicate a different tactical role, rather than different equipment.

The Use of Chamfrons:

Having investigated the distribution of chamfrons and, to an extent, their relationship with horse armour in general, this dissertation will now focus on the question of whether chamfrons were really only used for the *Hippika Gymnasia* described by Arrian, or whether they were also used in actual combat. To this end, it will first be necessary to establish whether these pieces of equipment were at all useful for such purposes. This will be done by analysing the qualities of the materials used for their construction and comparing these to other pieces of Roman military equipment. Secondly, a closer look will be taken at the decorative elements on these chamfrons, tying these in with the general concept of art and display in Roman warfare. The results of this investigation can then subsequently be applied to a wider study of Roman military equipment and warfare as a whole. It is hoped, therefore, that the interpretations presented in this dissertation will be of use for scholars throughout the discipline of Roman military archaeology.

Suitability for battle:

Whether or not chamfrons were used by the Roman cavalry in a combat environment depends mainly on two factors, namely the qualities of the materials these chamfrons were made of and the overall effectiveness and benefits these pieces of equipment would have brought through other aspects. In fact, a general differentiation between combat and parade armour can potentially be made according to the equipment's decoration, functionality and materials (Junkelmann 1996, 16). Considering the materials in question, we are primarily faced with leather and copper alloy chamfrons, with only a few exceptions. The focus shall therefore be first on the leather chamfrons.

Most scholars would agree that if any chamfrons were used in combat, the leather Type A examples would be the ones most likely to have been employed in that role (Junkelmann 1997, 79; Schuckelt 1998, 10 and Fischer 2012, 227-228), although there is a strong argument for the Type B chamfron from Herrera de Pisuerga (catalogue No. 1) having also been used in battle (Aurrecoechea 2010, 89). However, the author would argue that there is no definite reason to suggest that the other copper alloy chamfrons might not also have been used in the same way. A cavalryman's horse, after all, was his most important asset (Junkelmann 1992, 202), not only in financial terms, but also on an operational and even personal level. In fact, the vast majority of tombstones dedicated to members of the *Equites Singulares Augusti* include depictions of horses (Speidel 1994, 109), indicating a very close relationship between human and animal. Considering this, it would be very illogical not to protect your horse sufficiently in combat (Junkelmann 1992, 205). Some, however, still believe that chamfrons, along with other decorative equipment, were not used or even useful in battle (MacMullen 1960, 25). Concerning the Type A chamfrons, it must be noted that two examples of these from Vindolanda, which can perhaps be seen as typical representations of this type, are between four and five millimetres thick (Van Driel-Murray 1989, 283). To this were added a substantial number of metal studs and phalarae (Van Driel-Murray 1989, 289 and Hill 2013), as well as possible textile padding underneath (Van Driel-Murray 1989, 291). All this would have resulted in a piece of equipment offering suitable protective qualities and it therefore seems perfectly plausible that they could also have been used in combat scenarios. Andrew Birley, however, (pers. corresp.) believes that the leather would not have been sufficient to protect a horse's head against direct blows and that the chamfrons are more likely to be decorative in nature. The author does not share this view, however, as the thickness of the leather, with the addition of potential padding and metal studs, would have provided more protection than some Medieval counterparts (Schuckelt, pers. corresp.).

It is perhaps debatable therefore, that Type A chamfrons were more adept for use in war than other chamfron types. There seems to be a consensus, however, that highly decorated metal chamfrons were less suited for such use and reserved for the parade ground (Junkelmann 1997, 79). In order to analyse these chamfrons more accurately, a comparison with other related pieces of equipment will be necessary. Since metal chamfrons are associated with *Hippika Gymnasia*-type events, the best comparison will be sought from other protective equipment equally associated with such performances, namely helmets and greaves. Masked cavalry helmets were most likely not a Roman invention, but were introduced quite rapidly by Thracian auxiliaries in the first century AD (Waurick 1983, 796). If this assumption is accurate, then one must wonder whether such a new piece of equipment, after having been introduced into the Roman Army, would have immediately been reserved purely for parades. However, in the second and third centuries AD, the period most relevant in relation to these chamfrons, there seem to be two different types of masked helmets in circulation. Those copper alloy helmets consisting of two similarly sized front and back parts, as found in the Straubing hoard, do indeed seem to have been reserved for parade-type events and their weight and thickness differs considerably from that of so-called battle helmets (Born 1997, 179 and Lendon 2005, 273). The latter type of helmet, often made wholly or partially of iron (Junkelmann 1996), can be up to three or even four millimetres thick (Junkelmann 1996, 51 and Born 1997, 179) and would probably also have included textile padding on the inside. Their different design, with the mask being easily detachable from the rest of the helmet adds to the more flexible use of these helmets in battle. Several such helmets have been discovered over the decades, some of which, including the famous face mask from Kalkriese (Moosbauer and Wilbers-Rost 2007, 32) and a number of examples found in Nijmegen, could certainly have been used in actual combat (Mitschke and Schwab 2010, 62). One could suggest,

therefore, that some of these so-called ‘sports’ helmets were actually meant for combat operations (Coulston 1990, 146).

When looking at Type B and Type C chamfrons, however, one fails to notice such a diversity of forms and materials. In fact, apart from the exception of the Type B chamfron from Dalj, Croatia (Radman-Livaja 2005, 941 and Sanader 2010; catalogue No. 10), all known metal chamfrons and eye guards are made of copper alloy and are thinner than some of the battle helmets. Comparisons, however, can again be found with helmets. According to Junkelmann (1996, 51), some of these helmets dating to the second and third centuries are only around one millimetre thick. However, the ornamentation used on these pieces would have increased that level of protection substantially. Experiments with reconstructed helmets of 1.2 millimetres thickness have shown that, against all but the most direct and powerful blows and missiles, these helmets offered adequate protection for the owner (Junkelmann 1996, 52). In fact the repoussé work commonly found on such helmets results in a higher material density, thereby affording even higher protection than normal (Moosbauer and Wilbers-Rost 2007, 32). Most Type C chamfrons are richly adorned with such repoussé work (see Figure 9) and it could be argued that, apart from their decorative function, which will be discussed in detail below, this would also have served to enhance the protective qualities of the equipment. This possible divide between parade or sports equipment, on the one hand, and counterparts deemed more useful for combat, on the other, is reflected quite vividly in the grave uncovered at Tell Oum Hauran in Syria (Garbsch 1978 and Petculescu 1990, 847). Here the warrior was buried with two almost full sets of equipment, including two helmets, one for parades and one for battle. Crucially, however, the grave contained only one Type C chamfron (Petculescu 1990, 847). If it is true that the soldier was interred with only one chamfron, then it could be interpreted that,

unlike with helmets, only one type of chamfron was in use at any one time and this was used for both parades and actual combat missions.

Figure 9. Part of the repoussé work on one of the chamfrons from Straubing (catalogue No. 55).
Source: author

In addition to the purely physical advantages these chamfrons would have offered to the horse and, in extension, the cavalryman himself, it is also worth taking a closer look at the psychological advantages offered by the use of such equipment. Plutarch describes how, at the beginning of the battle of Carrhae, the Parthian cataphracts covered their horses' armour with blankets and skins, only to reveal their armour at the right moment, dealing the Romans a terrible psychological blow (Plutarch, Crassus XXIV). Although such appearances were probably very rare, the knowledge of possessing just slightly more protection than one's adversary can dramatically lift the morale of troops and can equally diminish the morale of the enemy. In fact it has been shown numerous times throughout history that if two forces of equal numerical strength face each other, the one with the visibly higher morale can cause the opponent to flee the battlefield, even before a real engagement has occurred (Sabin 2000, 13). The psychological benefits of horse armour and masked helmets as a whole can therefore not be underestimated (Junkelmann 1996, 53) and we must realise that the physical appearance of a soldier, together with his equipment, can have a substantial effect on the battlefield (Bishop 1990, 25).

The historical sources themselves also offer some indication of the possibility that chamfrons were used in a more active role on the battlefield. In his *Tactica*, Arrian describes how, at a certain stage during the demonstrations of the *Hippika Gymnasia*, the soldiers change their equipment and arm themselves as if for war, with armour, helmets and heavy shields (Tactica, 41.1). He does not mention, however, that the horses use different chamfrons for the occasion. Instead, one must assume, they retain the chamfrons they have been wearing since the beginning of the demonstration, meaning that their chamfrons could also be used for battle. This interpretation matches the discoveries from Tell Oum Hauran, where just one chamfron was found amongst otherwise two sets of equipment. Additionally, the inscription from the

legionary fortress of Lambaesis in North Africa describing the Emperor Hadrian's visit to the base, reads that the Legate of *Legio III Augusta* introduced the cavalry taking part in the described *Hippika Gymnasia* 'which has the appearance of real warfare' (Campbell 1994, 19). If, by this comment, the Legate is indicating that the equipment worn by the present cavalrymen, which would most likely have included chamfrons, was the same the men would have worn for a battle, then this could be interpreted as evidence for the use of chamfrons by the Roman Army in combat. Furthermore, Josephus informs us that, during Titus' siege of Jerusalem during the First Jewish Revolt, a lapse in the siege was used to have the Roman soldiers hold a parade in front of the city's walls, with every man wearing his best equipment and thereby intimidating the enemy through the splendour of their appearance (Josephus, *BJ* 5.350). It would be hard to imagine a Roman army marching towards a siege whilst carrying additional equipment that would not be useful in battle, especially whilst operating in the desert. Instead, the fact that Josephus mentions the soldiers having to get their equipment out of cases could indicate that it was not usual for Roman soldiers to wear their entire array of equipment during a prolonged siege.

Having looked at the physical and psychological advantages that chamfrons most likely afforded the Roman cavalry, the focus will now shift towards a different aspect, one that is of importance for almost all types of Roman military equipment, namely decoration and display.

Display and morale:

One of the main reasons why chamfrons have been interpreted as being used primarily as parade equipment is their often highly elaborate decoration. Their apparent artistic nature made them, in the eyes of many scholars, unsuitable or even impractical for the rigours of combat. However, the concept of art in an aesthetic sense is a comparatively recent creation

(Scott 2006, 630) and in the field of Archaeology dates back to the time of Johann Joachim Winckelmann in the eighteenth century. Additionally, it is only very recently that the prominent display of military equipment has been removed from the battlefield and reserved for the parade ground (Bishop 1990, 23). One only has to look at modern analogies, such as the Guards regiments in London, to see that their parade dress is directly derived from the battle dress of the early nineteenth century. The material or symbolic value, or the agency, an object may have for the modern observer of any piece of Roman military equipment might therefore be completely different from that of the original user (Millett 1994, 99). One must therefore take a closer look at the use of decorative elements on Roman military equipment as a whole and what importance the public display of such equipment had for the Roman soldier.

As already mentioned above, the appearance of a soldier was very important for his personal recognition and his morale on the battlefield (Gilliver 2007, 10). This desire for display has its origins in the highly individualistic warrior value system within the Roman Army (James 1998, 16 and Gilliver 2007, 14). This warrior mentality derives from the mythical legends of early Roman history, describing numerous cases of single combat between Romans and their enemies (for a more detailed discussion on this topic, see Lendon 2005). Warriorship and glory were also highly important traits and values within most Germanic peoples (Nicolay 2007, 237), from which Rome recruited many of its auxiliary soldiers. The awareness of one's appearance and display on the battlefield therefore played a highly important role in showing one's prowess and qualities as a warrior (Gilliver 2007, 6, 17). Although in the Imperial period Rome had a permanent, professional military force, it is wrong to see it as an organisation as rigid and uniform as any modern Army. Therefore the term 'Roman Army', although used in this dissertation, is perhaps a bit misleading to our understanding and we should see it more as a large body of individuals, rather than a proper institution (James 1998,

14). Therefore, apart from the soldier's own physical appearance, the equipment he wore served as an expression of his own individual identity (Molloy 2012, 88). With this concept in mind, some of the more highly decorated pieces of military equipment known of today could perhaps be interpreted quite differently.

