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# European Mail Armour

RINGED BATTLE SHIRTS FROM THE IRON AGE, ROMAN PERIOD AND EARLY MIDDLE AGES



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# European Mail Armour

RINGED BATTLE SHIRTS FROM THE IRON AGE, ROMAN PERIOD AND EARLY MIDDLE AGES

M A R T I J N A . W I J N H O V E N





This book meets the requirements of ISO 9706: 1994, Information and documentation – Paper for documents – Requirements for permanence.

Cover illustration: Image top left & bottom right: fragments of mail armour from Bijele Crkve in Serbia dating to the Late Antiquity. Arheološki Muzej u Zagrebu (photograph M.A. Wijnhoven). Image top right: statue of a Gallo-Roman soldier found at Vachères in France. The soldier in this Late Republican sculpture wears a mail coat rendered in a very realistic style. Musée Calvet, Avignon (photograph M.A. Wijnhoven). Image bottom left: the mid-3rd-century Ludovisi sarcophagus depicts a *signifer* clad in mail armour. Palazzo Altemps, Rome (photograph M.A. Wijnhoven).

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To Larissa Mendoza Straffon





### 1 Introduction

'Beowulf got ready, donned his war-gear, indifferent to death. His mighty, hand-forged, fine webbed mail would soon meet with the menace under water. It would keep the bone-cage of his body safe. No enemy's clasp could crush him in it, no vicious arm lock choke his life out.' Beowulf (c. 8th century AD)<sup>1</sup>

Mail armour, made of countless interlinked metal rings that protect the body, is a highly successful piece of military equipment. In warfare, where innovation is crucial to stay ahead, the development of weap-onry can happen relatively quickly compared to the rate of change in other realms of society. Despite the fast-paced arms race which has been going on since antiquity, mail armour remained basically an Iron Age technology until it fell out of use in the 19th century. This means that it endured more than two thousand years of evolution of military equipment and battle tactics. Its use spread over vast geographical areas including Europe, Asia, North Africa and even the Americas during the Early Colonian period,<sup>2</sup> indicating that it was an extraordinarily effective piece of protective gear in all kinds of battle conditions, places, and periods.

Although mail is no longer worn in combat, it continues to exist. Nowadays, its most common applications are in protective suits for scuba divers against shark bites, and in gloves or mittens to avoid injuries when working with sharp tools, for instance in professional kitchens. As a piece of defensive equipment, it lives in our collective consciousness as the archetypical outfit of military men from the remote past, and has been immortalized by popular culture appearing frequently on television, film, videogames, and literature.

The long lifespan and success of mail armour as a defensive garment is, however, not reflected in scholarship, where there are surprisingly few works that deal with this type of armour in depth. The following section introduces some key publications that outline the state of the field in mail research, leading up to the aims of this study.

#### I.I PREVIOUS RESEARCH

Shortly after armour became obsolete on the European battlefields and turned into a historical item, studies of its development started to appear in the late 18th and early 19th centuries.<sup>3</sup> These scholarly volumes looked mainly at the plate armour of the medieval knight and dealt with mail only in passing. One of the few exceptions was the work of Sir Samuel Meyrick in the first half of the 1800s,<sup>4</sup> which due to its pioneering status still contains many misconceptions about mail. Meyrick only had access to historical armour, which is armour that has been passed down from owner to owner through history. These pieces are generally no older than the 14th century AD, so they just provide information of mail from the Late Middle Ages and Early Modern period. In Meyrick's time, archaeology was a new discipline and finds of archaeological mail were rare, so they were largely ignored by him and his contemporaries.

- <sup>1</sup> Beowulf, lines 1142-1148; translation Heaney 2000.
- <sup>2</sup> E.g. Absolon 2017, 292-296; Arkell 1956; Bivar 1964, 30-38, 59-66; Robinson 1967; Smith 1960a; 1960b;

Terry/Terry 1961; Wedel 1975; Wood et al. 2013.

- <sup>3</sup> E.g. Grose 1786; Hewitt 1860; Lacombe 1868.
- <sup>4</sup> Meyrick 1821; 1824; 1846.





