'To adorn the great light of Mars': Armed Fighting Techniques of the Late Middle Ages

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In 2015, the Arms and Armour Heritage Trust generously agreed to provide funding for me to conduct research for a PhD at the University of Southampton. The project, supervised by Prof. Anne Curry, Prof. Chris Woolgar, and Dr. Thom Richardson (Curator Emeritus at the Royal Armouries), would be an in-depth exploration of late medieval armed combat using a diverse array of surviving source material. After three years, I am pleased to announce that the thesis has been completed and my PhD in History has been awarded. Equally exciting is that I am currently engaged in talks which will lead to the thesis being adapted for publication.

Unfortunately, this means that my work cannot be released until it emerges in book form. I understand that this is frustrating, especially for those with whom I have been in contact throughout the project and who have followed the work with interest in anticipation of the finished product. However, here you will find a summary of the thesis including an overview of the sources consulted, the questions explored, and the methods used to analyse the data and form my conclusions. While the details of my findings must remain undisclosed for now, I hope that this will give you all an idea of the ground which was covered, and a hint of what can be expected from the forthcoming book.

Introduction

This project was conceived to address three perceived points related to the current study and practice of medieval martial arts:

- A large part of research has, to date, been the work of dedicated individuals and groups in their spare time without the resources provided by institutional backing. This often presents hard limits to the depth and scale of the work they can undertake.

- The techniques and principles set forth in surviving fencing treatises are generally regarded as good representations of the fighting arts of their time. However, it remains difficult to determine the extent to which these teachings were actually understood and practised by combatants.

- There was no established means to assess a source (an artefact, a work of art, or a piece of text) for the accuracy of the evidence or depiction it provides of combat.

Investigation focuses on edged weapons—swords, daggers, and staff weapons—from Western Europe roughly between the years 1350 and 1500. Data was gathered through analysing material from four separate source groups. The first source group is the surviving corpus of fencing treatises providing illustrations and descriptions of fighting techniques. The second group comprises surviving medieval arms and armour exhibiting damage consistent with use in combat. Third is the large body of artwork in various media which depict figures engaged in combat. The final source group is the collection of medieval skeletal remains which have been discovered exhibiting sharp force trauma consistent with injury from edged weapons. Written sources, including descriptions of combat in chronicles or works of literature, were not consulted for this investigation, since an initial survey showed that too few such sources describe key points in enough detail for useful analysis.

The techniques analysed are broken into three general categories. The first is Ready Positions, and includes placement of the weapon in a defensive position, as a launch position for an attack, or a combination of both. The second category is Strikes, comprising all attacks using the edge of the weapon. The final category is Thrusts, which include all attacks using the weapon's point.

The thesis sets out to answer three key questions:

- Do the sources of evidence for medieval combat tell a consistent story?
- Does the story told by the sources match the teachings found in the fencing treatises?
- Can source data be used to support certain fighting techniques or principles found in the treatises as having been widely understood and practised?

Chapter 1: The Fencing Treatises

The first chapter is an introduction to the fencing treatises. After briefly examining the genre of late medieval fencing literature, there follows an overview of the treatises selected for analysis. Fourteen works were chosen from the roughly forty which have survived from this period. Only those which were illustrated were selected, reducing the possibility of misinterpretation from reliance solely on text description. Furthermore, treatises which are derivative works were avoided except for when there was original content (such as some of the many treatises produced by the fifteenth-century fencing master Hans Talhoffer). In total, 837 individual combat depictions were analysed. The treatises examined are:

- Augsburg, Universitätsbibliothek Augsburg, Cod.I.6.4º.2 (hereafter Codex Wallerstein). German, c.1420 and c.1470.
- Berlin, Stiftung Preußischer Kulturbesitz, MS 78.A.15 (hereafter the Berlin Talhoffer). German, c. 1450.
- Copenhagen, Det Kongelige Bibliotek, MS Thott.290.2º (hereafter the Copenhagen Talhoffer). German, 1459.
- Leeds, Royal Armouries Museum, MS I.33 (hereafter I.33). German, c.1320.
- Los Angeles, J. Paul Getty Museum, MS Ludwig XV 13 (hereafter the Getty Fiore). Italian, c. 1409.
- Munich, Bayerische Staatsbibliothek, Cgm 582 (hereafter Lecküchner). German, 1482.
- Munich, Bayerische Staatsbibliothek, Cgm 1507 (hereafter the Kal Fechtbuch). German, late fifteenth century.
- Munich, Bayerische Staatsbibliothek, Cod.icon. 394a (hereafter the Munich Talhoffer). German, 1467.
- Paris, Musée de Cluny, Cl. 23842 (hereafter the Cluny Fechtbuch). German, late fifteenth century.
- Rome, Biblioteca Nazionale Centrale, MS Vitt.Em.1324 (hereafter Vadi). Italian, late fifteenth century.
- Vienna, Kunsthistoriches Museum, MS KK5012 (hereafter Kunst zu ritterlicher Were). German, late fifteenth century.
- Vienna, Kunsthistoriches Museum, MS KK5342 (hereafter the Ambrasser Codex). German, 1480-1500.
- Vienna, Österreichische Nationalbibliothek, Cod.5278 (hereafter Die Blume des Kampfes). German, 1420-28.
- Vienna, Österreichische Nationalbibliothek, Cod.11093 (hereafter Codex 11093). German, 1440-60.

The greatest challenge to analysing the fencing treatises is that these practices have been extinct for centuries. Martial artists caution against trying to learn a martial art from a book, and yet this is precisely what scholars and practitioners of medieval martial arts today must do. It is also difficult, if not impossible, to determine how much of the master's full system of teachings was set down in

their treatises. Furthermore, we must ask whether or not a teaching was conveyed to the reader in the most effective manner or, even if it was, whether or not the technique was actually effective.

A set of methods were created to enable combat depictions to be catalogued and analysed. Depictions were divided up into groups by the following criteria:

- The weapon being used (with separate groups for weapons used with shields or bucklers).
- Whether the combatant was on foot or on horseback.
- The technique portrayed (weapon position for Ready Positions, and targets and trajectories of attack for Strikes and Thrusts).

A referencing system was developed using these key points. Categories could be described as 'Sword-Foot-Ready Position: Forward Over Head' or 'Dagger-Mounted-Thrust: Face-Downward'. Within each entry, other important points were recorded including the combatant's body position, the specific part of the weapon used in attacks, and whether or not combatants are shown wearing armour.

Variants of this system were applied to the documentation and analysis of the other source types.

The treatise sources were then analysed and graphed to bring to light any patterns such as common positions or targets. While there is brief discussion of identified trends in this chapter, specific patterns in the fencing treatises are discussed in greater detail in the relevant portions of later chapters, when they are compared to patterns from other source types.

Chapter 2: The Object Sources

This chapter focuses on specimens of surviving late medieval arms and armour. Particular attention is paid to damage found on these objects which appears consistent with use in combat. By analysing weapon damage, insights were gained into the way in which they were used. Analysis of armour suggests not only commonly targeted areas, but also they types of attacks that an armoured individual might sustain.

Numerous arms and armour collections around the world, both public and private, were contacted if they possessed a sufficient number of objects within the required date range to merit a research visit. Of those that responded and were willing to participate, the following collections were visited:

- Bayerisches Nationalmuseum, Munich, Germany
- Château de Castelnaud, Castelnaud-la-Chappelle, France
- Deutsches Historisches Museum, Berlin, Germany
- Germanisches Nationalmuseum, Nuremberg, Germany
- Kunsthistoriches Museum, Vienna, Austria