Out of several decorated cavalry helmets found on the Kops Plateau near the legionary fortress of Nijmegen in the Netherlands, three helmets showed signs of once having had a cover of real hair, probably imitating the hair of the owner (Willems 1995, 30 and Mitschke and Schwab 2010). Since these helmets are interpreted as having been used for combat, they are good examples of how an apparently non-functional decorative element was employed for the purposes discussed above. In fact, if one looks at the field of Roman military equipment as a whole, one notices that decorations on such equipment were very widespread, with belts, swords or brooches often being elaborately decorated. Such decoration would also have helped to underline a soldier's individual identity (James 1998, 21 and Haynes 2013). In his description of the Gallic War, Julius Caesar describes a battle during which his troops were ambushed and, according to his description, had no time to put on their insignia (BG 2.21). If Caesar thought it necessary to mention this detail, then we must assume that the wearing of such decorations was deemed essential during a battle.

If one extends this way of thinking to chamfrons, the objects of our main concern here, one can easily see how their decorative features were deliberately employed for the protection of the horse, as well as for the symbolic representation of the qualities of the soldier. Although we would expect quite a large variation in the style and the decorative details on arms and armour (Gilliver 2007, 3), there are limits as to the decorative variety of chamfrons and other military equipment (Haynes 2013, 249). If one takes a closer look at the decorative designs on

the best preserved chamfrons, namely those from Straubing and Eining, a certain pattern emerges concerning the themes and symbols depicted. The most common symbols on these chamfrons are depictions of Mars, Ganymede, Victoria, eagles, military insignia, maritime subjects and serpents (Negin 2010, 167). This pattern is common to almost all categories of Roman military equipment (Künzl 2008, 124). The frequent depiction of deities on military equipment, especially Mars, the god of war, can be explained by the wish of the soldiers to gain the favour of those gods and acquire their protection during battle (Nicolay 2007, 152). However, given that the majority of Rome's cavalry consisted of non-citizen auxiliary soldiers, who most likely worshipped different deities, the absence of any depictions of local gods or spirits raises some questions. Although it would be wrong to assume a cultural uniformity amongst auxiliary troops purely based on the decoration of chamfrons (Barrett 1997, 6), such symbols certainly do serve as communication instruments (Robb 1998, 332) and we must therefore ask ourselves what influence the Roman state had on the issuing of chamfrons and other military equipment and by extension on their decoration.

Although we know that Roman soldiers had to pay for their equipment on enlistment (Breeze 1976, 93), the question is now whether this equipment included chamfrons for the cavalry. Personal inscriptions found on numerous pieces of military equipment, including on a number of chamfrons (see MacMullan 1960 and Prammer 1989, 64), could indicate that, after purchasing their weapons from the Army, the weapons were subsequently owned by the soldiers themselves (Nicolay 2007, 166-167). Nicolay also argues (2007, 170) that the parade equipment belonged to the soldiers themselves, not the unit in which they served. Prammer (1989, 64), however, argues that the presence of inscriptions on equipment, especially those pieces with multiple names, indicates that the chamfrons belonged to the unit and were passed on from soldier to soldier. However, since soldiers could also have their weapons produced

privately by workshops in the vicus outside their fort (Nicolay 2007, 170), it is a question of where the soldiers got their chamfrons from first. Here the decoration of these chamfrons could be the main indication. Since all decorated chamfrons depict very traditional Roman gods and mythological figures, it is perhaps more likely that they were issued as standard equipment to cavalry soldiers on enlistment, after having been produced to a standard pattern, with just a few variations between them. This is also indicated by the leather chamfrons from Vindolanda, which, being almost identical in design, were probably manufactured in series and distributed widely (Van Driel-Murray 1989, 286). The evidence from Vindolanda also shows that the chamfrons were being manufactured within the fort itself and that some of them were in the process of being recycled before deposition (Van Driel-Murray 1993, 9), again indicating that the equipment belonged to the unit, not the individual soldier. The question of whether the Roman Army would really have supplied their soldiers with expensive equipment that they could only use for occasional parades and demonstrations, but not for war, is therefore perhaps more straightforward than one might otherwise assume. It seems highly likely that the use of chamfrons would have extended well beyond the parade ground. With this interpretation, a soldier's 'parade' equipment simply becomes part of his normal equipment, from which he could choose what to use in what conditions (Bishop 1990, 24) and which he had to sell back to the army at the end of his career. Alternatively, it could be argued that, in order to fulfil their role as a demonstration of a soldier's individuality, the chamfrons would have had to be purchased by the soldiers themselves, perhaps under orders from their commanders. In fact, there is evidence for the manufacturing of military equipment by private professionals (Nicolay 2007, 130). If this were the case, then we must explain the relatively limited variety of decorative designs on these chamfrons.

Since the majority of Type C chamfrons date to the late second or early third century AD, we can perhaps assume a greater level of Romanisation, to use the highly debated term, than in the first century AD. The homogeneity of military clothing and equipment amongst large parts of the Roman Army can therefore perhaps be explained not by an increase of state control - although Haynes (2013, 286) has argued that the use of native equipment was far more restrictive for regular auxiliaries than for irregular numeri units - but rather by the gradual exchange of ideas and fashions amongst soldiers (James 1998, 19), especially if weapons were passed down from soldier to soldier through the generations (Gilliver 2007, 4). Private ownership and production of weapons would, however, nevertheless have encouraged a certain variation in the design of such equipment (Gilliver 2007, 4). A potential advantage for soldiers having to purchase some elements of their own equipment separately has to do with retirement planning. Since a soldier had the option, or maybe even the obligation, to sell his equipment back to the Army at the end of his career (Breeze 1976, 94), one could possibly interpret the purchase of expensive chamfrons and other items as an attempt to acquire more money on retirement. If a soldier had the option of paying for expensive equipment through regular instalments, then it would have been possible for him to pay off an expensive chamfron over a longer period of time, whilst still living within the financial security of the Army, and then selling it for a large sum of money at the end of his career. The development of soldiers' pay is therefore of paramount importance for the support of this theory.

Whilst in the first century AD Roman soldiers faced relatively high deductions from their pay for food, equipment and other items, those deductions were gradually decreased over the course of the second century (Speidel 1992, 97). As can be seen in Table 3, the pay that a soldier received was also dramatically increased several times in the second and third centuries AD (see also Speidel 1992). With this dramatic increase in pay in real terms above

average inflation, the purchasing power of soldiers improved substantially, thereby enabling them to buy more elaborate equipment, such as the chamfrons discussed above. The potential development from leather armour to metal armour for horses might therefore also be related to this increase in pay and the desire of soldiers, as well as the ability of the Army as a whole, to purchase more elaborate equipment.

Rank/Unit	*Augustus*	*Domitian* (A.D. 84)	*Severus* (A.D. 197)	*Caracalla* (A.D. 212)	*Max.Thrax* (A.D. 235)
LEGIONS					
miles legionis	**900**	**1,200**	2,400	3,600	**7,200**
eques legionis	1,050	1,400	2,800	4,200	**8,400**
centurio legionis	13,500	18,000	36,000	54,000	108,000
primus ordo	27,000	36,000	72,000	108,000	**216,000**
primuspilus	54,000	72,000	144,000	216,000	**432,000**
AUXILIA					
miles cohortis	**750**	1,000	2,000	**3,000**	**6,000**
eques cohortis	**900**	1,200	2,400	3,600	7,200
eques alae	1,050	1,400	2,800	4,200	**8,400**
centurio cohortis	3,750	5,000	10,000	15,000	30,000
decurio cohortis	4,500	6,000	12,000	18,000	36,000
decurio alae	5,250	7,000	14,000	21,000	42,000
HORSEGUARDS					
eques singularis Aug.		(2,800)	5,600	8,400	16,800
decurio eq.sing.Aug.		(14,000)	28,000	42,000	84,000

The bold figures are based on direct documentary or literary evidence.

Table 2. The development of pay in the Roman Army (sestertii per year)
Source: Speidel 1992, 106.

One further field of thought must be presented, however, in order to potentially make an argument for one of the two models discussed above. This is the debate concerning the purpose and interpretation of hoards, a problem that has plagued archaeologists for generations. Previously, hoards had often been seen as an indication of unrest and violence in an area, giving reason for people to bury their most valuable belongings until it was safe to return. This, however, is a very simplistic way of looking at a very complex symbolic problem. Millett (1994, 99) has argued that one cannot simply see hoards as an attempt to hide one's wealth, but that far more varied interpretations must be sought. An example for

such a different interpretation comes again from the legionary fort at Nijmegen. The cavalry helmets discovered there are interpreted as having been deposited as sacrificial offerings (Willems 1995, 30) and not as having been buried for their protection or simply discarded. The Straubing hoard is another example worth investigating. In Prammer's publication it states that the chamfrons, helmets and greaves, together with the other objects found in the hoard, were buried by Germanic invaders shortly after the destruction of the fort of Straubing itself (Prammer 1989, 64). He fails to explain, however, why the invaders neglected to retrieve the hoard again later. It could be suggested, therefore, that the hoard was not deposited for safe-keeping by the invaders, or possibly even the Romans, but instead was considered a sacrificial offering, never intended to be found again.

Wider implications:

Having looked at various different aspects concerning the chamfrons of the Roman cavalry, it is now time to ask ourselves what this information can tell us about the Roman Army as a whole. The study of Roman military equipment is a very wide field, and investigation of one aspect of it cannot be undertaken without taking other elements of this discipline into account. As has been shown, therefore, the study of chamfrons as an individual piece of equipment can have implications for our understanding of other equipment categories and vice versa. The question of the role and quality of auxiliary troops within the Roman Army has been clarified by indicating that their equipment, training and morale were in no way inferior to that of their legionary counterparts. Additionally, the information gained on the production and distribution of Roman military equipment through this study has increased our understanding of the subject and strengthened our view that the Roman Army was not a monolithic, impersonal war machine, but was instead a large, well-organised collection of individuals, all of whom were active agents within their social system.

Conclusion:

This dissertation has focused on exploring the variety and scale on which the Roman Army used horse armour for its cavalry throughout the centuries. Having expanded our view of what pieces of equipment horse armour actually consists of, the historical development and use of such armour within the Roman world has shown not only that the Roman cavalry used horse armour quite extensively, but that the vast majority of historical sources only cover a very small proportion of the type of material in question. The discrepancy between historical sources and the archaeological remains demonstrates the need for a more integrated approach to Roman studies between the two disciplines, especially in relation to the study of Roman horse armour. The conception that horse armour relates primarily to heavily armoured *cataphractarii* and *clibanarii* has been disproven. Although such cavalry did play an important role in warfare during the later periods of the Roman Empire, the vast majority of horse armour finds, namely chamfrons and eye guards, are associated with 'regular' cavalry, thereby potentially altering our understanding of the importance and use of Roman cavalry as a whole.