Fig. 1.1. Baron De Cosson and Wiliam Burges's catalogue from 1880 includes detailed drawings of individual rings from historical mail. This illustration shows the variety of characteristics they observed in Oriental mail rings (De Cosson/Burges 1880, pl. 13).

The first study to include passages devoted completely to mail is the Catalogue of the exhibition of ancient helmets and examples of mail by the baron De Cosson and William Burges, from 1880.<sup>5</sup> Although the main topic of the volume is helmets, the sections on mail provide detailed and thorough observations of the material available at the time (fig. 1.1). Inevitably this means that the text mostly discusses historical mail from Late Middle Ages and after, but for the first time it goes beyond Europe to include mail from other regions of the world. De Cosson and Burges were aware of archaeological finds, and refer for example to the 'two masses of oxidised iron' stored in the basement of the British Museum, but did not make much of their potential.

Between 1897 and 1929, the German scholar Walther Rose published four articles on mail armour.<sup>6</sup> In these he mainly focuses on the marks found on mail rings, either as decoration in historical Indo-Persian mail or as maker's marks in historical European mail. However, in his 1906 work titled Römisch-germanische Panzerhemden, he analyses mail from Antiquity up to the Carolingian period, finally moving away from historical examples and delving into an earlier period. Rose considers written and iconographic sources along with archaeological finds, offering brief descriptions of 14 specimens of archaeological mail known by then. In spite of his limitations, Rose is the first to address the period prior to the Late Middle Ages in some depth and to take into account different sources of information.

De Cosson/Burges 1880, 563-570, 574-583, pl. 11-15. 6

Rose 1897; 1902; 1906; 1929.



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The most influential scholar in the study of mail armour is probably E. Martin Burgess.<sup>7</sup> Between the 1950s and early 1960s, he published a series of articles dedicated to European historical mail. His *Further research into the construction of mail garments* was a seminal publication that laid the foundation for the systematic analysis of mail garment construction. In it he describes how to record the pattern in which the rings are woven together, and the techniques employed to shape the mail fabric. Most of his subsequent work consisted of case studies, where he applied his newly developed method to well-preserved mail garments. These publications spurred a new line of mail armour research and several studies of historical mail have followed his procedure since.<sup>8</sup>

In 1956 Burgess co-authored an article with H. Russel Robinson on the construction of a 14th century mail coif.<sup>9</sup> The latter author is best known for his 1975 book *The armour of imperial Rome*, a cornerstone of what eventually became Roman military equipment studies (see below).<sup>10</sup> Robinson made wide use of archaeological finds in his research, especially for his typology of helmets and in the reconstruction of segmented body armour, or *lorica segmentata*. However, when dealing with mail armour Robinson primarily resorted to iconography rather than actual specimens. Even though he mentions several finds, he remains unconvinced of how informative these might be:

'Actual Roman mail has survived only in rare instances; and when shirts have survived they have been little more than a caked mass of iron oxide from which nothing of their shape and only the most approximate size of the rings can be ascertained.'<sup>11</sup>

In 1983 the conference 'Roman military equipment' was held in Sheffield. This event was devoted to the material culture of the Roman soldier and it launched the Roman Military Equipment Conference series (ROMEC), which still runs every three years. In addition to the Roman army, the conference covers topics from outside the Roman Empire and a wide timeframe, from the Iron Age to the Byzantine period. ROMEC has resulted in a large body of literature published for the most part in the *Journal of Roman Military Equipment Studies* and comprehensive volumes like *Roman military equipment* by Mike C. Bishop and Jon C. Coulston,<sup>12</sup> *Die Armee der Caesaren* by Thomas Fischer,<sup>13</sup> and *Les armes des romains* by Michel Feugère.<sup>14</sup> Roman military equipment studies has produced numerous articles that touch upon mail armour, and a few that deal with it specifically.<sup>15</sup> Nevertheless, the subject of mail has mostly been anecdotal until now. Consequently, the same small number of finds is repeatedly mentioned in the literature while an extensive analysis of the evidence remains lacking, as Fischer has noted:

'The current state of research on Roman body armour is fairly uneven: segmental cuirasses have been published comprehensively in two modern monographs. But the other types of armour, in other words, muscle, mail, scale, and lamellar cuirasses have been summarized on the basis of older research by Robinson. Modern detailed investigations into these types of body armour are not currently available.' <sup>16</sup>

- <sup>7</sup> Burgess 1953a; 1953b; 1955; 1957; 1958; 1960; Burgess/ Robinson 1956; Reid/Burgess 1960.
- <sup>8</sup> E.g. Wood *et al.* 2013; Chapman 2004, 43-49; Krogh 2016; Schmid 2003, 4-7; Hellman 1995.
- <sup>9</sup> Burgess/Robinson 1956.
- <sup>10</sup> Originally he was a specialist in oriental armour; cf. Robinson 1967.
- <sup>11</sup> Robinson 1975, 171.

- <sup>12</sup> Bishop/Coulston 2006.
- <sup>13</sup> Fischer 2012; 2019.
- <sup>14</sup> Feugère 1993; 2002.
- <sup>15</sup> Czarnecka 1996; Juncher 2016; Van der Sanden 1993; Wijnhoven 2016a; 2017.
- <sup>16</sup> Fischer 2012, 163; 2019, 125. He expresses this lack of a comprehensive study also in Fischer 2011, 107.





Fig. 1.2. The state of preservation of historical and archaeological mail differs greatly. Historical mail, like the 15<sup>th</sup> century German coat on the left, usually has been passed from person to person and tends to be in good and complete condition, making it relatively easy to examine and understand (photograph Metropolitan Museum of Arts, inv. no. 29.156.68). There is only a hand-ful of examples predating the 14<sup>th</sup> century. Older specimens come from the archaeological record and are often so heavily corroded that they form a solid block. In such cases, (mechanical) cleaning can sometimes reveal the outlines of the rings, like in the Roman period find on the right from Kalkar, Germany, now in the PUG Collection in Utrecht (photograph M.A.Wijnhoven).

Roman military equipment studies is a field well-known for being inclusive towards the historical re-enactment community. Collaborations between scholars and re-enactors have yielded excellent results for experimental archaeology. For example, Marcus Junkelmann was able to study the practical use of the full Roman army kit by having a group wear it and recreate weeks-long marches across Europe, published in *Die Legionen des Augustus*.<sup>17</sup> The coat of mail does feature in Junkelmann's work, but only as one among the many items of military equipment.<sup>18</sup> In the sphere of experimental archaeology, it is David Sim who has paid particular attention to mail armour. In his article *Roman chain-mail: experiments to reproduce the techniques of manufacture*, he reports using Roman-age technology to reconstruct possible tools for making mail.<sup>19</sup>

Scientific techniques have become increasingly important in the study of archaeological materials. Nonetheless, mail armour has rarely been analysed in this way, except for radiography and metallography. X-rays and CT-scans have proven helpful in identifying mail in what seem shapeless clumps of corroded

- <sup>17</sup> Junkelmann 1986. Similar experimental studies are found in Junkelmann 1991; 1992; 1996; 2008; Koepfer *et al.* 2011.
- <sup>18</sup> Junkelmann 1986, 164-168.
- <sup>19</sup> Sim 1997; Sim/Kaminski 2011, 111-134; Sim/Ridge

2002, 98-103.