- Metropolitan Museum of Art, New York, USA
- Musée de Cluny, Paris, France
- Musée de L'Armée, Paris, France
- Museo Stibbert, Florence, Italy
- Museum of London, London, UK
- Nationalmuseet, Copenhagen, Denmark
- Royal Armouries Museum, Leeds, UK
- Vienna Civic Armoury, Wien Museum, Vienna, Austria
- Wallace Collection, London, UK
- 2 Private Collections

A total of 116 objects were found exhibiting damage out of the hundreds examined. Fifty-nine swords were recorded, including arming swords (designed for single-handed use), longswords (designed optimally for two-handed use), and falchions (the term chosen to encompass swords possessing only a single cutting edge). Nineteen daggers were recorded spanning the various styles and designs popular throughout the Late Middle Ages. Twenty-two staff weapons were found, including halberds, bills, glaives, and pollaxes. Finally, sixteen pieces of armour were recorded, including helmets, breastplates, and armour for the legs and arms.

A record sheet was created for each object which listed its measurements, a general description, descriptions of damage, and reference photographs. Accompanying the record sheet is a rough scale drawing on which damage is indicated. Additionally, key features such as the centre of balance and the centre of percussion were also indicated here. All data were analysed by individual object type. Where possible, they were also examined in sub-groups by date and apparent status judging by the quality of craftsmanship.

There are three main challenges to examining damage on the object sources. First is the need to separate damage associated with use from material decay. As greater numbers of objects were examined this became easier, since use damage was shown to possess a range of distinct shapes and characteristics. Second was the need to distinguish between damage likely caused by edged weapons and that caused by projectiles. Earlier research conducted by the team investigating the mass grave at Towton was particularly useful here. The greatest challenge, however, was identifying damage which occurred during the object's working life, as opposed to being the result of later tampering by modern owners such as eccentric Victorian collectors with a penchant for recreating knightly deeds with their collections. In an attempt to identify the latter, a control group of objects was created comprising those whose condition or provenance greatly reduced the likelihood of such later tampering. This was compared to other objects to identify any differences in damage patterns.

Damage observed was grouped into fifteen distinct types. In the course of analysis, it was possible to identify areas on objects where damage was most often concentrated in general and for each type, as well as the most common types of damage. Examining sub-groups enabled any apparent differing patterns to emerge among objects of varying dates and status. Comparing control group objects to the rest revealed the extent to which the damage on the latter group could be taken as contemporary with the object's period of use. It was also possible to suggest whether damage present represented the understanding of such combat principles as the use of the centre of percussion, or the use of both edges of a blade. To conclude, all data was compared to the information in the fencing treatises, such as weapon placement and target areas, to see how well they corresponded. Each weapon type section concludes with a case study focussing on a particular specimen, detailing its damage patterns and offering interpretations of possible causes.

Chapter 3: The Visual Sources

Having surveyed museums, galleries, archives, libraries, and art libraries around the world, this chapter analyses on over 1800 depictions of combat in medieval artwork including manuscript miniatures, paintings, drawings, prints, sculptures, and tapestries. Special care must be taken, however, in analysing such sources. It is vital that one attempts to understand the role of the piece, as well as the wishes of the patron and artist. These factors and many others can influence the degree to which a depiction can be regarded as realistic.

Each source was recorded using a similar method to that described for the fencing treatises. Sources were grouped according to the weapon portrayed, whether the combatant is on foot or mounted, and the action of the weapon. Characteristics such as the combatant's body position and whether or not they are shown armoured were noted as well. Sub-groups were formed to isolate sources according to date of production, region of production, and media used. After analysing the data for each weapon type, they were compared to equivalents in the fencing treatises to gauge the degree of correspondence.

This analysis revealed both general patterns as well as those which differ amongst the sub-groups. It was also possible to discuss whether or not swords and falchions, though appearing different, were depicted as being used in a similar manner. To better understand what was inspiring artists to depict combat as they did, a series of sources portraying frequently-reproduced themes or scenes were examined to determine if artistic conventions had any part to play. Surviving model books, used as

production aids by individual artists and workshops, were also examined to see if trends were present which could have been reflected in finished works. Finally, a single manuscript which contained a particularly large volume of combat depictions—London, British Library, Additional MS 12228 (a late fourteenth-century copy of *Guiron le Courtois*) was examined alone to see how the work of a single source compared to the wider dataset.