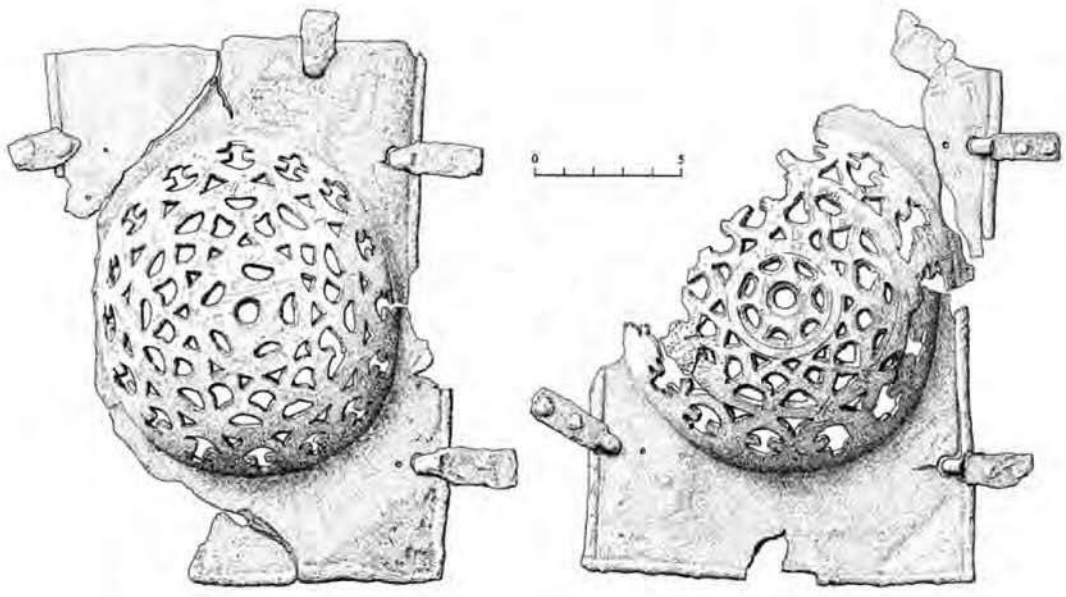
The analysis of the decoration on chamfrons and other elements of Roman military equipment has shown that our modern conception of art is more of a hindrance than a benefit to a proper interpretation of ancient finds and that we must consider the ancient value and meaning of symbols and materials if we are to fully appreciate their original purpose. With this in mind, it is questionable whether the concept of 'parade' equipment actually existed in the Roman Army (Coulston 1990, 147 and Gilliver 2007, 9) and, if not, we need to consider how we should categorise Roman military equipment in the future.

The scope of this dissertation is not sufficient to adequately discuss every single aspect related to the subject of horse armour, or armour as a whole, and it would not be wise to attempt to. Instead, it is hoped that this dissertation will act as a starting point from which further, more detailed studies, can focus on individual aspects touched on above, which should add significantly to our understanding and appreciation of this extensive topic.

Appendix: Catalogue

Appendix: Catalogue

1. Pair of eye guards, Type B
Date: Late 1st century BC – early 1st century AD
Material: unknown, dimensions: unknown
Origin: Found in 'Barracks II' of Herrera de Pisuerga, Spain
Location: Museo Arqueológico Provincial, Spain
Sources: Aurrecoechea 2010, 89



Source: Aurrecoechea 2010, 93

2. Chamfron, Type D
Date: 1st century AD, probably Claudian
Material, dimensions: Copper alloy, height: 33 cm, width: 30 cm
Origin: Found during excavations from 1887 – 1900 in the Legionary fort at Neuss, Germany
Location: Rheinisches Landesmuseum, Bonn, Inv. 9261
Sources: Garbsch 1978, 85 S1

Source: Garbsch 1978, pl. 44

3. Fragment of a horse-hair chamfron, Type D
Date: 1st century AD
Material, dimensions: Copper alloy, height: 20 cm, width: 32 cm
Origin: Found 1993 in the Legionary fortress of Nijmegen, Netherlands
Location: Museum Het Valkhof, Nijmegen, Inv. CA.1993.100.07324
Sources: Haalebos 1995, 37; Willems 1995, 31; Junkelmann 1996, 99 and D'amato 2009, 197

Source: Willems 1995, 31

4. Two eye guards of a chamfron, Type A
Date: 1st century AD
Material, dimensions: Copper alloy, height: 14 cm, width: 12.2 cm
Origin: Found during excavations from 1887 – 1900 in the Legionary fort at Neuss, Germany
Location: Rheinisches Landesmuseum, Bonn, Inv. 7843/7844
Sources: Garbsch 1978, 86 S7

Source: Andrea Bußmann, LVR – LandesMuseum Bonn

5. Single eye guard from chamfron, Type A
Date: 1st century AD
Material, dimensions: Copper alloy, height: 8.5 cm, width: 7.4 cm
Origins: Found 1974 in the legionary fortress of Carnuntum, Austria
Location: Vienna, private collection
Sources: Garbsch 1978, 86 S8; otherwise unpublished

Source: Garbsch 1978, pl. 46

6. Two eye guards of a chamfron, Type B
Date: 1st century AD
Material, dimensions: Copper alloy, height: 16 cm, width: 13.5 cm
Origin: Found 1898 in the Rhine near Weisenau, Germany
Location: Mittelrheinisches Landesmuseum, Mainz, Germany Inv. 3.X.98
Sources: Garbsch 1978, 85 S2; Robinson 1975, 191

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7. Two eye guards of a chamfron, Type B
Date: 1st century AD
Material, dimensions: Copper alloy, height: 13 cm and 14 cm respectively, width: 11 cm
Origin: Found 1904 in the river Rhine, Germany
Location: Mittelrheinisches Landesmuseum, Mainz, Germany Inv. 29.II.04
Sources: Garbsch 1978, 86 S3; Robinson 1975

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8. Single eye guard from a chamfron, Type B
Date: 1st century AD
Material, dimensions: Copper alloy, height: 13 cm, width: 11 cm
Origin: Found 1898 in the river Rhine, Germany
Location: Mittelrheinisches Landesmuseum, Mainz, Germany Inv. 10.06.1898
Sources: Garbsch 1978, 86 S4; Robinson 1975

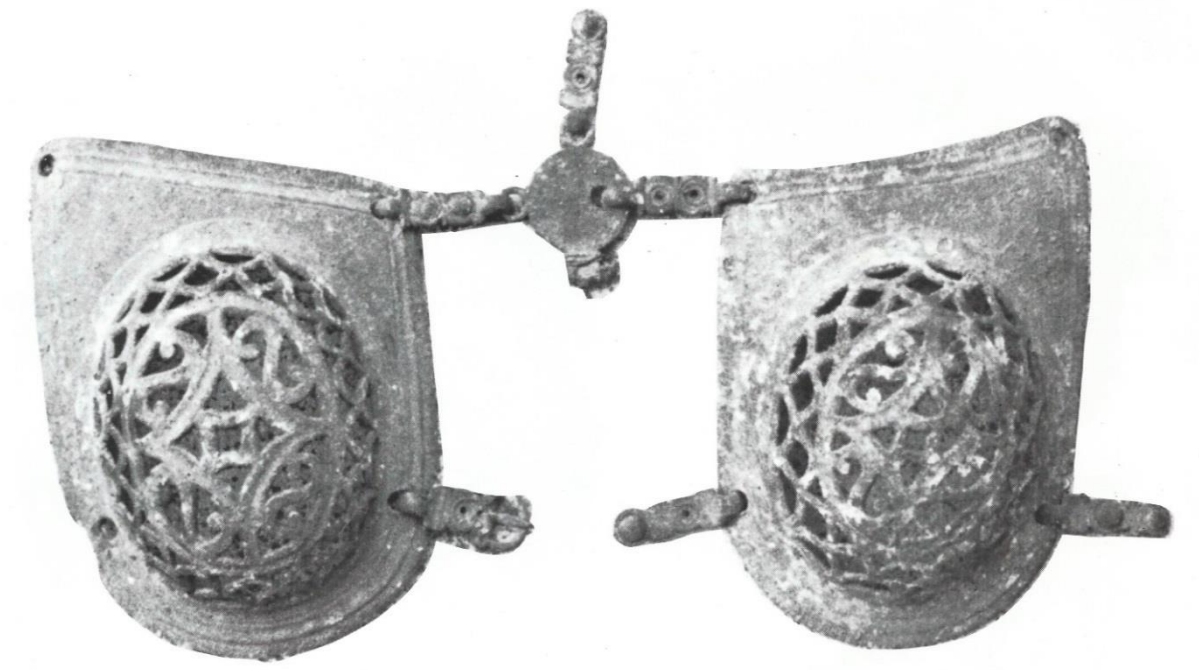
9. Single eye guard from chamfron, Type B
Date: 1st century AD
Material: Copper alloy, dimensions: unknown
Origin: unknown
Location: Arheološki muzej u Splitu, Croatia
Sources: Garbsch 1978, 86 S5; D'amato 2009, 197

Source: Tonći Seser, Arheološki muzej u Splitu

10. Three-piece chamfron, Type B
Date: 1st century AD
Material, dimensions: Iron with silvered copper alloy, height: 18.5 cm, width: 29 cm
Origin: Found in Dalj, Croatia probably in 1914
Location: Arheološki muzej, Zagreb, Croatia Inv. AMZ 9231
Sources: Garbsch 1978, 86 S10; Radman-Livaja 2005; Sanader 2010

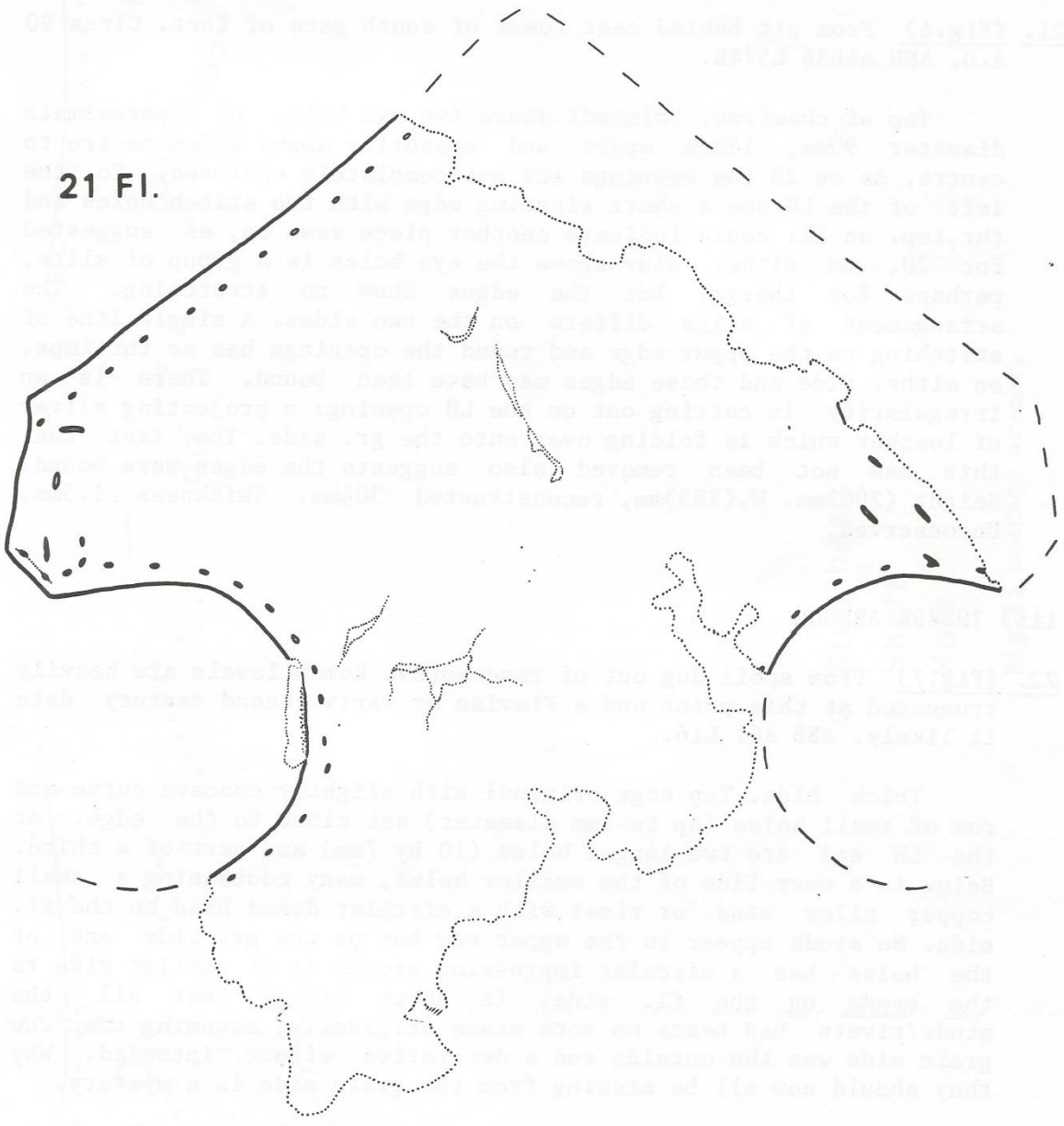
Source: Sanader 2010, 226

11. Small two-piece chamfron, Type B
Date: 1st century AD
Material, dimensions: Copper alloy, height: 12.4 cm each, width: 15 cm each
Origin: Found 1940 in Pompeii, Italy in the Casa dei quattro stili
Location: Antiquarium, Pompeii, Italy Inv. 1342.4 and 7136.1940
Sources: Garbsch 1978, 87 S11