<sup>20</sup> E.g. Bruce-Mitford 1978, 232-240; Gilmour 1997, 28-32; 1998, 163-164; Greiner 2008; 99-101; O'Connor 1992b, 1187; Price 1983, 13; Tweddle 1992, 896-902, 1006-1009.



iron and sediment, and in revealing details not evident to the naked eye. Since the 1970s, radiography has increasingly been used to analyse surviving specimens of mail armour, but is not standard practice.<sup>20</sup> Metallography has featured a bit more frequently in mail armour studies. It was first applied in the 1950s by J.R. Vilella (*Examination of mail armour links from the Metropolitan Museum of Art*)<sup>21</sup> and Cyril Stanley Smith (*Methods of making chain mail (14th to 18th centuries) - a metallographic note*),<sup>22</sup> in their examinations of historical mail rings from Europe and Asia.Vilella and Smith were ahead of their time and metallographic studies would not be performed again on mail armour until the 1980s.<sup>23</sup> Because metallography requires the mail rings to be in good condition, the technique has not been applied to archaeological material often, but it can be used successfully in well-preserved specimens as demonstrated by the work of Arne Jouttijärvi, *The manufacture of chain-mail*.<sup>24</sup>

As mentioned, mail research often has an anecdotal character operating on a case-study basis. A notable exception is Leif Hansen's *Die Panzerung der Kelten* from 2003, which assembled from the literature what was the largest inventory of archaeological mail.<sup>25</sup> Despite his focus is on the Late Iron Age, Hansen also included a substantial list of mail specimens from the Roman period.<sup>26</sup>

To recapitulate, over the last one and a half century, the field of mail armour studies has generally pivoted on well-preserved and relatively modern historical examples. To understand mail from earlier times, scholars have had to make do with archaeological mail, which is often badly preserved and incomplete. Therefore, there has been a tendency to deem this material as less- or even uninformative (fig. 1.2). For the same reason, most works that discuss mail from antiquity rely heavily on iconography, occasionally supplemented by a quote from a written source or a passing mention of an archaeological find. As a consequence, a systematic analysis, or meta-analysis, encompassing the collection of available evidence from the period preceding the Late Middle Ages is still lacking.

The current state of research shows that very little is known about mail armour from antiquity, other than the fact that it was worn. For instance, whereas mail artefacts regularly turn up in archaeological excavations, usually there is not much that can be said of or concluded from it; and in the absence of context, as is frequently the case for items in old or private collections, it becomes difficult to even estimate their age.

#### I.2 RESEARCH QUESTION AND AIMS

The process of archaeological research is constituted by various progressive stages, each contributing to the ultimate aim of reconstructing past societies as accurately as possible. The first stages comprise the collection, organisation, and analysis of archaeological data and their categorization in sets, e.g. chronologies, typologies, models, etc. These, in turn, serve as a basis for inferring and explaining various aspects of social organisation and relations.<sup>27</sup> The present study addresses multiple stages. It first sets out to gather, order and assess the reliability of the information available about mail armour. The results of these stages

- <sup>22</sup> His article spurred on a discussion with renowned scholar of mail Martin E. Burgess. Cf. Burgess 1960; Smith 1959; 1960.
- <sup>23</sup> Chapman 2004; Edge 2001; Fenn 2009; Fernández Reyes 2014; Fulford *et al.* 2005; Grandin 2008; Pleiner 2012; Tweddle 1992, 1023-1025; Vike 2000; Williams 1980; 2003.
- <sup>24</sup> Jouttijärvi 1996.

- <sup>25</sup> Hansen 2003. Inventories of mail finds, albeit on a much smaller scale, are also listed in Borangic 2011a; Fredman 1992; O'Connor 1992b; Raddatz 1959/1961b; Waurick 1982.
- <sup>26</sup> Hansen's database also served to analyse the 3<sup>rd</sup> century ry AD mail armour from Thorsberg in Germany; cf. Matešić 2015.
- <sup>27</sup> Bate 1998, 147.



<sup>&</sup>lt;sup>21</sup> Vilella 1958.

are in large part presented in the database. The study then looks at what can be inferred from this information by combining different sources and, if present, by contrasting their outcome with existing ideas. These aims call for a broad main research question, namely:

What can the combined systematic analysis of archaeological, iconographic and textual sources say about mail armour in the past?

This inquiry is directed at four topics, briefly described below.

