

Armed *and* Educated: Determining the Identity of the Medieval Combatant.

Submitted by Johann Keller Wheelock Matzke, to the University of Exeter as a dissertation for the degree of Master of Philosophy in Archaeology, September 2011.

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(Signature).....

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Abstract

This paper seeks to test the validity of long-held beliefs as to the amateur nature of medieval European warfare. Furthermore, the aim is to add data and an examination of those results to the study of Europe's martial traditions. In order to do so, this paper makes a detailed study of primary source references as to the nature of Europe's martial traditions and methods. As the outcomes of this paper and a study of this nature rely on the interface between the workings of a human actor and the tool, there is a strong actualistic element to this study. As a result of this actualistic framework, the process undertaken to study the injury patterns of experimental archaeologists engaging in recreated martial activities also plays a significant part in the paper.

The results of this study are clear: training in the martial arts was far more widespread in medieval Europe than previously considered and evidence of this can be discerned, in part, from the examination of trauma in skeletal remains, as well as the study of modern experimental archaeologists. The results also suggest strongly that the majority of combatants engaged in some form of martial training. However, due to several factors, such as: the small population of experimenters working in this research area as well as the high safety standards across all participating groups, this research can only begin to hint at answering this theory. This study then also raises questions as to the degree and manner of martial training across social groups. Finally, the results of this experiment demonstrate that, regardless of the form it takes, martial training inherently increases the likelihood that if the learned skills are used in a martial setting, they are highly likely to leave diagnostic evidence.

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Chapter 1

Introduction

This paper sets out to demonstrate the feasibility of utilizing independent researchers studying historical European martial arts as an analogous population for researching historic combat trauma. It is clear that, over the period covered by this paper, there were numerous changes to the techniques and tactics that were taught, in part through *combat manuals*, as well as other sources. However, despite this evolution and variation in technique, a pattern of trauma emerges that demonstrates a high degree of correlation between the taught techniques and the evidence of combat trauma in the archaeological record. This data is pertinent to answering the core hypothesis of this paper. Firstly, the documentary evidence suggests that the teaching of the martial arts in medieval Europe was a widespread practice and that it reached most social classes. The physical evidence is also highly suggestive of the idea that these martial skills were not the sole preserve of only the noble combatant. To the contrary, this evidence suggests that a significant percentage of the combatants engaged in intra-group and inter-personal conflict did so as trained professionals. Secondly, the evidence presented within this paper reinforces the notion that experimental archaeologists, independent researchers and martial artists working to better understand the historical martial arts of Europe are a potential resource for any future research in this field.

Until recently those studying the nature of inter-personal violence and conflict in the past have too often possessed an inaccurate and inadequate view of the mechanics of the combative arts within the time periods under examination (See also Hutton 1892, 1901 and Castle 2003). At best, this has been due to an unwillingness to consider

conflict and interpersonal violence as a subject worthy of academic study. At the worst, it has fostered inaccurate and pre-conceived notions despite a growing body of evidence to the contrary. Certainly, it must be said that a benign disinterest in agonistics and hoplology has done little to dispel the pre-conceived notion of how inter-personal conflict would have been conducted; this is, in turn, reinforced by Hollywood depictions of ponderous armour and dubious stage fighting. Consequently, the skill, training and athleticism of the professional warrior has been largely ignored.

Traditionally, historians and other academics with an interest in these studies have been far more willing to engage with the more abstract themes such as the culture of chivalry or noble identity or to view medieval and early modern warfare through the lens of later military principles. All of this is a distraction from the process of truly engaging in the study of hoplology and agonistics as an area worthy of research in its own right. Despite this systemic negligence, the study of this field has made progress in the last few decades with advances in associated disciplines such as experimental archaeology and osteo-archaeology. Moreover, while these criticisms of the lack of study in this field are justified, the failure to illuminate the progress made by a few individuals would be remiss. To that end it is worth noting that John Keegan's *The Face of Battle* (Keegan 1976) and Victor Hanson's *Wars of the Ancient Greeks* (Hanson 1999) are excellent examples of work done on understanding the psychological and physiological effects of combat on the individual (for further reading on this subject see also: Molloy & Grossman 2007, Dutton 2007 and Coates 1997).

When one pauses to reflect on the role and nature of Europe's warrior aristocracy the evidence would seem to suggest that there was a distinct dichotomy between the chivalric ideals and the everyday necessities. On the one hand, there is a desire that these nobles should represent saintly ideals of conduct. At the same time, they must be fully versed in the gritty nature of combat that required them to kill and be ready to be killed in turn. One is presented with a choice between either the romantic views fostered by courtly poetry or the view espoused by the many martial arts instruction manuals that spread widely during the late Middle Ages. The argument then could be made that the nobility were not as genteel as popular culture suggests. In truth, theirs was a diverse life that could be as short, brutal, full of sickness and as treacherous as any other.

It is a common practice for societies to seek to provide themselves with some protection from foes both internal and external and so require agents of this desire. These warriors could either be the brutal hooligan enforcers of existing power structures, or tools of the emerging nation state. In order for control to be maintained over this valuable, yet volatile, segment of society, they and their conduct must be elevated to stand as representational of the moral codes and virtues espoused by their society. This act elevates the warrior from the society's willing killer to the idealized and ennobled defender of it. In order to reinforce the role and identity of the aristocratic warrior as the protector of the state and enforcer of its will, literature, in its many forms, including courtly poetry and *Combat Manuals*, was used to codify this aristocratic identity. However, over time just as the role and importance of the noble warrior changed on the battlefield, so did the literature previously associated

with him and went from being the sole preserve of the few, to reaching a far wider audience.

Research Questions And Objectives

In part, the intention in conducting this study is also to establish the connection between late medieval martial techniques and the growth, formalization and evolution of the role of the warrior in medieval Europe. Therefore, at the core of this paper is the hypothesis that the martial arts of Europe were widely taught and trained in by those who did the fighting, regardless of their status. In this age the very nature of inter-personal and intra-group conflict has the potential to leave visible and predictable evidence within an archaeological context. This evidence has the potential to demonstrate the links between the written word and the professionalism of the combatant, and can also show how literature was used to train and indoctrinate those combatants. Therefore, in order to better understand the social forces that were instrumental in creating this identity, these diverse forces must be studied in greater detail. The most vital piece of literature involved in this education is the “*Combat Manuals*”, the role of which this thesis seeks to clarify. These books are instruction manuals for the combative arts, and it is through them that the reader is taught and prepared to defend himself and to kill effectively and efficiently. Yet the place of these in contemporary society is unclear; were they the sole preserve of the very few or did they reach a wider audience? As such, a study of combat injury in the archaeological record must also be a part of this work. This study allows a comparison of actual combat injury with those injury patterns that are discernible

from an examination of combat manuals. This evidence allows to a greater degree the actual role of the trained warrior in combat to be discerned.

This study does not seek to assume that it can provide all the answers to all the questions researchers have in the area of combat archaeology. However, this is an emerging field of research that has not, heretofore, been adequately investigated. The true value of research in this topic lies in its ability to allow a new angle of research to be explored, and creates the possibility of the creation of a new resource for further investigation and experimentation.