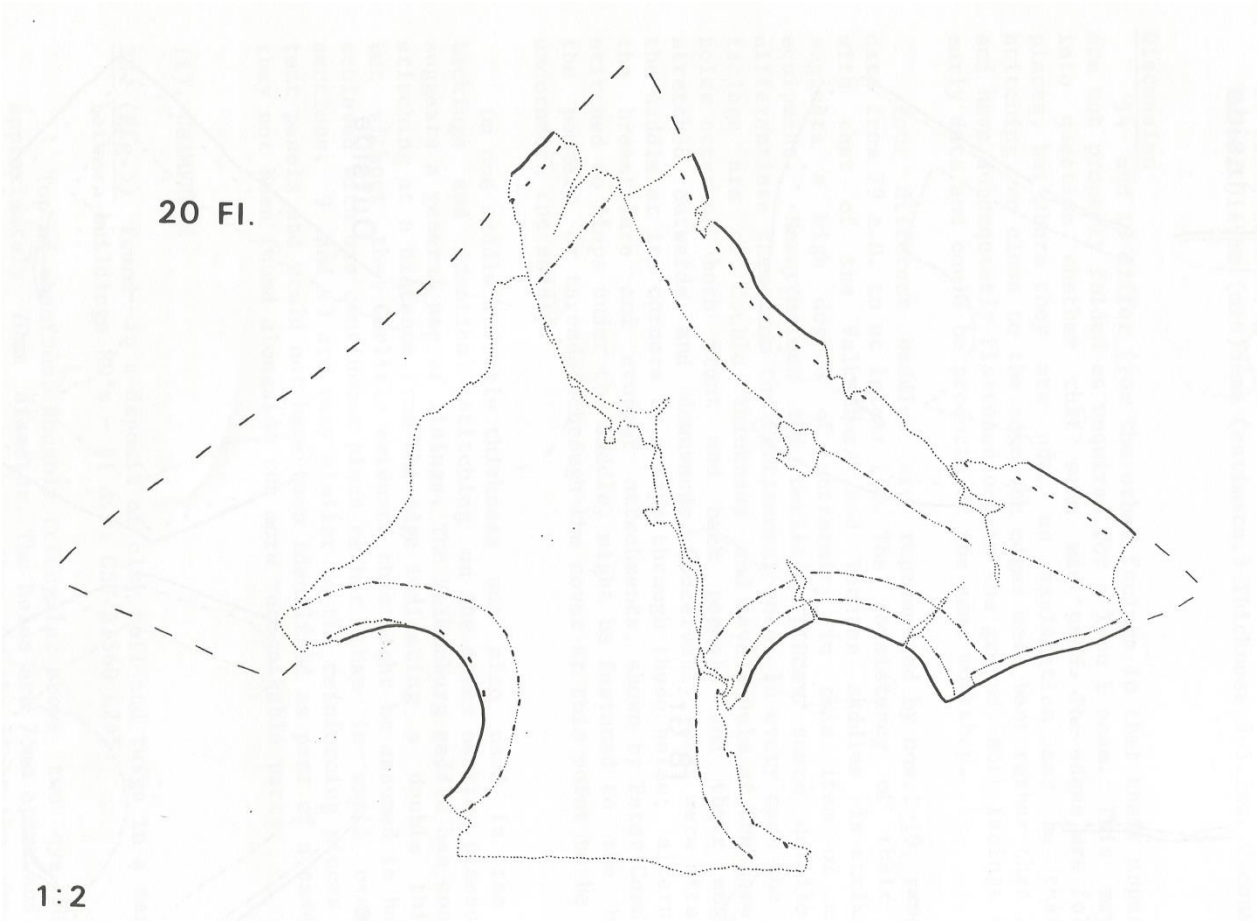
Source: Garbsch 1978, pl. 47

12. Fragment of a leather chamfron, Type A
Date: Around 90 AD
Material, dimensions: Leather, height: 29 cm, width: 28.5 cm
Origin: Found 1981-1984 in the fort at Carlisle, United Kingdom
Location: Carlisle Museum, United Kingdom
Sources: Winterbottom 1989, 334; Junkelmann 1996, 99



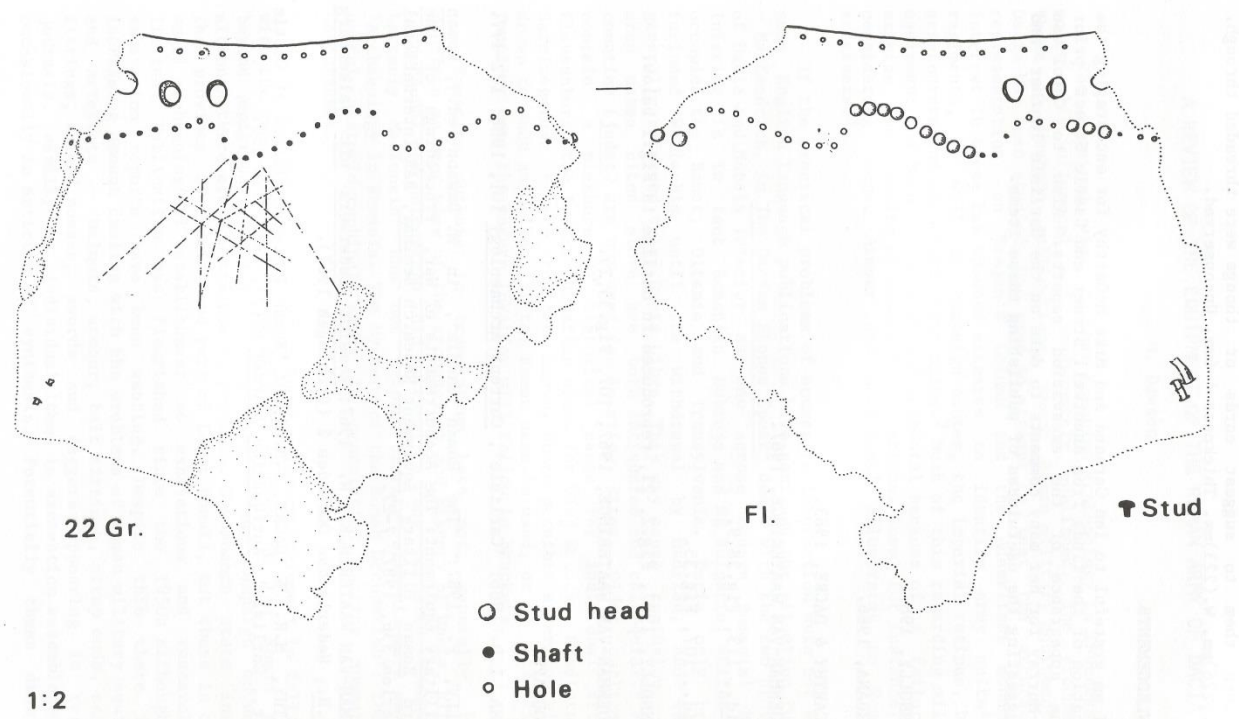
Source: Winterbottom 1989, 333

13. Fragment of a leather chamfron, Type A
Date: Around 90 AD
Material, dimensions: Leather, height: 22.5 cm, width: 26.1 cm
Origin: Found 1982 in Castle Street, Carlisle, United Kingdom
Location: Carlisle Museum, United Kingdom
Sources: Winterbottom 1989, 330-334; Junkelmann 1996, 99



Source: Winterbottom 1989, 332

14. Possible leather horse armour
Date: Late 1st – early 2nd century AD
Material: leather, dimensions: unknown
Origin: Found during road works at the fort of Carlisle, United Kingdom
Location: Carlisle Museum, United Kingdom
Sources: Winterbottom 1989

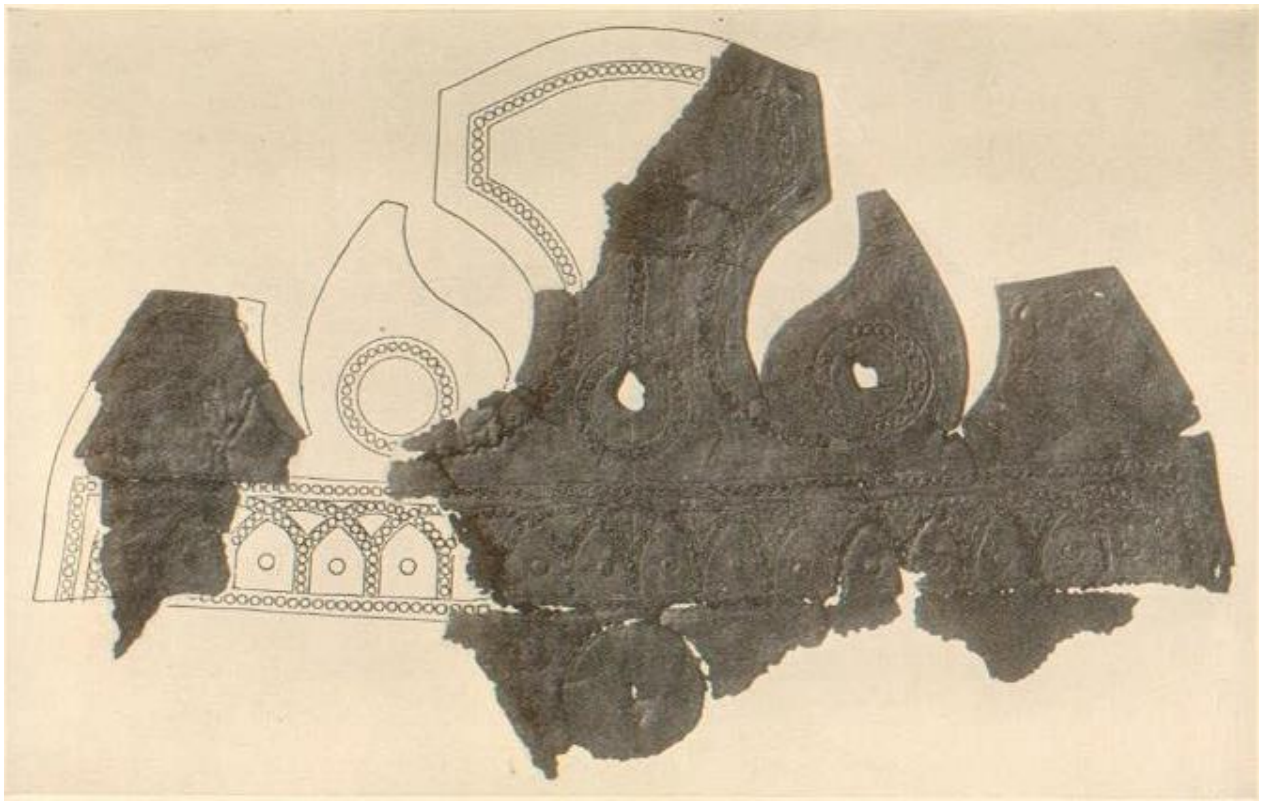


Source: Winterbottom 1989, 335

15. Leather chamfron, Type A
Date: Late 1st century AD
Material, dimensions: Leather with brass-headed studs, thickness: c. 3 mm
Origin: Found 1906 during the excavation of the fort of Newstead, United Kingdom
Location: National Museum of Scotland, Edinburgh, United Kingdom
Sources: Garbsch 1978, 86 S6; Curle 1913; Robinson 1975