#### ORIGIN AND DISPERSION

This topic addresses the invention of mail armour and its subsequent dispersion throughout the world. It therefore requires a clear definition of mail armour and how it differs from other objects made from interconnected metal rings. It also assesses the extent to which possible precursors of this type of armour can be identified. It further looks into where, when and who invented mail and how it spread over time to become a well-established form of armour. Within this topic, the distribution of the material evidence for mail is essential, for which it is also necessary to understand the taphonomic processes that underlie the preservation of that evidence.

USE AND NAMING

This theme concerns the use of mail garments. It attends to the parts of the body that were protected by mail and the type of garments worn. This topic scrutinises what the mail armour looked like by comparing depictions and actual surviving specimens, and asks whether there were different styles in different places, and how their design evolved through time. It also pays attention to the decoration of mail armour. In addition, this theme examines whether mail was used as a stand-alone armour or if it was employed together with padding to enhance its characteristics. Finally, it investigates what this armour was called in antiquity.

#### TECHNICAL DETAILS

This subject considers the mail components, i.e. the rings, that make up the armour itself. It focuses on the weaving patterns employed to interconnect the rings into a mesh and the techniques applied to tailor the garments to the human body. Special attention is given to explaining observed differences between time periods. The production process, or *chaîne opératoire* (see below) of the rings, from raw material to finished ring is examined, revealing specific characteristics shaped by the steps taken to complete a single ring. The presence of diagnostic characteristics is subsequently used to try to accurately assign mail armour to a certain time period or region. The latter is especially relevant for the many existing remains in sites or collections that lack context.

#### SOCIAL CONTEXT

The last issue focusses upon the people that wore mail armour and the role it played within society. It looks at the social accessibility of mail and whether it was available to and attainable by the few or to the



many. This topic also establishes whether this changed through time or across societies by comparing, for example, the Iron Age with the Roman period, seen from the Empire in contrast to the lands beyond its territory. The matter of whether a society produced its own mail armour or obtained it through other processes will also be discussed.

#### I.3 CHAÎNE OPÉRATOIRE

This study will make ample use of the concept of the *chaîne opératoire* as an analytical tool.<sup>28</sup> This concept, which was originally developed by the ethnologist Marcel Mauss for whom societies were to be understood through their technology,<sup>29</sup> has been widely applied in archaeology.<sup>30</sup> It allows for a reconstruction of technology as a 'total social fact' by tracing back the series of steps involved in transforming raw materials into artefacts. The operational sequences that turn a raw material into a finished product are specific to each society. Consequently, the work process of any craftsperson will be organized according to the internal logic of their particular society.

The *chaîne opératoire*, literally the chain of operations, involves the entire life cycle of an artefact encompassing everything from the manufacturing stages to its social use and its disposal, at which point it often ends up in the archaeological record. The potential of the *chaîne opératoire* as a methodological tool in archaeology has been embraced mainly by studies of prehistoric lithic technologies.<sup>31</sup> It has been applied less frequently in proto-historical and historical archaeology, perhaps due to the relative abundance of other sources. Nonetheless, it holds a lot of potential for revealing novel information while providing a solid interpretive framework.<sup>32</sup>

Chapters 8 to 11 will explore in depth the use of the *chaîne opératoire* to analyse the technical steps of the mail making process in its respective socio-cultural context. As we will see, this concept can bring to light new data regarding the behaviour, the decision making process, and the institutional-cultural contexts of the mail makers from various societies. It can also inform us on the role that mail played in each society and on issues such as the social accessibility and status of this armour. Moreover, by applying a long-term, cross-cultural focus, this study makes it possible to compare different societies (e.g. Roman and non-Roman) over several periods (e.g. Iron Age, Roman period, and Early Middle Ages), inaugurating a sound framework to address the cultural and chronological origin and evolution of mail armour.

#### I.4 A MULTI-DIMENSIONAL APPROACH TO MATERIAL STUDIES

In order to elucidate the topic of early mail armour and to address the four topics mentioned above, I will use a multi-dimensional approach to the study of material culture. This approach was originally developed by Jan Slofstra as an analytical model to better understand the concept of Romanisation related to the confrontation of (proto-) historical peoples with Roman power and culture.<sup>33</sup> He argued that the process of Romanisation should not be seen as a one-way linear process, but as a series of complex multi-dimensional interactions.