Thus, this paper seeks to ask some of these unanswered questions and propose possible new lines of investigation for future research. Therefore, the fundamental question to be answered here is whether the research of experimental archaeologists into the nature and form of Europe's historical martial arts be utilised as an analogue for comparison with evidence of historical combat trauma in Europe? Furthermore, to what extent does this current research accurately reflect the available evidence for trauma and methodology?

Furthermore, in relation to the stated aims of this study, the analysis of the injury patterns of modern-day martial artists who study historical European martial arts and their comparison with skeletal evidence of combat injury in the archaeological record is at the foundation of this study. The evidence gained from this research allows for a greater insight into the role of *Combat Manuals* in the instruction of fighting technique.

In order to gather the best data for a survey and study of injury patterns amongst modern martial artists, a sizable selection of organisations who are committed to the accurate reconstruction of Europe's historical martial arts have been recruited to partake in this study. Therefore, while part of this study focuses on text-based research, it combines with a study of modern martial arts practitioners and experimenters and produces a data set that can be applied to the interpretation of both archaeological remains and historical sources.

Definition of Terms

Hoplology is the study and science of human combative behaviour, and as such there are a multitude of names relating to the various aspects of our study that may remain unclear or elusive. For example, the German term for this martial art was *Kunst des Fechtens* [the art of fighting] and the various fighting instruction books that are associated with it are referred to as *Fechtbücher*, *Ringbücher*, *Kriegsbücher*, and *Turnierbücher* in reference to their specific subject [fighting, wrestling, war and tourney books, respectively]. Similarly amongst the Spanish, the term *La Verdadera Destreza* is generally used to refer to the Spanish system of fencing (Castle 2003, 172). Similarly to the German term, *Kunst des Fechtens* the Spanish term may be translated as "the true art" (Ibid 2003, 172). The fighting instruction manuals associated with the Spanish sources tend toward using terms such as: *Philosofia* [philosophy] and *Libro* [book]. It is worth noting, however briefly, that the French terms for these martial sources are either: *Traicte* [treatise] or the earlier term *Le Jeu* [the game/play]. Finally, the earliest known works on English martial arts are devoted to the longsword. These texts are: the anonymous early 15th century Harleian MS 3542, which is sometimes referred to as "Man yt Wol" (Anon. 1400); the anonymous

mid 15th century Cotton Titus MS A XXV (Anon 1450-65); and the other mid 15th century Additional MS. 39 564, often referred to as “Ledall” by virtue of the signature “J. Ledall” contained within (Ledall 1535-50). These early works give, however, little insight into the terminology for the art in the period, except for the opening line of the Harleian MS 3542, which refers to the martial use of a longsword as a “play”. “The ferste pleyng & begyning of the substansce of ye too honde swerde” (Anon. 1400). Later proponents of the martial arts in England, such as George Silver and Joseph Swetnam, refer the martial arts they espouse as *defence*, for example Silver’s *Paradoxes of Defence* (Silver 1599) or Swetnam’s *The Schoole of the Noble and Worthy Science of Defence* (Swetnam 1617). But those terms are not really appropriate to the discussion of the Italian sources and it is worth noting that the common Italian terms for these fighting instruction books is either: “*trattato di scherma*” or “*opera di scherma*”, *trattato* [treatise] being the most common and *Opera* [‘work’] only being used occasionally. The Italian terms, like their German, Spanish, French and English counterparts, suggest a written repository of thoughts on a martial theme or themes, and are the product of either a single author or the collection of several.

Even this simple discussion of the different national/regional traditions and terms illustrates the wealth of descriptive terms available to refer to a range of related literary works all of a martial theme. Therefore, in this work the term “*Combat Manual*” has been used as a term to refer to all of these diverse literary works so as to provide the reader with a consistent terminology. Ultimately, regardless of their origin these “*Fechtbücher*”, “*Philosofia*” or “*trattato di scherma*” share a common theme in

being martial arts instructional manuals, and detail specific techniques with or without illustrations.

The question then remains, for whom were these texts intended? There are convincing arguments to be made that this is a “noble” or “knightly” art, and yet, it there are also strong contemporary suggestions that these were arts that should be taught to those soldiers beneath this “knightly” status. In the military organization of Medieval Europe, the primary focus of martial matters was, for many years, the knight. However, as the feudal retinues of these knights and other great lords grew over time and came to constitute a substantial permanent force, the evidence strongly suggests that those within the retinue were professional warriors, and as a result there was a strong incentive to take the time to invest in the skills relevant to the role. This idea, then, is the next to be explored; what, then is a professional warrior?

On Professionalism

It is a commonly agreed upon understanding that one who is a “professional” claims membership in an occupation (or equally a trade or craft) that requires a unique and specialised training or education. The term “professional” is then used to identify an individual who has specialised education in a field. Importantly, then, the term “professional” is not used to signify a hobbyist or amateur. In a less formal sense the term may well refer to a person’s unique competence in a particular activity (Oxford Dictionaries Online A 2011). Furthermore, a professional may also be one that is paid for their skills. As such, an amateur might be far more competent at a task than a professional; without some form of remuneration, however, they are not considered to be a professional. For example, the Merriam Webster dictionary defines a

professional as; “participating for gain or livelihood in an activity or field of endeavour often engaged in by amateurs.” (Merriam Webster Online 2011).

On Warriors

The typical definition of a warrior is a person experienced in or capable of engaging in interpersonal and/or inter-group conflict. This is especially true within the context of a society that recognizes a separate warrior class. According to one definition of the term, the word “warrior” literally refers to " a brave or experienced soldier or fighter." (Oxford Dictionaries Online B 2011). Although not all professionals are warriors and not all warriors are professionals, a professional warrior is an individual who receives some form of remuneration (in the form of money or goods or even land) for the use of their highly specialized martial skills. Dedicated social classes of warriors exist in many societies for whom their status is linked to their martial service. In maintaining a class of individuals ready and prepared to commit violence within society, it is hardly surprising that alongside them specific codes of conduct are established to ensure that the warrior class is not corrupted or otherwise dangerous to the rest of society. There are many examples of these codes of conduct specific to professional warriors. Amongst the least complex examples is that of the Anglo-Saxon warrior. As a member of a *comitatus*, or retinue, a warrior would pledge his life to his lord, and central to this pledge was a profound shame in out-living one's lord in battle. In exchange for this extreme loyalty, the warrior could expect to be fed, clothed, housed, horsed, and otherwise materially rewarded. The idea that the code of honour requires warriors to avenge their slain lord or die in the attempt can be seen in the poem *The Battle of Maldon* (Mitchell & Robinson 2007, 136):

“Then was the folk's prince fallen,
Aethelred's earl. All saw there,

his hearth-companions, that their lord lay.
Then valiant thegns went forth there,
men undaunted eagerly hastened:
they all wished, then, one of two things--
to leave life or loved one avenge.” (Anon., 11th century)