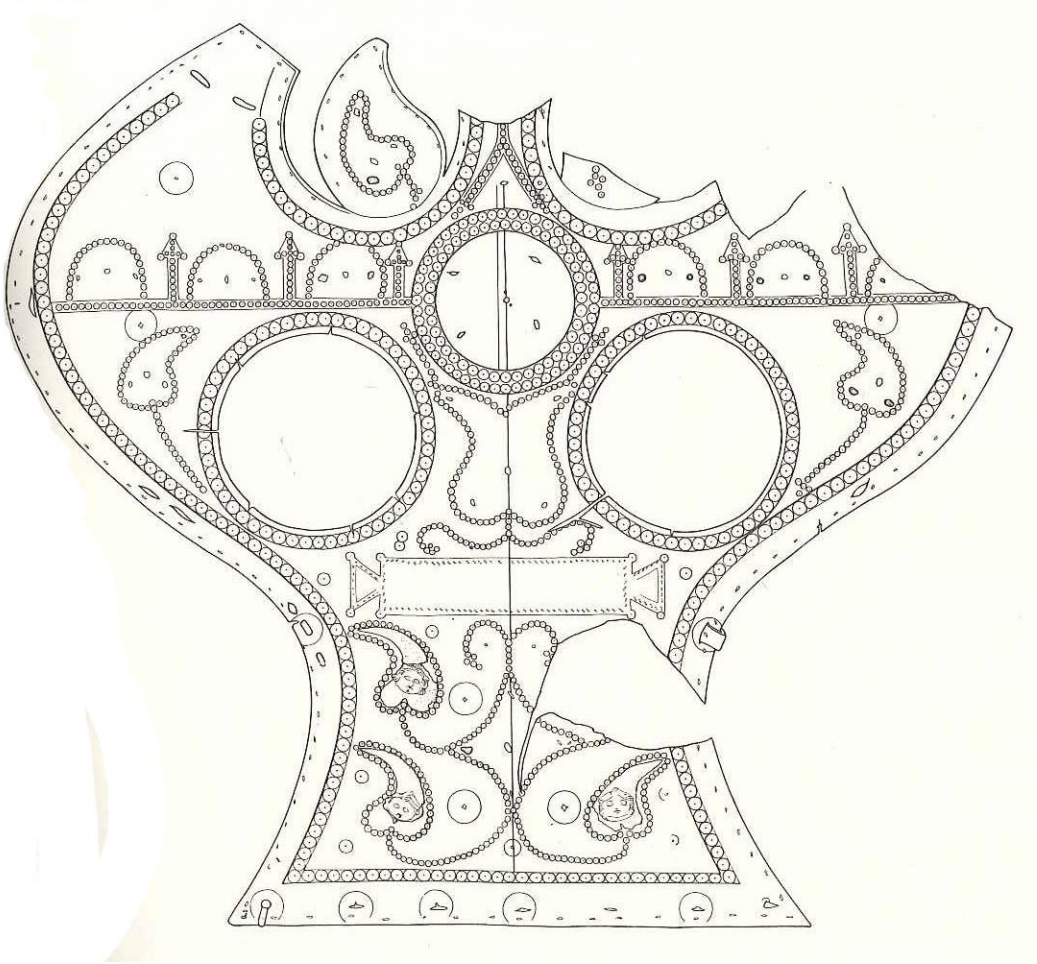
Source: Curle 1913, 404

16. Fragments of leather chamfron, Type A
Date: Late 1st century AD
Material: Leather with brass-headed studs, dimensions: unknown
Origin: Found 1906 during the excavation of the fort of Newstead, United Kingdom
Location: National Museum of Scotland, Edinburgh, United Kingdom Inv. X.FRA 74
Sources: Curle 1911; Curle 1913



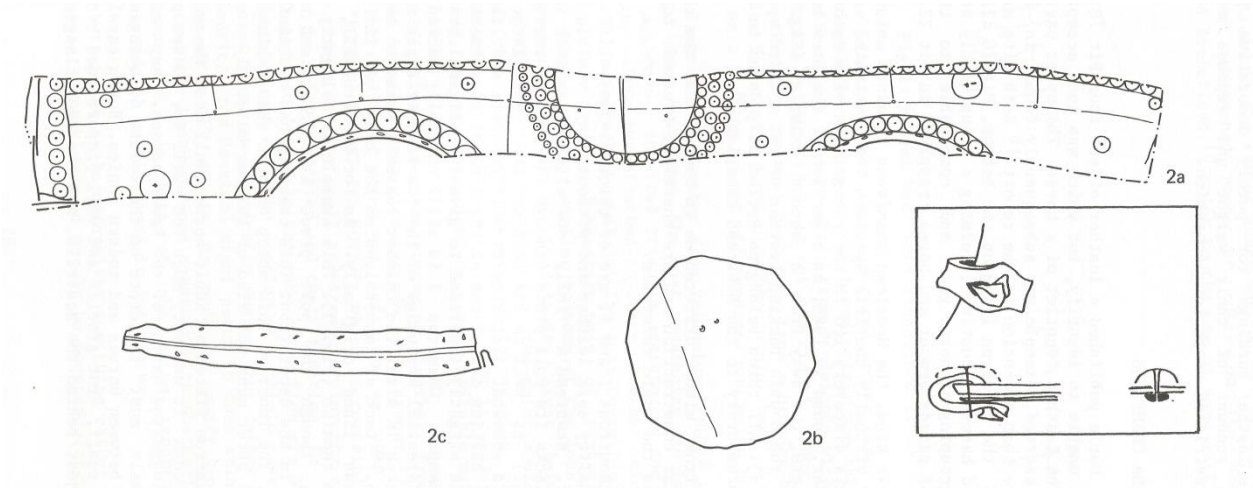
Source: Curle 1913, 401

17. Leather chamfron, Type A
Date: Around 100 AD
Material, dimensions: Leather with brass studs and plates, height: 53.8 cm, width: 44.8 cm, thickness: 4-5 mm
Origin: Found 1987 in the fort of Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1989; Junkelmann 1992, Fig. 183; Van Driel-Murray 1993; Junkelmann 1996; Bowman 1998



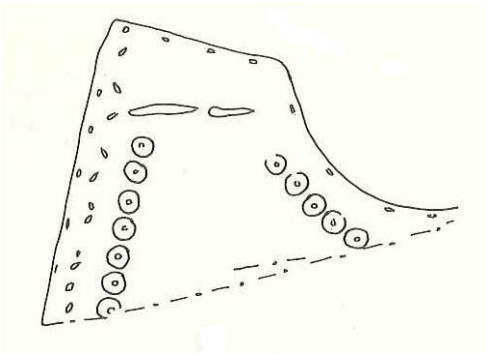
Source: Van Driel-Murray 1993, 11

18. Fragment of leather chamfron, Type A
Date: Around 100 AD
Material, dimensions: Leather with traces of metal studs, height: 6 cm, width: 45 cm, thickness: 4-5 mm
Origin: Found 1985 in Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1989, 283-292; Van Driel-Murray 1993; Junkelmann 1996, 99



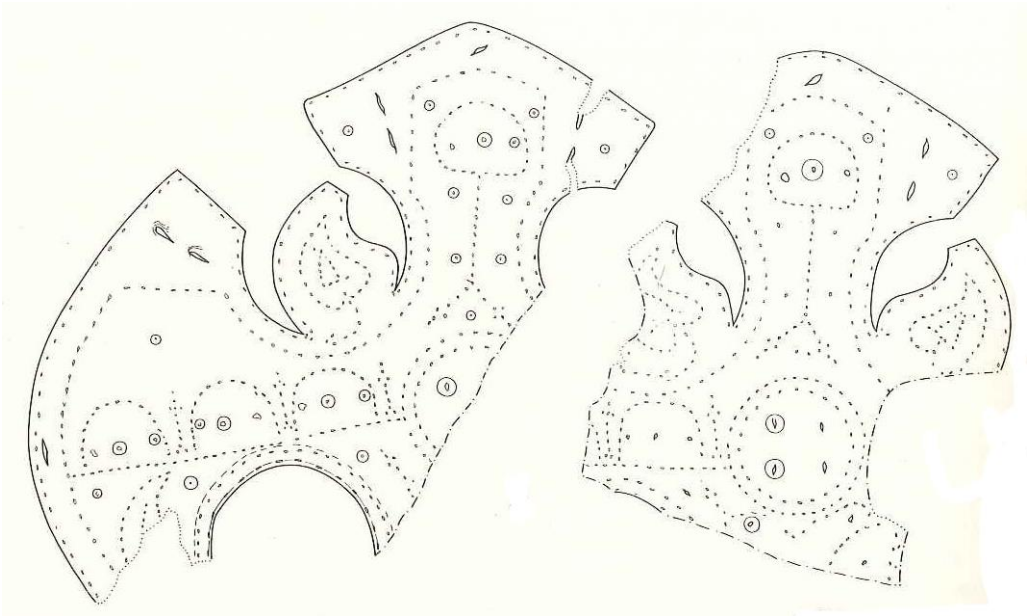
Source: Van Driel-Murray 1989, 284

19. Fragment of leather chamfron, Type A
Date: Around 100 AD
Material: Leather
Origin: Found 1985 in Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1993



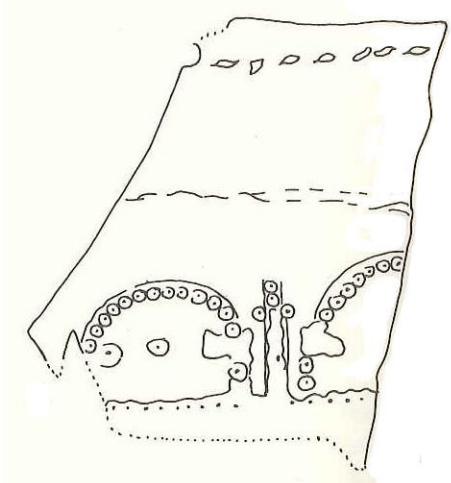
Source: Van Driel-Murray 1993, 12

20. Fragment of leather chamfron, Type A
Date: Around 100 AD
Material, dimensions: Leather, diameter: 38 cm
Origin: Found 1985 in Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1989, 283-292; Junkelmann 1996, 99



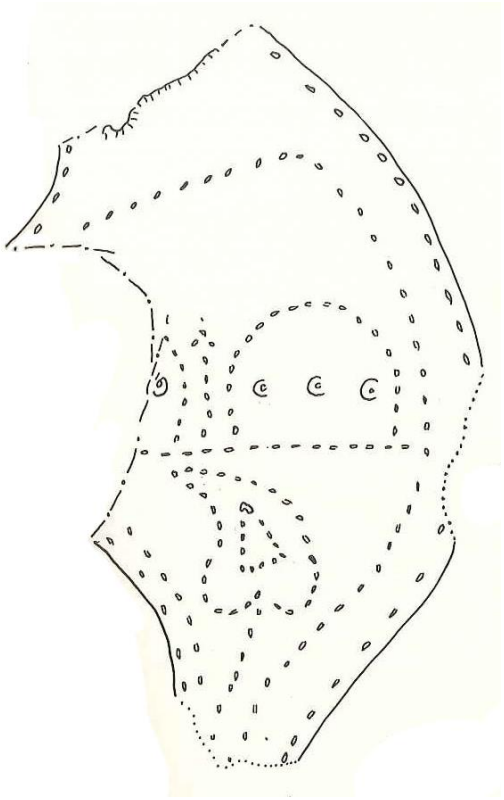
Source: Van Driel-Murray 1993, 12

21. Fragment of leather chamfron, Type A
Date: Around 100 AD
Material: Leather
Origin: Found 1985 in Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1993