- <sup>28</sup> Dobres 1999; 2009.
- <sup>29</sup> Mauss 1979 [1934].
- <sup>30</sup> The ethnological concept of *chaîne opératoire* was first applied in archaeology by Leroi-Gourhan (1964).
- <sup>31</sup> In their edited volume Arntz/Lewis (2020) demonstrate

that this approach can be applied easily to many other technologies and also to historical societies.

- <sup>32</sup> E.g. Sellet, 1993; Soressi/Geneste 2011.
- <sup>33</sup> Slofstra 2002.





Fig. 1.3. Model of multi-dimensional analysis used here to study mail armour. The model demonstrates the interrelationship of the different dimensions and the need to study them together.

Although Slofstra did not foresee the application of the multi-dimensional approach to the field of material studies, it is highly suitable for this purpose. Like Romanisation, the concept of artefact types is similarly part of dynamic, complex non-linear developments in which various dimensions come into play. Slofstra's model considers three main dimensions: temporal-spatial, institutional, and cultural (fig. 1.3).

The time-space dimension is primarily relevant to archaeological and historical research. Regarding time, the present study looks specifically at mail armour during the Iron Age and Roman periods, which encompasses a long period spanning many centuries. This allows for a *longue durée* approach able to reveal changes through time.<sup>34</sup> In addition, this study will make use of insights from other periods. As discussed above, a lot more is known about mail from the Late Middle Ages and the Early Modern period, as there are more images, written sources and surviving artefacts from those eras. Such epistemic disparity obliges us to use information from these later periods as a means of comparing, supplementing and interpreting the evidence from earlier times.

The same applies to the spatial aspect. Mail was in use across many areas and is found over vast territories, yielding region-wide and cross-cultural data that allow us to compare and complete information between different geographies and (archaeological) traditions. We can, for example, compare data from the Roman Empire and the Barbaricum, leading to a better understanding of both. Furthermore, a cross-cultural approach allows us to incorporate insights from regions beyond the scope of the present study, such as Japan and India.

The institutional and cultural dimensions are interrelated and therefore placed opposite of each other in the model. The former has to do with the standardised practices and organisations that structure society and, as such, contains diverse aspects, e.g. political, economical, social and religious. For instance, in Roman society the influence of these dimensions becomes visible through the institution of the Roman army and the imposition of regulations surrounding the possession of certain pieces of military equipment. The formal and informal institutions of the peoples beyond the Empire's borders or the Iron Age societies differ from those in Roman society. To a great extent, the institutional dimension also determined the scale of armour production as well as the social access to and ownership of armour. These factors relate to the status of an artefact in society and can vary substantially across times and places. Armour was also associated to religious belief systems, as inferred from the fact that it is often found among the burial offerings of different cultures. Another indication is the practice of the ritual deposition of mail armour in various societies. Both examples refer to the place that armour had in the worldview and religious practices of a group.

- <sup>34</sup> Braudel (1949) specified three orders of historical time, i.e. *événéments, conjonctures* and *longue durée*. This study will mainly focus on the latter two.
- <sup>35</sup> Giddens (1979) introduced the paired terms of structure and agency.
- <sup>36</sup> For the same reason Roymans and Derks (2011) use it to study Roman villa landscapes.



The intertwining of the institutional and cultural dimensions is illustrated by the interaction of the concepts of structure and agency.<sup>35</sup> Change and development are not only the product of institutions, but also of individual actors or small groups. The interplay between structure and agency is partially revealed in the relationship between mail armour and the identity of the individual that wears it, but it is most visible at the level of the craft. The work process of a craftsperson, every choice made and every tool used at each stage will shape the characteristics of the final object. Concepts such as creativity, standardisation, specialisation, and the regulation of the trade all come into play.