This role of loyalty would remain a vital component of the later “code of chivalry” which emerged as the early medieval warrior elite transformed into the knights of high medieval Europe (Bloch 1975a, 151-156) It has certainly been argued that the concept of a “code of chivalry” is one that is inseparably linked to the professional status of the noble warrior in medieval Europe (Bennett 2003, 42). Some would go even further and suggest that the nobility could not honestly engage in any other meaningful economic roles, as their focus was to be entirely devoted to military matters and their role in society as professional warriors (Bloch 1975b, 289). Yet even as the role of the noble as a warrior was changing, with the waning of the armoured warrior as the pre-eminent military force on the battlefield, those seeking to advise the nobility were reinforcing the importance of studying martial matters:

“A prince ought to have no other aim or thought, nor select anything else for his study, than war and its rules and discipline; for this is the sole art that belongs to him who rules....” (Machiavelli 2004, 82)

Previous Research In This Field

The purpose of the survey was to set up plausible parameters in which the visible evidence of trauma obtained via the actualistic interaction and application of martial skills by trained experimental archaeologists could be recorded and analyzed. While it is fortunate that protective equipment will limit the deadly and highly injurious effects of a weapon simulator on a human actor, some physical evidence may yet be

recorded as a result of that interaction. This data could be reliably counted on as the result of the actualistic cut or thrust performed with martial intent. The physical evidence of contact between a weapon simulator and the human actor is evidence of an action that had the blade been real, and capable of great injury, would potentially left evidence of trauma upon the skeleton. The intended goal of this experiment was to determine whether a record of these strikes would reflect the evidence of combat trauma gleaned from the archaeological record. This survey is unique in its focus on the use of experimental archaeologists trained in historical European martial arts as an analogue for historical populations, as previous experiments into the effects of weapons on the human body have distanced themselves from actualistic testing and the martial techniques gained through training.

There have been a few studies that relate to this field, either directly or indirectly. The study of combat trauma has been an area of investigation for some time, although in the majority of these studies the emphasis has been on identifying evidence of combat trauma on skeletal remains. Recent examples such as Boylston (2000) and Novak (2000) have used the classification of trauma within a range of past societies. “Blood Red Roses” by Fiorato et al (2000), focuses on explaining how the trauma was identified and how the resulting data was recorded, analysed and interpreted. Shorter papers, written in recent years, have included issues such as patterns in trauma and weapon injuries. These papers by, Kjellstrom (2004), Slaus, Novak, Vyroubal, Bedic (2009), Wakely (1996), Hershkovitz, Bedford, Jellema, Latimer (1996), Stillwell (2002), Stirland (1996), Brodholt and Holck (2010), Mays (1996), Patrick (2006), Powers (2005), During (1997), Meyer, Brandt, Haak, Ganslmeier, Meller, Alt (2009) and Mitchell, P., Nagar, Y., Ellenblum, R. (2006) have, much like the Towton

investigation, applied forensic techniques in order to understand prehistoric and early modern warfare and interpersonal aggression.

However, other studies and works by an array of archaeologists, historians, martial artists and authors such as Jones (2009), Shackley (1986), Turner (1999), Short (2009), Wagstaffe (2001), Molloy (2004, 2008, 2010), Cooper (2010), Kellett (2008), Askew, Formenti, Minetti. (2011), Kristiansen (2002), Lewis (2008) and Wenham (1989) have utilised archaeological evidence, historical sources and experimentation in order to understand how historic weapons were used and exploited.

Ultimately, though, in regards to demonstrating their use in trained hands, there has still been scarcely any serious research. The primary sources allude to their effectiveness and the modern media will often embellish those tales. However, there have been few actual experiments demonstrating the effectiveness of historic arms in the hands of a trained practitioner.

Experimental Method

As the outcomes of any experiment of this nature rely on the interface between the workings of a human actor and the tool, or weapon in this case, there is a strong actualistic element to this experiment. Whereas a machine could be used to replicate the movement of the human, the use of machines in place of humans in this test would be problematic for multiple reasons, including applicability, cost and safety. For the specific purpose of this experiment, a machine is absolutely unacceptable as it is likely to be far too precise in its actions, unlike the human who is supposed to be the subject of this experiment. In many ways, the central argument of this experiment is

not: “can an edged weapon, such as a long sword, leave specific marks upon soft tissue as well as the elements of the skeleton”, but rather, “can the martial training of an individual using a weapon, such as a long sword, be determined through the diagnostic evidence left by that weapon’s use.” Therefore, it is vital that: “In order for an experimental analysis to be valid and applicable archaeologically, it must be actualistic” (Eren 2009, 26). If the human element is removed from these experiments on the nature of human activities, we run the risk of gathering unrealistic results from those tests. If the theory under investigation hinges on the interaction of the actor and the object, to replace that human actor and all their attendant flaws with a machine is to nullify the experimental results. Additionally, as Eren stresses, any reproductions used in experiments must be as accurate as possible to those from the archaeological record in order to preserve this validity (ibid, 2009). With this in mind, it is fitting to briefly discuss the nature of the reproductions at the core of this experiment. The weapon simulators used here are constructs based on existing examples from collections. They are also based on written descriptions and pictorial documentary evidence and therefore are as accurate as can be achieved within modern safety allowances.

In addition to the necessity of proper replication of artefacts, there is the imitative aspect of the experiment that must be addressed. The imitative aspect of this experiment would, logically, involve a degree of knowledge of the original martial skills of Europe and would naturally extend to the replication of those skills (Coles 1966-67, 1). To ask an untrained individual to carry out this experiment would be as unsatisfactory as leaving the task to a machine. Just as an individual skilled in its manufacture undertakes the replication of a tool, this experiment should be carried out

by those individuals skilled in the use of the tools and techniques at the heart of the matter. Fortunately the experimental archaeologists and martial artists at the centre of this experiment are not without a background in this area. Not only have they had many years of study with other skilled historical European martial arts practitioners prior to participating in this experiment, but also several are well known teachers in this subject with many of their own students. There should be no delusions as to the level of knowledge of those participating; while not all are experts by any means, they all possess a knowledge of specialized skills that is not shared by the general public. These varied levels of proficiency suggests that while they are not all at the level of an expert, they might be capable of fighting at the level of many of those professional and semi-professional warriors found in most medieval armies.

Chapter 2:

The martial traditions of Europe.

The potential purpose of a *Combat Manual* is fairly straightforward; in so much as they are a source for information on combat technique. If one sought to become educated in martial techniques and sought the ability to defend themselves and even kill effectively and efficiently, the *Combat Manual* could be a source of that information. Yet the place of the *Combat Manual* in society is unclear; were they the sole preserve of the very few or did they reach a wider audience? The next task then is to examine what evidence there is for a tradition of formal training in martial arts in Western Europe during the medieval period. Along with that there needs to be an exploration of the nature of these *Combat Manuals* and what information they contain. Finally, in order to better place these texts in the proper context, an exploration of Europe's martial traditions must be undertaken.

Instruction manuals or student notes?

The study of these *combat manuals* is hugely problematic as a number of these treatises may simply have been notebooks or 'aide memoires', rather than formal instruction manuals for the complete novice. It is a bit like trying to reproduce Hamlet from a Cliffs Notes study guide. This issue is further obscured in the case of quite early medieval texts, such as MS I.33 (Lutegerus 1300), where one can see that some of the drawings are quite stylised.