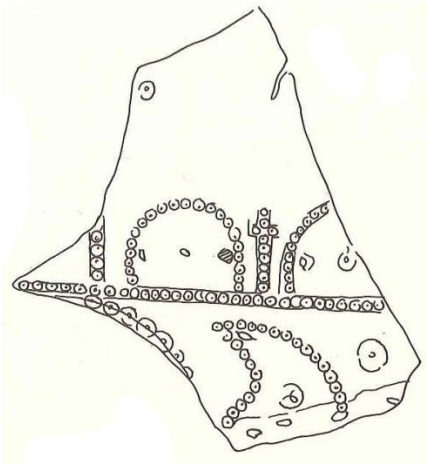
Source: Van Driel-Murray 1993, 12

22. Fragment of leather chamfron, Type A
Date: Around 100 AD
Material: Leather
Origin: Found 1985 in Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1993



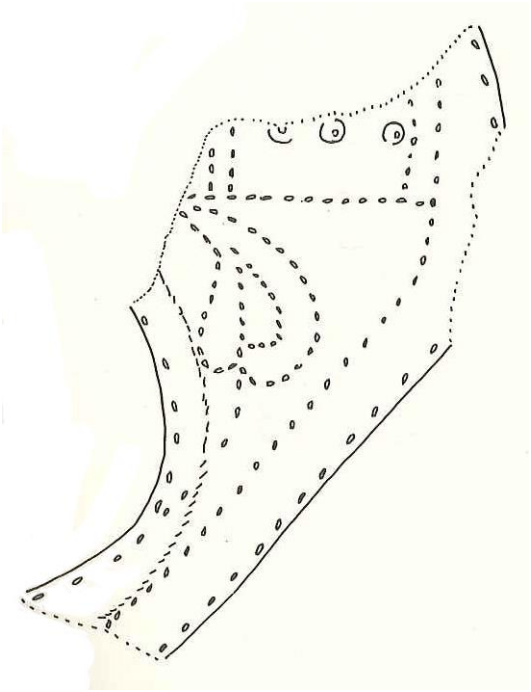
Source: Van Driel-Murray 1993, 13

23. Fragment of leather chamfron, Type A
Date: Around 100 AD
Material: Leather
Origin: Found 1985 in Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1993



Source: Van Driel-Murray 1993, 13

24. Fragment of leather chamfron, Type A
Date: Around 100 AD
Material: Leather
Origin: Found 1985 in Vindolanda, United Kingdom
Location: The Roman Army Museum, Vindolanda, United Kingdom
Sources: Van Driel-Murray 1993



Source: Van Driel-Murray 1993, 13

25. Single eye guard from chamfron, Type A (possibly one of a pair with example from Megen)
Date: Probably 1st – 2nd century
Material, dimensions: Copper alloy, height: 6.5 cm
Origin: Found in Lith, Netherlands
Location: Dutch National Museum of Antiquities, Leiden, NL: Inventary Nr.: k 1971/1.4
Sources: Stuart 1986, Provincie van een imperium, 118. A.K. Lawson 1978, Studien zum römischen Pferdegeschirr, Jahrb. RGZM 25, 159-160

26. Single eye guard from leather chamfron, Type A (possibly one of a pair with example from Lith)
Date: 1st/2nd century AD
Material: Copper alloy, dimensions: unknown
Origin: Found in the 'De Gouden Ham' dredge pit at Megen, Netherlands
Sources: Nicolay 2007, 47

Source: Nicolay 2007, 46

27. Single eye guard from leather chamfron, Type A
Date: 1st/2nd century AD
Material: Copper alloy, dimensions: unknown
Origin: unknown
Location: Römisch-Germanisches Zentralmuseum, Mainz, Germany Inv. O.10 459
Sources: Garbsch 1978, 86 S9; otherwise unpublished

Source: Garbsch 1978, pl. 46

28. Eye guard of a chamfron, Type A
Date: Late 1st – early 2nd century AD
Material, dimensions: Copper alloy, height: 7.3 cm, width: 13.5 cm
Origin: Found 1796 in Ribchester, United Kingdom
Location: British Museum, London, United Kingdom Inv. 1814, 0705.2
Sources: Garbsch 1978, 58; Jackson & Craddock 1995, 82 Fig. 47

29. Eye guard of a chamfron, Type A
Date: Late 1st – early 2nd century AD
Material, dimensions: Copper alloy, height: 7.5 cm, width: 14.8 cm
Origin: Found 1796 in Ribchester, United Kingdom
Location: British Museum, London, United Kingdom Inv. 1814, 0705.2
Sources: Garbsch 1978, 58; Jackson & Craddock 1995, 82 Fig. 47

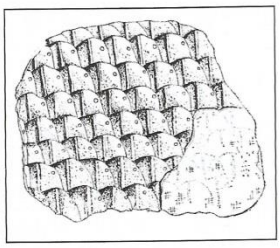
Eye guards of Nos. 28 and 29. © Trustees of the British Museum

30. Fragment of eye guard of a chamfron, Type A
Date: Late 1st – early 2nd century AD
Material, dimensions: Copper alloy, height: unknown, width: 13.5 cm
Origin: Found 1796 in Ribchester, United Kingdom
Location: British Museum, London, United Kingdom
Sources: Jackson & Craddock 1995, 81

31. Chamfron mount, Type A
Date: Late 1st – early 2nd century AD
Material, dimensions: Copper alloy, height: 7.2 cm, diameter: 7.3 cm
Origin: Found 1796 in Ribchester, United Kingdom
Location: British Museum, London, United Kingdom Inv. 1814, 0705.6
Sources: Jackson & Craddock 1995, 82 Fig. 49

32. Fragment of eye guard of a chamfron, Type A
Date: Late 1st – early 2nd century AD
Material, dimensions: Copper alloy, height: 5.3 cm, length: 5.9 cm
Origin: Found 1796 in Ribchester, United Kingdom
Location: British Museum, London, United Kingdom
Sources: Jackson & Craddock 1995, 81

33. Complete set of laminated scale horse armour
Date: Late 1st – early 2nd century AD
Material: Iron, dimensions: unknown
Origin: Found in Tumulus I, grave 2 at Chatalka, Bulgaria
Sources: D'amato 2009, 198; Bujukliev 1986



Source: D'amato 2009, 199

34. Single eye guard with metal plate, Type B
Date: 1st/2nd century AD
Material, dimensions: Copper alloy with green patina, length: 21.2 cm
Origin: unknown
Location: Private collection in southern Germany
Source: Online catalogue of Hermann Historica auction house, auction 63

Source: http://www.hermann-historica.de/auktion/images63_max/15924.jpg: Accessed 04.10.2013

35. Single eye guard with metal plate, Type B
Date: 1st/2nd century AD
Material, dimensions: Copper alloy with green patina and remains of silvering, length: 16.0 cm, width: 10.5 cm
Origin: unknown
Location: Private collection
Source: Online catalogue of Hermann Historica auction house, auction 57

Source: http://www.hermann-historica.de/auktion/images57_max/79938.jpg: Accessed 04.10.2013

36. Single eye guard with metal plate, Type B
Date: 1st/2nd century AD
Material, dimensions: Copper alloy, height: 26.5 cm
Origin: unknown
Location: Private collection
Source: Online catalogue of Hermann Historica auction house, auction 66

Source: Hermann Historica

37. Left side plate of three-piece chamfron, Type B
Date: 2nd century AD
Material, dimensions: Copper alloy, height: 20.7 cm, width: 12.9 cm
Origin: Found 1892 in the vicinity of the fort of Regensburg-Kumpfmühl, Germany
Location: Museum der Stadt Regensburg, Germany Inv. A 1470
Sources: Garbsch 1978, 56

Source: Garbsch 1978, pl. 11

38. Three-piece chamfron, Type C
Date: 2nd century AD
Material, dimensions: Copper alloy, height: 22.5 cm, width: 38.0 cm
Origin: Found 1955 in the Roman necropolis of Tell Oum Hauran, Syria
Location: National Museum Damascus, Syria Inv. C 7364
Sources: Garbsch 1978, 61

39. Middle part of large three-piece chamfron, Type C
Date: 2nd century AD
Material, dimensions: Copper alloy, height: 41 cm
Origin: Found 1926 in the canabae of the Legionary fortress of Apulum, Romania
Location: Muzeul de Istoria Transilvaniei, Cluj, Romania, Inv. 2582
Sources: Garbsch 1978, 87 S15; Ferri 1933; Radnóti 1948

40. Large three-piece chamfron, Type C
Date: Second half of 2nd/early 3rd century AD
Material, dimensions: Copper alloy, height: 63.5 cm, width: 22.0 cm
Origin: Found 1835 in the Roman fort of Gherla, Romania
Location: Muzeul de Istoria Transilvaniei, Cluj, Romania
Sources: Garbsch 1978, 58

Source: Garbsch 1978, pl. 13

41. Central panel of a three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material: Copper alloy, dimensions: unknown
Origin: unknown
Location: Museum Weißenburg, Germany
Sources: Negin 2010, 168

Source: Negin 2010, 168

42. Large three-piece chamfron, Type C
Date: Second half of 2nd/early 3rd century AD
Material: Copper alloy, dimensions: unknown
Origin: Found 1835 in the Roman fort of Gherla, Romania
Location: Muzeul de Istoria Transilvaniei, Cluj, Romania
Sources: Garbsch 1978, 58

43. Fragment from left side of large three-piece chamfron, Type C
Date: $2^{nd}/3^{rd}$ century AD
Material, dimensions: Copper alloy, height: 6.3 cm, width: 6.6 cm
Origin: Found during excavations from 1890 – 1898 in Roman fort of Weißenburg, Germany
Location: Museum Weißenburg, Germany
Sources: Garbsch 1978, 87 S12; Fabricius 1906

44. Single eye guard from medium sized three-piece chamfron, Type C
Date: $2^{nd}/3^{rd}$ century AD
Material, dimensions: Copper alloy, height: 12.5 cm
Origin: Found during excavations from 1890 – 1898 in Roman fort of Weißenburg, Germany
Location: Museum Weißenburg, Germany
Sources: Garbsch 1978, 88 S19; Fabricius 1906

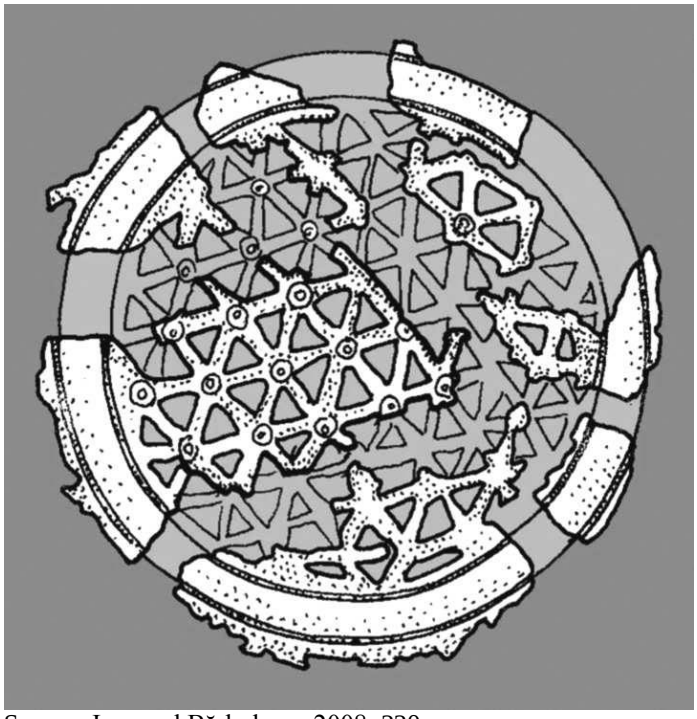
45. Single eye guard from medium sized three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, max. width: 12.8 cm
Origin: Found 1936 during construction work near the celtic oppidum of Manching, Germany
Location: Museum Ingolstadt, Germany Inv. 349
Sources: Garbsch 1978, 88 S20; Robinson 1975