The aim of using the multi-dimensional model in the analysis of mail armour is to have a balanced approach,<sup>36</sup> able to accommodate many more relevant aspects of this armour than mere functionality. The advantage of this method is that it allows the material to be studied from various perspectives and scales. It is like taking a series of photographs of the same object, each from a different angle and distance. Every picture reveals particular details, and the sum of the photographs give a more complete and clearer image of the actual object. This also allows for the predictions generated by information at one dimension to be tested by data obtained at another, making it easier to validate findings.

The source material for this analysis entails all of the available evidence from archaeology, iconography, and textual sources. Each with its own advantages and biases, their combined analysis can provide a much clearer description of the phenomenon of early mail armour. The analytical procedure includes a detailed review of relevant literature, the subsequent collection and systematic categorization of the information cited in the sources, and the direct examination of surviving mail armour and its representations. Within the limitations of this survey, a considerable number of specimens has been inspected directly – as referred in the database (appendix) and the figure captions.<sup>37</sup>

#### I.5 SCOPE

A multi-dimensional approach has implications for the scope of this research, which in its totality is inevitably wide. It is therefore useful to distinguish between the scope of the subject of the study and the scope of the broader context.

Mail armour, the subject of study, comprises all types of defensive attires made from interconnected metal rings that form a mesh whose function is to protect the body from trauma during armed combat (box 1.1). This includes what I have named 'hybrid armour'. Like regular mail, hybrid armour is built of rings, but these are linked to an outer layer of scales, constituting a merger of mail and scale armour. Other forms of armour (e.g. plate, lamellar, and segmented) or *militaria* are not included here, but will be drawn upon as part of the larger context.

As for the time frame, this study focuses mainly on the period between mail's invention during the Iron Age until approximately the end of the Roman Western Empire, situated in the 5th century AD. The appendix contains a database of archaeological finds of mail armour generated by a systematic literature review and the direct examination of specimens. However, this database also includes finds up to AD 1000. This allows for various aspects of mail from the Iron Age and Roman period to be compared with the Early Middle Ages. The inclusion of this material also makes it easier to understand the transition from Late Antiquity into the Middle Ages. Although the early-medieval period will not be at the core of this study, it will feature frequently throughout various chapters.

Part of the broader context is mail from the Late Middle Ages and Early Modern period. Almost every aspect of mail is better understood from the 14th century onwards, thanks to many surviving historical examples of mail. That knowledge is often applied to contrast and complement data from the period



<sup>&</sup>lt;sup>37</sup> All objects photographed by M.A. Wijnhoven have been examined directly by the author.

#### BOX I.I CLARIFICATION OF TERMINOLOGY USED

#### Mail versus mail armour

The two terms do not necessarily denote the same. Mail armour involves an object made of interconnecting metal rings with the explicit function to protect the body against combat trauma. In contrast, mail can refer to a ringed mesh of any purpose, including decorative items such as jewellery. This study focuses on mail armour.

#### Early and late mail

Early mail denotes here finds dated to the Iron Age and the Roman period. These always come from an archaeological context. The term 'antiquity' is used in the same sense and refers to the same timeframe. Late mail is employed to refer to artefacts from the Late Middle Ages and Early Modern period. Although there are archaeological finds among these, the great majority concerns historical objects that have been passed from owner to owner through time.

#### Roman and non-Roman finds

In this study the term Roman refers to mail armour finds from the Roman Empire, mostly from its borders, and finds from outside the Empire that are associated with (activities of) its army. The term Roman includes here both citizens and non-citizens, since the army was made up of both. Non-Roman finds concern those that are found outside the Empire and are not associated with the Roman army.

under discussion. To differentiate between the two, this work uses the term *late* for mail armour of the Late Middle Ages and Early Modern period, and *early* for that of the Iron Age and the Roman period (box 1.1).

Geographically, the study includes all regions where mail is found up to the 10th century AD, that is, Europe, North Africa, Asia Minor, the Caucasus, and Russia. The great majority of the evidence for this period will centre around Europe.<sup>38</sup> In part this has to do with the fact that mail is a European technology that later spread to other parts of the world, notably Asia, and later even to the new world, brought by European traders and colonists. Nonetheless, it also has to do with the availability of information. The relative intensity of archaeological research in Europe automatically leads to a greater abundancy of data.