That aside, while there are similarities between these manuals, there are also different teaching methods portrayed within the manuals that are available for interpretation;

the focus of this study rests primarily on the examination of these different documents. The documents in question are either text-based or largely pictorial with an accompanying text-based set of instructions. The primary text-based manuscripts covered by this study are Liechtenauer's *merkverse* (teaching verse) (Liechtenauer 14thC.), the second oldest *Combat Manual* and the source for much of the German martial tradition, and Ringeck's commentary (Ringeck 15th C.) upon Liechtenauer's *merkverse*. Although Ringeck's commentaries are dated to some 50 years after Liechtenauer's original writings (Tobler 2001, ix-x), they are a clear demonstration of a continuing martial tradition. Ringeck's work is much easier to interpret than the 'aide memoire' of Liechtenauer's teachings, yet much is left unsaid, the author presuming a basic knowledge from the reader. Among the treatises that include illustrations in addition to this text are; Vadi's *De Arte Gladiatoria Dimicandi* (Vadi 1482-87), Talhoffer's 1467 treatise and *Flos Duellatorum* by Fiore Dei Liberi (1410).

The interpretation of these documents is not altogether easy as the authors often expect students to already be aware of many of the principles and even some of the basic techniques. The issue is further clouded by the fact that many of the masters camouflage their teachings, such as Liechtenauer's verse, to control the learning of such arts (Anglo 2000). There are several possible reasons for this; some, such as Phillipio Vadi (1482-87), state that care should be taken in order to protect one's life, i.e. if many people know one's technique they will also know how to defeat one. A highly probable reason, it could be argued, is that it would not be a good financial move for a teacher to be too willing to teach too many students as they may rise to compete with his market. This is possibly why Vadi reinforces the virtue that each should be loyal to his master or lord in turn and demonstrates the entrenchment of the

‘feudal’ ideas within the society of the later medieval period. Therefore the modern researcher must not only contend with the purposeful disguise of the meaning of the tradition, but there is also the issue that the language, both literary and artistic, has changed since the original composition of such documents (Vadi 1482-87).

Many terms used by the knowledgeable masters of the past have been lost, and it has taken scholars considerable effort to determine their meanings. In the context of illustration things are little different; the concept of perspective was unknown in the early middle ages and even by the higher medieval period it was a theory only fully comprehended by a limited few. This makes interpretation of the pictorial evidence very difficult and indeed especially when considering the aspects of combat that the masters presumed to be general knowledge or wished to remain hidden.

A further issue that hinders the interpretation of these documents is that medieval art is not renowned for its illustration of “realism”, instead the argument could be made that Late Medieval art tended towards being “representational”. Any image from the period cannot be taken to be “photo realistic”; rather, the modern viewer must remain cautious and consider that the artist may have included details they knew to be there, yet are not necessarily what they can actually see. This, and the previous point, means that we cannot necessarily accept the interplaying angles of the combatants as being truly reflective of the reality of their positions. Towards the end of the 15th century there was an increase in humanistic thought, which led to a more scientific world outlook, and the latter treatises of this European tradition also reflect this. One of the more prominent examples is Vadi’s *Arte Gladiatoria Dimicandi* (Vadi 1482-87), which attempts to classify the ‘knightly arts of the sword’ as a science rather than an

art on the basis of its use of geometry within the principles of the method. However, he goes little further than introducing the most basic of geometric principles in his views on footwork and movement, demonstrating little use of these principles elsewhere in his methods.

Despite these issues of interpretation it is possible to find similarities within many of the texts dating from the early 14th century to the mid 17th century. These common themes and methodology demonstrate a few distinct traditions that were practiced across Europe. Although there is often an apparent unity of method, it is also possible to discern that there was variety within the traditions. This may be due to a range of reasons, such as the preferences of the individual teachers in regards to a given principle. By way of example, the postures, wards or guards, used with the longsword (which may date back to at least the 14th century) are: *Ochs*, *Pflug*, *Alber*, and *Vom Tag/Dach*. Rendered in English they are: the Ox, the Plow, the Fool, and the Roof/the Heavens. These correspond to a low guard (“Fool”), a high guard (“Roof/Heavens”), a guard in the middle (“Plow”), and one on the outside high/horizontal and pointing (“Ox”).



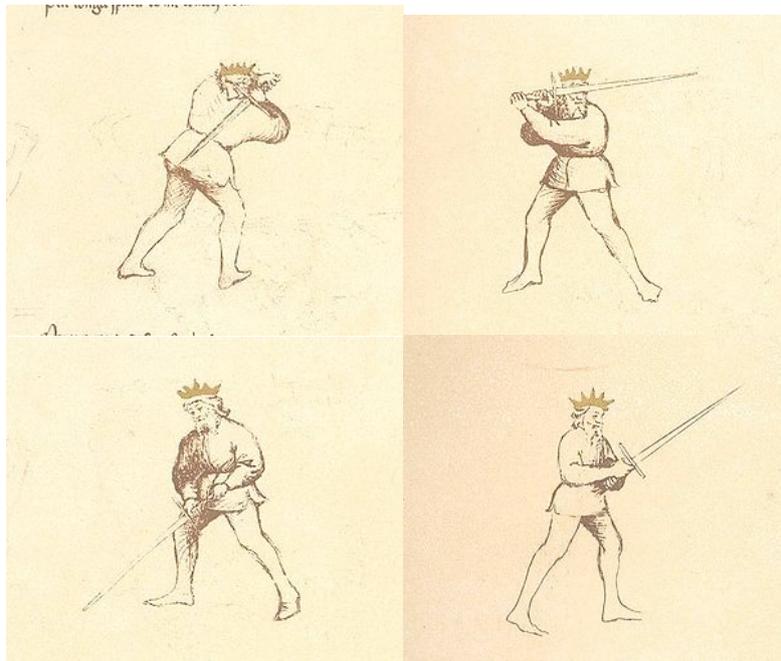
(Fig. 1. Left to right: “*Alber*”, “*Vom Tag/Dach*”, “*Ochs*”, “*Pflug*”. Kal 1506-15)



(Fig. 1a. Left to right: “Pflug”, “Ochs”, “Vom Tag/Dach”, “Alber”. Von Danzig 1452)

Outside of the Germanic Liechtanauer tradition the Italian Dei Liberi tradition also displays a similar set of basic guards, which are displayed below in Figure 1b.

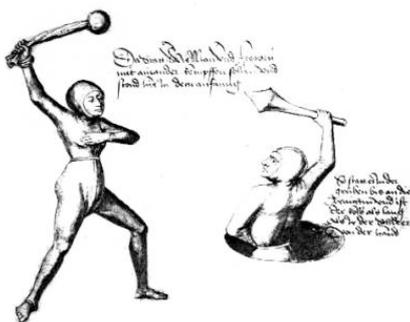
Clockwise from top left they are: Posta de donna (“the position of the lady”), Posta de fenestra (“the position of the window”), Porta di ferro (“half iron door”), Posta breve (“short position”).