Source: Birgit Gebhard, Stadtarchiv Ingolstadt

46. Eye guard of chamfron, Type A
Date: 2nd/3rd century AD
Material: Copper alloy, dimensions: unknown
Origin: unknown
Location: Corstopitum Site Museum, Corbridge, United Kingdom Inv. 75.1356
Sources: Garbsch 1978, 88 S21; Simpson 1964; Robinson 1975

Source: Garbsch 1978, pl. 48

47. Fragments of a single eye guard, Type A
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, diameter: 12 cm
Origin: Found in the Auxiliary fort of Inlăceni, Romania
Sources: Diaconescu and Opreanu 1987; Isac and Bărbulescu 2008; Junkelmann 1996, 100



Source: Isac and Bărbulescu 2008, 220

48. Middle part of large three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, height: 38 cm
Origin: unknown
Location: Musée du CinquAntenaire, Brussels, Belgium Inv. A 454
Sources: Garbsch 1978, 87 S16

49. Fragment of a three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, height: 12.6 cm, width: 6.8 cm
Origin: Found in the legionary fortress of Carnuntum, Austria
Location: Archäologisches Museum Carnuntinum, Austria Inv. 12214
Sources: Junkelmann 1996, 99; Humer and Jobst 1992, 241

50. Fragment of a three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, height: 9.7 cm, width: 5.1 cm
Origin: Found in the legionary fortress of Carnuntum, Austria
Location: Archäologisches Museum Carnuntinum, Austria Inv. 12216
Sources: Junkelmann 1996, 99; Humer and Jobst 1992, 241

51. Fragment of the centre piece of a three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, height: 5 cm
Origin: Found as part of a hoard in Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1981, 3121
Sources: Junkelmann 1996, 100

52. Fragment of a three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, length: 14.5 cm
Origin: Found 1921 in the fort of Vechten, Netherlands
Location: Provinciaal Oudheidkundig Museum, Utrecht, Netherlands
Sources: Junkelmann 1996, 99; Kalee 1989

Source: Kalee 1989, 217

53. Right side of large three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, height: 27.5 cm, width: 19 cm
Origin: Found in the 19th century in Szöny, Hungary
Location: Kunsthistorisches Museum, Vienna, Austria Inv. VI 2780
Sources: Garbsch 1978, 87 S14; Münsterberg 1903; Drexel 1924

54. Fragment of three-piece chamfron, Type C
Date: 2nd/3rd century AD
Material, dimensions: Copper alloy, height: 4.4 cm, width: 4.6 cm
Origin: Found 1976 behind the northern gate of the fort of Straubing, Germany
Location: Gäubodenmueum, Straubing, Germany
Sources: Garbsch 1978, 88 S18; Prammer 1976

55. Large three-piece chamfron, Type C
Date: First third of 3rd century AD
Material, dimensions: Copper alloy, height: 45.5 cm, width: 50.5 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

56. Centre piece of three-piece chamfron, Type C
Date: Probably 2nd – 3rd century
Material: Copper alloy, dimensions: height: 26.2 cm, width: 16.2 cm, thickness: c. 0,01cm
Origin: Found during the Prysg Field excavations at Caerleon, United Kingdom
Location: Roman Legionary Museum, Caerleon, United Kingdom
Sources: Chapman 2005, 144-145

Source: author

57. Large three-piece chamfron, Type C
Date: First third of 3rd century AD
Material, dimensions: Silver-coated copper alloy, height: 41.8 cm, width: 45.0 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

58. Large three-piece chamfron, Type C
Date: Probably late 2nd – early 3rd century AD
Material: Copper alloy, dimensions: unknown
Origin: Seized in 2013 by the Turkish police in the province of Çanakkale, Turkey
Location: Çanakkale Arkeoloji Müzesi, Turkey
Sources: as yet unpublished

Source: Hurriyet Daily News, April 16, 2013: Accessed 03.10.2013

59. Large three-piece chamfron, Type C
Date: First third of 3rd century AD
Material, dimensions: Copper alloy, height: 41.6 cm, width: 46.0 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

60. Large three-piece chamfron, Type C
Date: First third of 3rd century AD
Material, dimensions: Copper alloy, height: 39.6 cm, width: 43.3 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

61. Fragment of the central panel of a chamfron, Type C
Date: Probably 2nd – 3rd century
Material: Copper alloy, dimensions: unknown
Origin: unknown
Location: Römisch-Germanisches Zentralmuseum, Mainz, Germany
Sources: Negin 2010, 165

Source: Negin 2010, 165

62. Large three-piece chamfron, Type C
Date: First third of 3rd century AD
Material, dimensions: Copper alloy, height: 40.4 cm, width: 45.8 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

63. Centre piece of three-piece chamfron, Type C
Date: Late 2nd to Mid-3rd century AD
Material, dimensions: Copper alloy with tin gilding, height: 35 cm, width: 13.8 cm
Origin: Unknown
Location: Private collection
Source: Online catalogue of Hermann Historica auction house, auction 68

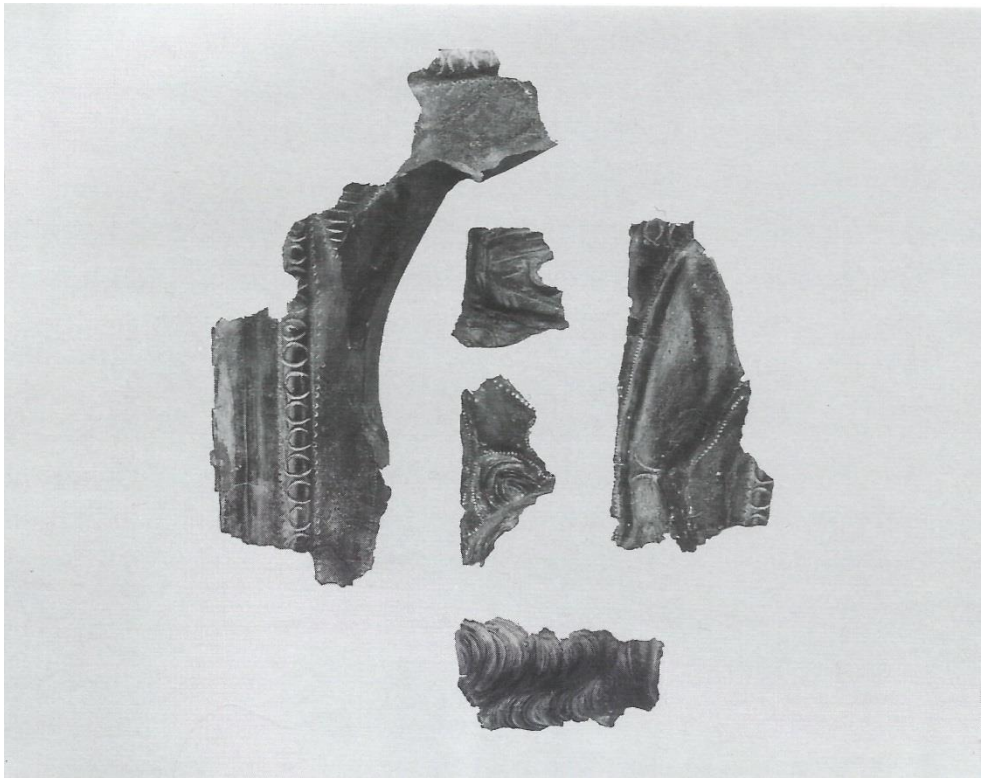
Source: http://www.hermann-historica.de/auktion/images68_max/88880.jpg Accessed: 23.04.2014

64. Left side plate of large chamfron, Type C
Date: First third of 3rd century AD
Material, dimensions: Copper alloy, height: 34.9 cm, width: 16.1 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

65. Fragment of a large three-piece chamfron, together with five smaller fragments, Type C
Date: Second half of 2nd century – first half of 3rd century AD
Material, dimensions: Copper alloy, height: 19 cm, width: 15 cm max.
Origin: Found 1977 in Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany Inv. 15241
Sources: Garbsch 1978, 87 S13; Born and Junkelmann 1997, 120

Source: author



Source: Born and Junkelmann 1997, 149 Fig. 93

66. Three-piece chamfron, Type B
Date: First third of 3rd century AD
Material, dimensions: Silver-coated copper alloy, height: 25.5 cm, width: 42.5 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

67. Three-piece chamfron, Type B
Date: First third of 3rd century AD
Material, dimensions: Copper alloy, height: 26.5 cm, width: 48.0 cm
Origin: Found 1950 near a Roman villa around 3 km west of the fort of Straubing, Germany
Location: Gäubodenmuseum, Straubing, Germany
Sources: Garbsch 1978, 47

Source: author

68. Centre piece of three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 40 cm, width: 14.9 cm, thickness: 0.3-0.4 mm
Origin: Found 1990 as part of a hoard in the eastern *vicus* of Künzing, Germany
Location: Museum Quintana, Künzing, Germany
Sources: Junkelmann 1996, 82

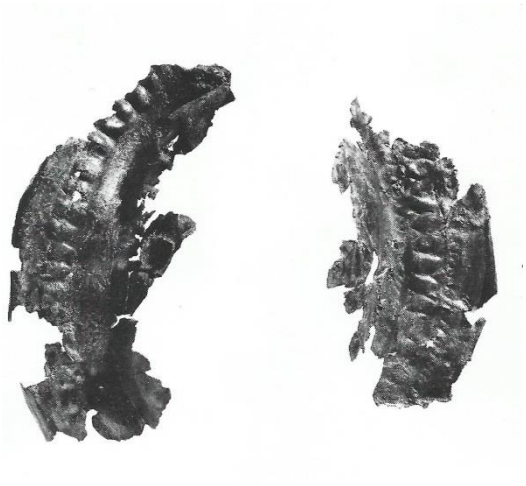
Source: Museum Quintana

69. Four fragments of right plate of large three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 9.0 cm
Origin: Found 1962 in the principia of the fort of Künzing, Germany
Location: Prähistorische Staatssammlung Munich, Germany Inv. 1966, 986
Sources: Garbsch 1978, Herrmann 1971, Robinson 1975

Source: Garbsch 1978, pl. 7

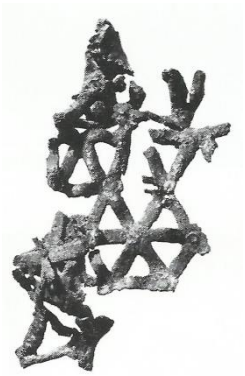
70. Fragment of the centre piece of medium sized three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 8.5 cm
Origin: Found 1962 in the principia of the fort of Künzing, Germany
Location: Prähistorische Staatssammlung Munich, Germany Inv. 1966, 986
Sources: Garbsch 1978, Herrmann 1971, Robinson 1975

71. Eight fragments of eye guards of medium sized three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, length: max. 10.6 cm
Origin: Found 1962 in the principia of the fort of Künzing, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1966, 986
Sources: Garbsch 1978, Herrmann 1971, Robinson 1975



Source: Garbsch 1978, pl. 7

72. Six fragments of eye guards with triangular breaching decoration, Type A
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, length: 10 cm
Origin: Found 1962 in the principia of the fort of Künzing, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1966, 986
Sources: Garbsch 1978, Herrmann 1971, Robinson 1975