Information of late mail from other geographical areas, notably India and Japan, is still frequently touched upon in this study. Just as late mail from Europe, it forms an important context to contrast and complement the insights for early mail. Moreover, both European and non-European mail from later times are descendants from a common ancestor, early mail armour, the subject of this study.

#### I.6 MAIL OR CHAIN-MAIL?

Designating an object by its correct term is important, especially when it concerns the research subject. In English both 'mail' and 'chain-mail' are nowadays used to indicate armour made of interconnected metal rings. The word mail is the original phrasing. It was introduced into English before the 1300s

<sup>&</sup>lt;sup>38</sup> Hence the decision to include the word 'European' in the title of this work.



Fig. 1.4. Francis Grose's *A treatise on ancient armour and weapons*, published in 1786, contains one of the earliest references to the term chain-mail. This book has been very influential within the study of arms and armour.

through Anglo-French relationships and derives from the (Old) French word *maille*, which means 'mesh (of a net)'.<sup>39</sup>

The term chain-mail is nowadays probably more embedded into public consciousness and features often in popular culture. It is a relatively recent term, stemming from the late 18th century, when it was erroneously thought that 'mail' was a term that denoted armour in general.<sup>40</sup> The academic community of the time felt it thus necessary to specify the different kinds of armour by adding a descriptive noun indicating their key characteristics. Hence, terms such as 'chain-mail' and 'ring-mail' were forged to denote mail armour (fig. 1.4). In the early 19th century, the influential scholar of arms and armour Sir Samuel Meyrick further subdivided chain-mail into different 'types' (e.g. single, double-chain, trelliced, rustred).<sup>41</sup>

All in all, ring- and chain-mail are modern pleonasms derived from a terminological misunderstanding of the word mail. Likewise, Meyrick's classification is superfluous, based on a misinterpretation of the data available to him at the time. The problematic nature of these terms has long been known and discussed by several scholars, among which none with such rigour and passion as Francis M. Kelly in 1931, whose remarks are worth quoting:

- <sup>39</sup> Simpson/Weiner 1989, vol. 9, 212.
- <sup>40</sup> The Oxford English Dictionary indicates Sir Walter Scott's *The fortunes of Nigel* (1822, 67) as the first attestation of the word chain-mail. While this might concern its earliest known usage in a novel, older evidence is observed in scholarly works. The earliest phrasing of

chain-mail comes from Francis Grose's *A treatise on ancient armour and weapons* (1786, 13-14). The earliest reference to mail understood as a generic term for armour that I encountered, is from John Merchant's *A new complete English dictionary* (1760).

<sup>41</sup> Meyrick 1821; 1824; 1846; 2007 [1842].



'And let me define plainly what I mean by 'mail'. I hold that in the Middle Ages and, indeed, as long as armour continued, so to speak, as 'a going concern', the term applied properly, nay, exclusively, to that type of defence composed -as in a modern lady's steel purse- of interlinked rings. Only through late poetical licence did it come to be extended to armour in general. 'Chain-mail' is a mere piece of modern pleonasm; 'scale-mail' and still more 'plate mail' stark nonsense. As for Meyrick's proposed classification of mail- 'ringed', 'single', 'double-chain', 'rustred', 'trelliced', etc.- it may be dismissed without further ado. His categories, in so far as they were not pure invention, rested wholly on a misconception of the evidence; the passages he cites to support his theories of 'ringed', 'trelliced', 'muscled', etc., all refer to what he calls 'chain' mail; otherwise MAIL pure and simple.' <sup>42</sup>

After such spirited wording, one would almost not dare contradict Mr. Kelly. Fortunately, we agree with him wholeheartedly. This study will therefore avoid the use of such terms and abide by the historical phrasing of 'mail' or 'mail armour', as it was known back when it was still worn in battle.

<sup>42</sup> Kelly 1931, 265. The scholar of medieval arms and armour, Claude Blair, also uses this quote in his book *European armour* (1958, 20).