(Fig. 1b. Fiore dei Liberi: *Flos Duellatorum*, 1410)

Although the array of varying traditions found within Europe's traditional martial arts might seem unusual, the clearest analogy for this sort of variation within a martial tradition can be found within the practices of the schools of oriental martial arts in which different masters would develop their own interpretation of a tradition and thus start new schools, creating a cascading expansion of interpretations (Ratti & Westbrook 1999).

The variety of weaponry and armour covered by these European treatises is also comparable to the oriental martial traditions. In the European 'schools' it is often possible to observe depictions of combat with long swords as well as spear, short sword, dagger work and poll axe fighting. Others such as Hans Talhoffer's treatise include instruction specifically suited for judicial combat with a selection of unique weapons, such as large spiked and hooked shields (figure 5) and for a specific judicial bout between a man and woman (figure 2): a rock in a scarf (Talhoffer 1467, 165-9 & 242-250). Paulus Hector Mair's *Combat Manual Codex. I.* 393 (Mair 1550) is also unique in its depiction of unusual weapons not generally found in judicial combats or typically in the hands of noble combatants; the scythe (figure 4) and sickle (figure 3).



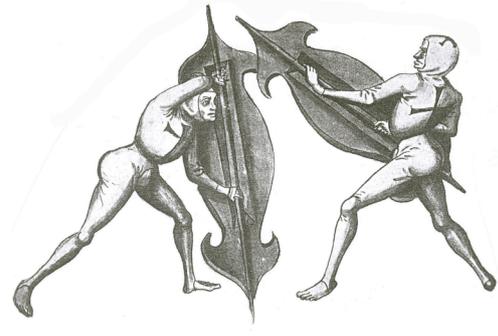
(Fig. 2. Talhoffer 1467)



(Fig. 3. Mair 1550)



(Fig. 4. Mair 1550)



(Fig. 5. Talhoffer 1467)

The use of wrestling is equally portrayed within European traditions. Most the masters instruct on its use and including aspects of these wrestling techniques in their commentaries on most other weapons. The more comprehensive treatises also portray mounted combat with lance, sword or crossbow as well as foot combat demonstrating ‘half-sword’ techniques for armoured fighting.

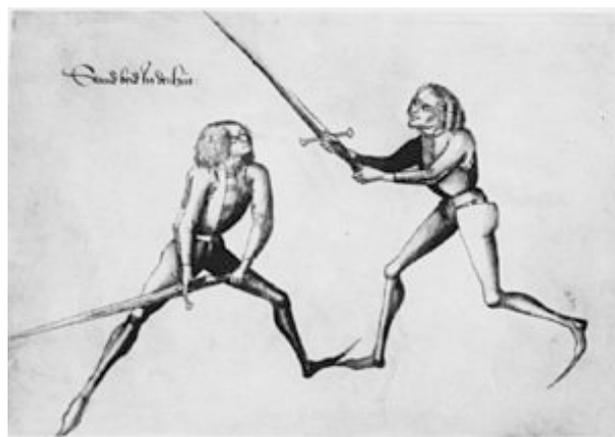
Some of these *combat manuals*, such as those by Ringeck and Vadi, do include commentaries intended to instruct in the basic principles of combat. The most fundamental principle of these traditions is to maintain the initiative, constantly attacking and forcing the opponent to defend. In addition to this, it is suggested that for every attack there is a counter-attack. These are described by Liechtenauer as being executed in the ‘vor’, before, and the ‘nach’, after. To counter attack in the ‘vor’ means a counter that hits the opponent before he finishes his attack. The ‘nach’ refers to a situation where a strike is parried or displaced in the ‘vor’ and the counter attack coming in the ‘nach’, after the opponent has completed his attack. These timings are to be used to regain the initiative and force the opponent to defend and are key to all the weapons previously stated.

These texts instruct in the use of full extent of the sword as a weapon: the point to thrust, both ‘true’ and ‘false’ edges to commit strikes and cuts, as well as the hilt and pommel to batter the opponent as witnessed in Talhoffer’s ‘murder stroke’ (Talhoffer 1467). Blows are defended by straight edge-on-edge parries or by more complicated ‘displacements’. This ‘displacement’ refers to the redirection of the in-coming blade in a direction similar to it’s original course, yet away from the body; this uses the opponent’s commitment to the defender’s advantage and allows powerful counter-attacks in the ‘nach’ or after. The basic concept used to power the sword in its attack is also discernible and appears in both Vadi (Vadi 1482-87) and Ringeck (Tobler 2001 & Ringeck 15th C.) as fundamental in the production of an effective attack.

The basis of this technique is to step with the sword when attacking; that is, an attack from the right side of the body, as in figure 6, would be accompanied with a step forwards with the right foot as is demonstrated by the individual on the right in figure 6a. This enables the individual to put the torque of the hips behind the blow and increase the effectiveness of the strike.



(Fig. 6. Von Danzig, 1452.)



(Fig. 6a. Talhoffer 1467.)

The amount of force applied to the sword, by this simple action, is also further increased by virtue of the hands being held at the extremes of the handle. This equally simple act also allows for far greater leverage. This is only a basic concept however, and many other methods of footwork are suggested within these documents, while yet other more subtle techniques are harder to discern without the aid of an educated eye.

The simple notion of stepping forward with the cut can also be combined with a preemptive (“vor”) half step with the lead leg. This action produces a circular motion which can allow an attack to come to the opponent’s less guarded posterior aspect. This action can be seen in Ringeck’s commentaries (Ringeck 15th C.), as can a method of footwork relating to the thrust that Vadi (1482-87) proposes in his manual. In his writing, instead of stepping forward with the back leg one is instructed to step forward with the front leg, straightening the back and lunging forward into a position recognizable to those familiar with later post-renaissance fighting. Alternatively another method of movement commonly advised was that one step back with the leading leg rather than a step forward with the rear leg, this movement would maintain an appropriate fighting distance while one sought to maintain the initiative.

The mechanics to which these principles are applied consists of several guards or positions. The number included in the various combat manuals varies slightly, however in general there are at least five basic guards: a low guard (figure 7), lower middle guard (figure 7a), higher middle guard (figure 7b) and a high guard (figure 7c).



(Fig. 7. Dei Liberi 1410)



(Fig. 7a. Meyer 1570)



(Fig. 7b. Dei Liberi 1410)



(Fig. 7c. Dei Liberi 1410)

The use of these basic guards across the various treatise are the most striking example of the unity of European martial arts, and although other and more specific stances are discussed in various treatises, these form the fundamental unifying factor of the “art”. These guards are not seen as static positions but as positions from which the combatant moves from and to as part of a fluid motion of a continuous attack or defence. Clear examples of this motion can be found in the ‘windings’ of Liechtenauer (Liechtenauer 14th .) or Dei Liberi’s ‘volta’ (Dei Liberi 1410).

Common Knowledge?