Chapter 4: The Skeletal Sources

The last of the single-source chapters examines medieval skeletal remains exhibiting sharp force trauma consistent with injury by an edged weapon. Remains from nine find sites (those which were documented in sufficient detail for useful analysis) were examined:

- The mass grave at Visby, where a battle was fought in 1361
- The mass grave at Towton where a battle was fought in 1461
- The cemetery at St. Andrew Fishergate, York
- The cemetery of the Cathedral of San Giovanni, Turin
- The cemetery at St. Mary Graces, London
- The Black Death burial ground at East Smithfield, London
- The cemetery at St. Mary Spital, London
- The cemetery at St. Margaret Fyebridgegate, Norwich
- The recently-discovered remains of Richard III

In total, 485 individual wounds were documented and analysed.

As I have no specialised training in forensic science or osteoarchaeology, all data was gathered from existing reports written by those teams who excavated and studied the remains rather than examining the bones personally. Each wound was catalogued using a similar method to that previously described. Wounds were grouped by whether they were cuts or punctures, their location, and the likely trajectory of the attack. The greatest challenge in examining skeletal trauma is that we have only traces of those wounds which impacted bone. Flesh wounds, whether fatal or not, cannot be documented, which severely impacts the completeness of the data.

Wounds were examined as a whole group, and then by sub-groups according to type (Surface Cut, Penetrating Cut, Shearing/Severing Cut, Surface Puncture, Penetrating Puncture, Cut From Thrust), find site, date, region, time inflicted (old healed wounds, perimortem, or post-mortem), and the number of wounds on individual remains. A pair of individual case studies, one skeleton from the dataset and another dating some centuries earlier, were highlighted and then compared to see if there were substantial differences in their wounds. Analysis enabled some interesting questions to be addressed: Was it possible to differentiate wound inflicted in battle versus other types of combat? Could wounds suggest the amount of protection worn by victims at the time of injury? Did the types

and locations of wounds change over time? Could a skeleton's wounds give indication the individual's status? Finally, how possible is it to identify the weapons responsible? To conclude, the skeletal source data was compared to equivalent points in the fencing treatises, such as target areas and techniques of attack, to identify correspondence.

Chapter 5: Conclusions

Having examined each source type individually, the final chapter brings them all together to address the three key research questions. We assess whether or not the various sources correspond in their evidence of combat, and also whether they generally corroborate the teachings in the fencing treatises. The third question is addressed in a detailed discussion of those Ready Positions, Strikes, Thrusts, and other combat principles found in the treatises which are significantly supported in the other sources and, thus, are likely to have been understood and practised widely. In addition to these questions, other useful findings are highlighted. These include the influence of armour on fighting techniques, and the extent to which status is a determining factor of martial training. There is also some discussion as to the particular insights into medieval combat for which each source type is best consulted.

This study will make a number of beneficial contributions to a number of different fields. For students of arms & armour, medieval fencing, and military history, this work brings data-driven analysis to test a number of long-held theories, as well as a series of new methodologies for recording and analysing sources. For art historians and those working with other medieval sources, these findings enable depictions of combat to be more thoroughly scrutinised to assess their accuracy. Finally, since military historians to date have largely focused upon the macro aspects of war—the composition and movements of armies, and the strategies and tactics of commanders— this study sheds greater light on the micro aspects of war; on the actions and techniques available to individual combatants. It reinforces the idea, still slow to gain acceptance in many circles today, that the profession of arms was not merely the practise of artless hack-and-slash. Rather, it comprised a complex skill set, requiring careful study to cultivate, which most individuals involved in combat would have had at least some passing understanding.

Quote in the title from [Philipo Vadi's De Arte Gladiatoria Dimicandi (trans. Guy Windsor)](#),