Source: Garbsch 1978, pl. 7

73. Twenty-nine fragments of three-piece chamfrons, Type B or C
Date: First half of 3rd century AD
Material: Copper alloy
Origin: Found 1962 in the principia of the fort of Künzing, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1966, 986
Sources: Garbsch 1978, Herrmann 1971, Robinson 1975

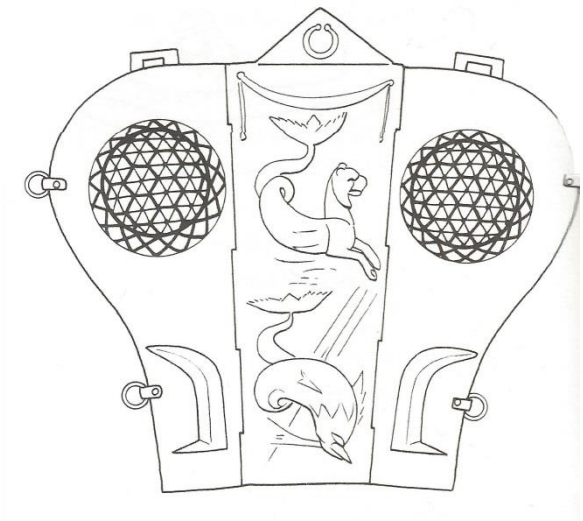
74. Two partially melted fragments of an eye guard, Type A
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, length: 4 cm and 2.5 cm respectively
Origin: Found 1987 in the eastern *vicus* of Künzing, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1989, 1191b
Sources: Junkelmann 1996, 99; Fischer 1991, 89

75. Two parts of a three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 9 cm
Origin: Found as part of a hoard in Sittling, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1993, 1179
Sources: Junkelmann 1996, 100

76. Three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 41.5 cm, width: 46.8 cm
Origin: Found 1975 in the *vicus* of Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1978, 121-140
Sources: Garbsch 1978, Kellner 1976, Kellner 1978

Source: Künzl 2008, 123

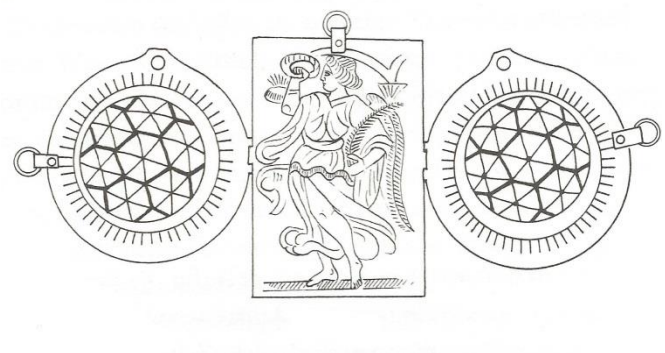
77. Three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 37.4 cm, width: 43.1 cm
Origin: Found 1975 in the *vicus* of Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1978, 121-140
Sources: Garbsch 1978, Kellner 1976, Kellner 1978



Source: Garbsch 1978, 10

78. Front plate of three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 20.4 cm, width: 13.8 cm
Origin: Found 1975 in the *vicus* of Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1978, 121-140
Sources: Garbsch 1978, Kellner 1976, Kellner 1978

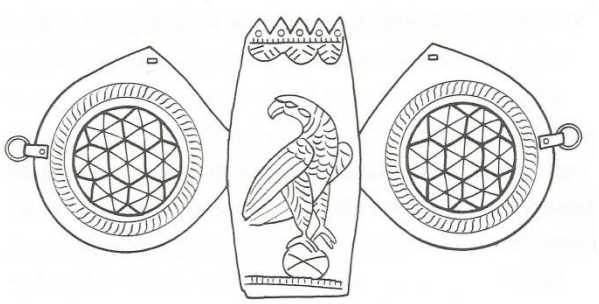
79. Small three-piece chamfron, Type B
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, diameter: 15.7 – 16.6 cm
Origin: Found 1975 in the *vicus* of Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1978, 121-140
Sources: Garbsch 1978, Kellner 1976, Kellner 1978



Source: Garbsch 1978, 11

80. Front plate of three-piece chamfron, Type C
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 21.8 cm, width: 10.3 cm
Origin: Found 1975 in the *vicus* of Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1978, 121-140
Sources: Garbsch 1978, Kellner 1976, Kellner 1978

81. Small three-piece chamfron, Type B
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, height: 16.7 cm, width: 15.3 cm
Origin: Found 1975 in the *vicus* of Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1978, 121-140
Sources: Garbsch 1978, Kellner 1976, Kellner 1978



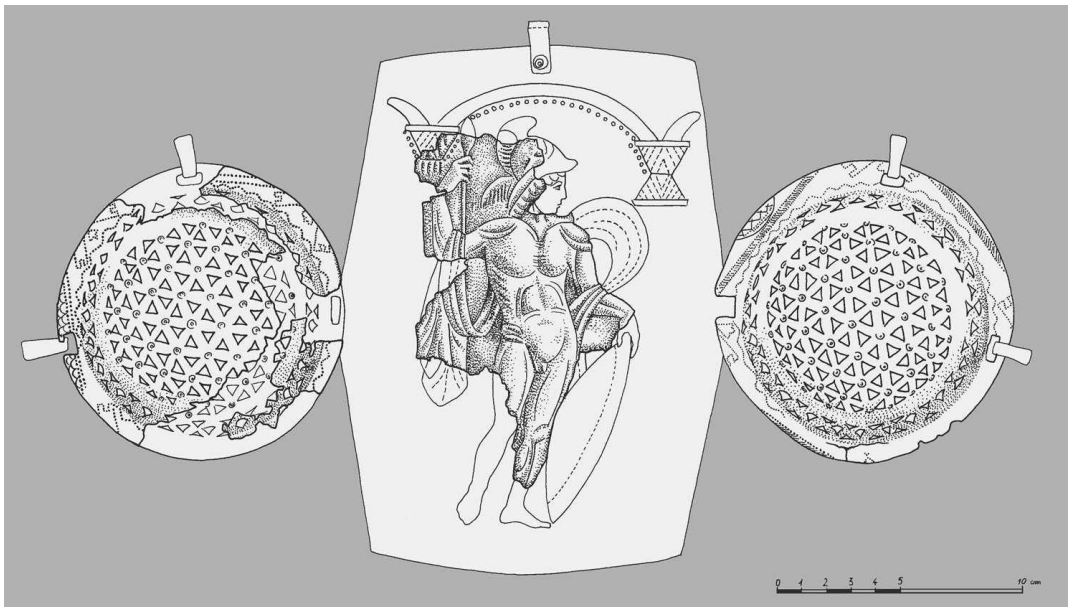
Source: Garbsch 1978, 11

82. Pair of eye guards, Type A
Date: First half of 3rd century AD
Material, dimensions: Copper alloy, diameter: 13.7 and 13.9 cm
Origin: Found 1975 in the *vicus* of Eining, Germany
Location: Prähistorische Staatssammlung, Munich, Germany Inv. 1978, 121-140
Sources: Garbsch 1978, Kellner 1976, Kellner 1978

83. Fragment of a chamfron, Type C
Date: Probably first half of 3rd century AD
Material: Copper alloy
Origin: Found in Nida-Heddernheim, Germany as part of a collection of material destined for reuse
Location: unknown
Sources: Reis 2002, 63-64

Source: Reis 2002, 64

84. Fragment of small three piece chamfron, Type B
Date: Mid-3rd century AD
Material, dimensions: Copper alloy, height: 9.3 cm, diameter of eye guard: 11.2 cm
Origin: Found 1978 in a burning layer of the fort at Gilău, Romania
Location: unknown
Sources: Junkelmann 1996, 83 Fig. 173; Diaconescu and Opreanu 1987, 157; Isac and Bărbulescu 2008, 220



Source: Isac and Bărbulescu 2008, 220

85. Fragment of middle piece of medium sized three-piece chamfron, Type C
Date: 3rd century AD
Material, dimensions: Copper alloy, height: 12 cm, width: 15.5 cm
Origin: Found in the Legionary fortress of Enns-Lorch, Austria
Location: Museum Lauriacum, Enns, Austria
Sources: Garbsch 1978, 87 S17; Ubl 1974

Source: Museum Lauriacum – Enns

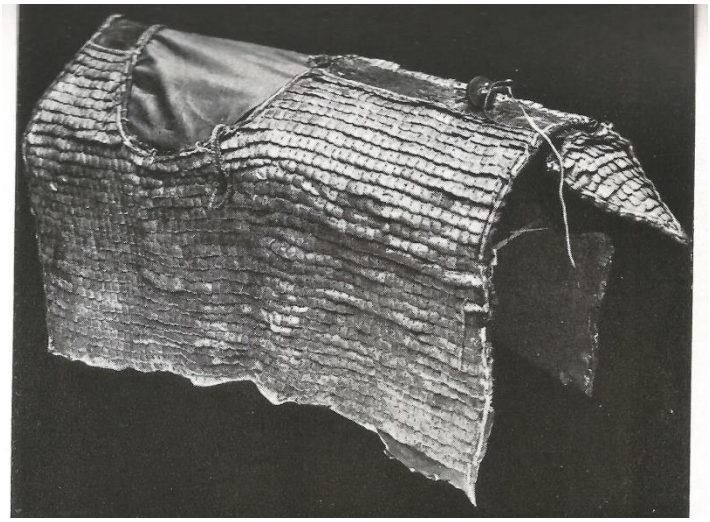
86. Eye guard of a metal chamfron, partly reconstructed, Type C
Date: 3rd century
Material, dimensions: Copper alloy, diameter: 15 cm
Origin: Found in the Legionary fortress of Enns-Lorch, Austria
Location: Museum Lauriacum, Enns, Austria Inv. R II 301
Sources: Ubl 1997

Source: Museum Lauriacum – Enns

87. Complete set of equine body armour
Date: Mid-3rd century AD
Material, dimensions: Iron on linen with leather, scale length: 6 cm, scale width: 4.5 cm, total length: 148 cm, total width: 110 cm
Origin: Found in Tower 19 of the city of Dura Europos, Syria
Location: Yale University Art Gallery, United States
Sources: James 2004, 131; Bishop and Coulston 2011, 191; Brown 1936

Source: Yale University Art Gallery, public domain

88. Complete set of equine body armour
Date: Mid-3rd century AD
Material, dimensions: Copper alloy on linen with leather, scale length: 3.5 cm, scale width: 2.5 cm, total length: 122 cm, total width: 169 cm
Origin: Found in Tower 19 of the city of Dura Europos, Syria
Location: National Museum Damascus, Syria
Sources: James 2004, 131; Bishop and Coulston 2011, 192; Brown 1936



Source: Brown 1936, pl. XXII 2

89. Fragments of equine body armour
Date: Mid-3rd century AD
Material: Copper alloy on leather
Origin: Found in Tower 19 of the city of Dura Europos, Syria
Location: Yale University Art Gallery, United States
Sources: James 2004, 132; Brown 1936

Source: Thom Richardson, Royal Armouries Leeds

90. Possible leather chamfron, Type A
Date: Found in 4th century AD context
Material, dimensions: Leather with copper alloy studs and decorative plaque, thickness: 3-4 mm
Origin: Found during the excavations at the Legionary fortress of Caerleon, United Kingdom
Location: National Museum of Wales, Cardiff, United Kingdom
Sources: Hill 2013

The copper alloy plaque from Caerleon which would have been attached to the top of the leather chamfron.
Source: Hill 2013, 80

91. Fragment of eye guard, Type A
Date: unknown
Material: Copper alloy, dimensions: unknown
Origin: unknown
Location: Museum Chesters, United Kingdom
Sources: Garbsch 1978, 88 S22

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