Most of the treatises that pass comment on who should learn this method of sword fighting state that this is a ‘knightly’ art, and it should be taught to those who are of such status and not those beneath these worthy men: a truly feudal sentiment. Yet, both Talhoffer (1467) and Vadi (1482-87), however, go on to acknowledge that it is

necessary for the soldiers of these lords to be well versed in such practices so that they may carry out the dutiful work entrusted to them by their superiors. This idea, then, is at the core of this paper's hypothesis. If a considerable number of individuals within the retinue of a lord have been trained in these martial practices, can this training be perceived in the evidence of combat trauma? This hypothesis is supported not only by Talhoffer's words but also by his occupation, as he was the master of arms to a Swabian knight who in turn was a feudatory of Count Eberhardt of Württemberg (Talhoffer 1467); this demonstrates that it was not only the barons who retained such masters but also their knights further down the social pyramid.

As the feudal retinues of these knights constituted substantial numbers of a mustered force during the earlier period of this study, we can presume that these retinues were made up of not only experienced, but even formally trained fighters (the levied troops being less likely to have experience in such matters by virtue of the "part time" nature of their service). This does not, however, prevent levies from containing freemen or wealthy villains. Individuals who may well have taken the time to invest in the protection of their most valuable asset in much the same manner that private individuals today seek out training in martial skills. However, it must be said that while the degree to which this martial knowledge may have permeated such levied troops is unclear, it cannot be simply discounted out of hand. Certainly the appearance of fencing schools in many towns (Anglo 2000) and the rise of "Bastard Feudalism" during the latter period of this study would suggest that those of lower status were becoming more empowered and were possibly indulging in the pastimes of those who had been their feudal lords (for more on the impact of "Bastard Feudalism" see also Crouch & Carpenter 1991 and Hicks 1995). During the period of the High Middle

Ages, especially the 14th and 15th centuries, one can hypothesise, due in part to the re-workings of Vegetius' (1935) military instructions, that the majority of retained armies would have undergone some form of martial training. Alongside the steady decline of the feudal system and the spread of the printed word, it is possible that a relatively high proportion of the population would be familiar with some of the principles covered by these documents.

Martial traditions

The evidence for the teaching of martial arts in Europe does not appear formally in literature until the end of the 13th century. That said, however, there is some evidence that the organised teaching of martial skills existed earlier than that date, especially in England (Hanawalt 1995, 116 and Anglin 1984, 393) and, while there is good reason to believe that formal martial education was present elsewhere across medieval Europe, the records are less than clear on the manner in which it was conducted.

In the military organization of medieval Europe, the primary focus of martial education was on that of the squire. The squire was, in turn, a young man of noble status, attendant upon a knight from whom they would receive their martial education. The method of instructing the nobility's sons certainly did not include sending these youths into the den of iniquity that was the fencing school (for a fuller understanding of the quasi legal position of fencing schools see Appendix C). The traditional method across Europe at the time could involve sending the youth to the court of another lord, sometimes that of a relative. Among the many skills in which a youth would expect to be instructed, the most important of these was training in arms (Alexander-Bidon &

Lett 1999, 43-5). The form and nature of this martial training is unclear and only vaguely defined and is thus a mystery to us today. What is clear is that at an appropriate age a youth would be “assigned” to a knight from whom he would receive his martial instruction. This method of martial education would, over time, become closely associated with concepts of knighthood. Equally associated was the “dubbing ceremony”, which took many forms over the years, including: the tapping of the flat of a sword on the shoulders, an embrace, or a light strike (an “accolade”) with a fist upon the neck or cheek. The ceremony would often include the bestowing of the accoutrements of their new knightly status. This “dubbing” or “accolade” would, generally speaking, occur in the youth’s late teens or early twenties, and increasingly as the concept of knighthood developed, would serve as the culmination of this formal martial training (Keen 1984, 18-23 & 64-77. Crouch 2002, 22-28. Bouchard 1998, 75-80). As for what a youth might learn and how that knowledge might be taught, one must turn to a range of different sources. Certainly horsemanship would be taught, for much of medieval European history the knight’s place on the battlefield was astride his horse. With the charge with lances being the favoured shock tactic for much of this period, it is sensible that military horsemanship would be taught. Evidence for this practice certainly can be found in the writings of King Dom Duarte’s “The Art of Riding in Every Saddle”:

“...I am sure that all knights and squires should want very strongly to excel in the art of riding, as they will be well esteemed because of such a skill.” (Duarte 1438, 6).

While Duarte covers all manner of issues associated with riding, he devotes some time on martial skills of use on horseback: spear use, control of the horse during a joust, and the use of the sword (Ibid 1438). Aside from the necessary art of horsemanship, as for much of medieval Europe’s history the knight was inextricably

linked to the use of the horse, what else could a noble youth expect to learn on his path to knighthood? Roger of Hoveden suggested at the time that not simply athletics and fitness were required, but rather grappling and other antagonistic studies:

"No athlete can fight tenaciously who has never received any blows: he must see his blood flow and hear his teeth crack under the fist of his adversary, and when he is thrown to the ground he must fight with all his might and not lose courage...Anyone who can do that, can engage in battle confidently." (Roger of Hoveden, 1871, 166-67)

As such, it is possible that wrestling and the ability to "throw a decent punch" were lessons to be learned, as was the ability to bear up under the adverse conditions of combat. These noble youths, one day to be men at arms and knights, for whom their occupation and position was dependent on their abilities, would, in theory, pursue knowledge in the skills the job required. The Roman theoretician Vegetius' (1935) text as well as other related treatises by other early authors were republished throughout the period and their availability supports the notion that martial training in the High Middle Ages was considered advantageous. One of the versions of the Vegetius' (1935) work is a late fifteenth century poem that encourages the use of a "pell" in the practice of swordplay. For those unfamiliar with it, the pell is a stake the height of a man, at which one might practice cuts and thrusts (See appendix A).

On the subject of training a squire, the writer and philosopher Ramon Lull (1235-1315) had this to say:

"The science and the school of the order of Chivalry is that the knight make his son to learn in his youth to ride. For if he learn not in his youth he shall never learn it in his old age and it behoueth that the son of a knight in the time that he is squire can take keeping of hors and hym behoueth that he serve and

that he be first subgette or he be lord. For otherwyse shold he not knoone the noblesse of the seygnory whan he shold be a knyght and therefor euery man that wylle come to knyghthode hym behoueth to lerne in his yongthe to kerue at the table. to serue to arme and to adoube a knyght for in lyke wyse as a ma wyle lerne to seone for to be a taillour or a carpenter hym behoueth that he haue a mayster that seone or heone. Al in lyke wyseit behoueth that a noble man that loueth the ordre of chyualrye and wyl be a knyght haue fyrst a mayster that is a knyght for thus as a discouenable thyng it shold be that a man that wold lerne to seone sold lerne to seone of a carpenter Al in lyke wys shold it be a discouenable thyng that a squyer shold lerne thordre & the noblesse of chyualry of ony other man than of a knyght. So moche is hyhe and honoured the ordre of chyualrye that to a squyer ne suffyseth not only to kepe hors and lerne to serue a knyght and that he goo with hym to tornoyes and bataylles but hit is nedeful that ther be holden to hym a scole of the ordre of knyghthode.” (Lull 1971, 21-22)

In short, Lull suggests that a knight should ensure that his son can ride well, and understands service and the duties of a knight. Moreover, he insists that he should learn this from another knight and as a youth or he will never learn it (Ibid 1971, 21-22). Similarly the understanding that martial skills were a part of a proper education and advantageous to a healthy life can be found in a letter of advice sent from a physician in Valencia to his son who was studying at the University of Toulouse in 1315:

“If you cannot go outside your lodgings, either because the weather does not permit or it is raining, climb the stairs rapidly three or four times, and have in your room a big heavy stick like a sword and wield it now with one hand, now with the other, as if in a scrimmage, until you are almost winded.” (Thorndike 1971, 159)

So for those noble youths fortunate to have a skilled teacher it is likely then that they would learn to fight (with and without arms) a range of martial skills by their foster knight or, perhaps, another individual with more specific skills.

“The King of England is beginning to exercise himself in the use of arms, and enjoys it heartily. On May 3rd, at Greenwich, they tilted at the buckler and joined in sword-play, and the King tried his skill five or six times with the other young lords. The French ambassador, who had been summoned, spoke in public with the King, and said his Majesty had borne himself right well, and shown great dexterity. The King replied that it was a small beginning, and as time passed he hoped to do his duty better.” (Tyler 1914)

Certainly, they would be taught what knowledge these individuals possessed. The nature of these shadowy teachers is hard to discern prior to the 1300's as this martial knowledge was just beginning to be recorded. Perhaps this martial knowledge fit into a regrettably unrecorded set of regional techniques lost now to history, or perhaps knights, men at arms and other teachers simply related to their charges what they had learned through hard graft and experience and thus no two educations were the same (Wise 1971, 34). Certainly the writings of Liechtenauer suggest that this knowledge was already quite old when he decided to record it. As it stands, the circumstantial evidence suggests that some form of martial knowledge was available, yet for the moment the full nature of that knowledge must remain unclear.

As has been said previously not much is known about the nature of the martial arts in the Early and High Middle Ages. Unfortunately no technical manuals have been found dating from this period, but across medieval Europe the art of the period illustrates personal combat and warfare in mail armour, with a focus on powerful cutting blows. The methods employed may be in part due to the kind of armour in use, i.e. one that seeks to generate powerful strikes with the aim of either breaking the mail armour or causing crushing injury to the opponent through their armour.

Unfortunately, it is not possible to know with any certainty whether the art and literature of the period's emphasis on powerful strokes are due, at least in some part, to a preference for epic imagery rather than to an accurate depiction of the reality of warfare. In point of fact, in an examination of the literature of the period prior to the early 14th century it is difficult to find more than a handful references to what might be real martial techniques.

Now while the *Tower Fechtbuch*, "MS I.33" (Lutegerus 1300), dated to the very late 13th century or the very early 14th, is the oldest extant martial arts manual in Europe teaching a specific form or style, there are anecdotal references that clearly show the existence of formal martial arts in existence prior to that date. For example, if one examines the combat described within "Beowulf", the epic Anglo-Saxon poem, as was done by the historian Calvin Brown, one may find evidence for the use of specific martial techniques. In this particular case the technique in question is theorized as being a description of an arm-lock:

"...but with a reinterpretation of the fight with Grendel, they take on added significance. The only possible way of escaping from the arm-lock would be to break the grip on the wrist, since the extended position of the captured arm and the tremendous leverage of its captor against it would make any attempt to bend the arm useless.

Because of the superhuman strength of Beowulf's grip, Grendel, even though a giant, could not release his wrist from Beowulf's grasp. Hence he could not break the arm-lock, and was forced, by the continuous pressure against his joints, intensified by his own struggles, to dislocate and rip off his shoulder. " (Brown 1940, 626).

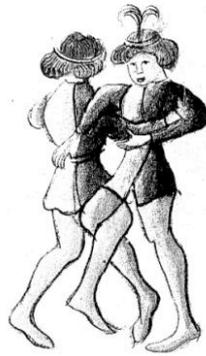
Moreover, Beowulf's decision to use such a technique is a matter of tactics and training. One finds Beowulf's expertise and preference for wrestling and grappling is clear throughout the poem, and the use of such a common technique, would be known to a skilled wrestler (Ibid, 626). In a similar vein, in an examination of the anonymous late 13th century poem "The Lay of Havelok the Dane", the eponymous hero succeeds in severing his adversary's sword hand with a "mezzo tempo" attack of his own in their final battle (Wyatt 1889, 89). A "mezzo tempo" action is in this sense a strike against one's opponent while he is launching his own attack; often it is directed at the right hand or leading limb of the opponent as it moves into range. A final example from literature may be found in the 12th century poem *Le Songe d'Enfer* in which a passage reads: "Que il m'abat encontre terre / A. I. des jambes d'Angleterre." ['That he throws me to the ground / with one of the English legs'] (de Houdenc 1908, 68). It should be remembered that this sort of epic poetry was written for an audience well acquainted with martial techniques and a successful author would, in theory, do well to ensure that any descriptions of combat would ring true to that audience.

Continuing along this theme, but turning to the examination of more historical sources, one may find the description of a technique or action referred to as the "tour de Bretagne" in the description of the wrestling match between Henry VIII and Francois I. Francois, who is described as a strong and clever wrestler, uses a technique referred to as a "tour de Bretagne", before throwing Henry to the ground: "luy donne ung tour de Bretagne, et le jette par terre et luy donne ung merueilleux sault." ["...uses a Breton trick, and throws him down and gives him a wonderful jump"] (Russell 1969, 131. Cognot 2011).

What, exactly, the ‘tour de Bretagne’ was and what form it may have taken is uncertain. However the description is strongly suggestive. On one hand it could be an allusion to Brittany’s notable culture of wrestling, or equally on the other hand it could well be a reference to a specific grappling technique. If the latter were the case it would not be that unusual. The habit of naming wrestling techniques after regions and nationalities was hardly uncommon. The early 16th century manuscript of Ludwig von Eyb "the Younger" (1510) describes particular techniques as either: “Ein gar gut frantzoisch ringen” [‘a good French wrestle’] (figure 8a) or “Ein gut englischs ringen” [‘a good English wrestle’] (figure 8b).



(Fig. 8a. Von Eyb 1510, 33v-a)



(Fig. 8b. Von Eyb 1510, 33v-c)

All of this begs the question: *From whom and where were these skills being learned?*

While the specifics of these martial arts were not being recorded prior to the beginning of the 14th century, there is some evidence of formalized instruction. For example, Saxo Grammaticus records:

“[Gram] practiced with the most zealous training whatsoever to sharpen and strengthen the bodily powers. Taught by the fencers, he trained himself by sedulous practice in parrying and dealing of blows.” (Saxo Grammaticus 2008, 93).

Exactly who these fencers were is unclear. It is even possible that these “fencers” are the same “champions” he mentions later on:

“...he [the king] decreed that they should assiduously learn from the champions by the way of parrying and dealing blows. Some of these were skilled in a remarkable manner of fighting, and used to smite the eyebrow on the enemy’s forehead with an infallible stroke...” (Ibid. 2008, 291).

Certainly it is implied strongly that they are skilled professionals from whom skills might be gleaned. Alongside these sorts of individuals there was also the growth of the organized fencing school. While the details of what was taught in the earliest of these schools is missing, there is some evidence for the existence of teachers, and by association, formal martial education. For example, in the Italian region there was a Master Goffredo in 1259, and around the early 1300’s a Master Arnaldo (described as a “scharmitor”), a Master Domenico from Trieste, and a Master Franceschino from Tuscany, as well as two fencers; Pietro and Pertoldus (Rubboli & Cesari 2001, 4). In England one finds a certain Roger le Skirmisour, who was charged around 1310 with keeping a school of arms:

“ Magister Rog'us le Shyrmysour. Prisona.

Master Roger le Skirmisour attached because indicted for holding a school for fencing (de skirmeria) and drawing young men together, sons of respectable parents, to the wasting of their property and injury of their own characters. Pleads not guilty and puts himself on the country. Found guilty and committed to prison.” (Sharpe 1902, Folio cxxxiii.)

Outside of England and the Italian city states there are records of fencing teachers being present in Paris in 1292: Master Tommaso, Master Nicolò and Master Filippo (Rubboli & Cesari 2001, 4).

As training in the martial arts would not have been solely limited to those engaged full time in military service, much of the sport that was very much a part of medieval life was likely to have been thinly disguised martial training. In the Italian city-states this martial sport could be a highly organised affair such the *battagliola* [*little battle/war*] or *guerra di canne* [*war of the canes*] which were frequently held on urban bridges, occasionally spilling out into the streets (Epstein 2009, 223-224). As this “sport” was part of the fabric of medieval life it would have the potential to provide training for combatants of all classes. John Stow’s 1603 *Survey of London* recounted the following:

“Ye may have read in mine annals how that in the year 1222 the citizens kept games of defence, and wrestlings, near unto the hospital of St. Giles in the field, where they challenged and had the mastery of the men in the suburbs and other commoners... The youths of this city also have used on holy days after Evening prayer, at their masters’ doors, to exercise their wasters and bucklers” (Kingsford 1908, 91-99).

Over time the growth of formal martial training seems to have expanded greatly and by the late 15th century the evidence is suggestive that Europe’s large cities, such as London and Paris, were home to numerous schools. As early as 1189 these fencing schools were officially prohibited (Anglo 2000, 7) and, again, in 1285, with the reinstating of laws that were almost a century old (Ibid. 2000, 8). This would suggest that these schools, or at least a desire for the training, still existed in significant numbers:

“Whereas it is customary for profligates to learn the art of fencing, who are thereby emboldened to commit the most unheard-of villainies, no such school shall be kept in the city for the future”. (Castle 2003, 16).

Such edicts were by no means unusual and townsfolk were repeatedly forbidden from training with the sword and buckler and by association to travel about the city with sword and buckler:

"No one to keep a fencing school by night or day, under pain of imprisonment for forty days." (Sharpe 1901, Folio xv b).

"Concerning those who delight in mischief, proceed to learn in the city how to fence with the buckler, by night and by day, and consequently are emboldened to do wrong: it is decided that no-one within the city is to hold a school nor take lessons in fencing with the buckler, by night or by day. Anyone so doing is to be imprisoned for 40 days. He [i.e. an instructor] is not to take an apprentice by day, unless he is a man of good reputation and known [character]; if he is convicted of doing so, he is to receive the same punishment." (Riley 1860, 282-283).

Despite these laws, the apprentices of York and London were well known to frequently purchase weapons and even take part in riots throughout the latter half of the fifteenth century (Robbins 1956, 264). This trend for flagrantly disregarding the laws continued with fencing masters teaching students in preparation for trials by combat throughout the period (Anglo 2000, 8). This behaviour demonstrates that, despite repeated legislation against the practice, a quasi-legal tradition amongst those of less than noble status continued for several hundred years. It is therefore also possible to presume that there would develop some form of regional martial traditions, as by the 1540's schools with trained masters were found throughout England (Anglo 2000, 10). George Silver, a sword master at the end of the sixteenth

century, refers to his classes at a school in London, and he mentions an Italian sword school among others in London (Hicks 1995).

All of this demonstrates that a considerable number of schools existed for a lengthy period. Europe had a licensing system to govern sword schools; students in Paris and Heidelberg are noted as having attended schools with regrettable consequences, their 'riotous behaviour' having been noted and measures being taken to control the activities of this population (Anglo 2000, 9). These fencing schools increased in numbers during the 1400's and may also be a reflection of the rise of a far more militant civilian population than was seen in the earlier medieval period (see Appendix D).

One of the side-effects of this growth in martial schools is the body of martial literature (*combat manuals*) documenting and recording what was taught in those schools. The other side-effect, and one that is equally pertinent to the scope of this paper, is that if this "highly militant" population was participating in riotous behaviour, duels, and even tournaments, then it is presumable that this same population would be found within the retinues of the era. Therefore, determining the evidence of this martial education should be discernable in combat trauma found on skeletal remains and would demonstrate the spread of martial education through society.

Martial traditions and the influences of these traditions

The evidence clearly demonstrates that there were martial traditions in Europe extending throughout the 200 years of the high medieval period. While the Tower

Manuscript I.33 is the first evidence of a written tradition regarding martial training, it is in and of itself something of an enigma. Unlike the other *Combat Manuals* it does not appear to be a part of the works of a known master, and as such part of a known martial lineage. If the subject matter of the Tower Manuscript I.33 (Lutegerus 1300) was a part of an existing martial tradition that existed prior to the end of the 13th century, the evidence for other works within that “school” have been lost to modern researchers. The first evidence for any specific martial tradition starts with the creation of the *merkverse* of Master Liechtenauer in the late 14th century. With the original verse of Master Liechtenauer, and through his successors, it is possible to observe a continuing tradition. The methodology of this “Liechtenauer” tradition would go on to contribute to the fighting style that is heavily reliant upon the use of the thrust, a style so often associated with the Italian style of fencing, which in time would become closely associated with the foundation of modern Olympic fencing. Whether this tradition had been practiced prior to the writing of Liechtenauer’s work it is not possible to be certain. Yet one of Liechtenauer’s students claimed that what Liechtenauer had done was simply to perfect an art that was already hundreds of years old (Dobringer 2005, 2 and Anglo 2000, 91). Although this figure may be debated, it is considerably easier to observe the phenomena during the 15th and 16th centuries when fencing teachers, and a few interested students, published numerous treatises that depict various interpretations of the same Liechtenauer inspired tradition.

Following on from Liechtenauer there are at least two other prominent masters of the fifteenth century: Fiore de Liberi, an Italian, and Hans Talhoffer, a German (the latter having been associated with at least three treatises depicting the same interpretation of the tradition) (Talhoffer 1467, 9). Other German manuscripts from the same period

include the *Codex Wallerstein* (Anon. 1470), *KK5013 "Gladiatoria"* (Anon. 1430), and the *Ambraser Codex* (Talhoffer 1480) for example. The Italians are further represented by Master Filippo Vadi's *Arte Gladiatoria Dimicandi* (1482-87), which draws heavily from the earlier work of Fiore de Liberi. The number of prominent masters coming from areas that would in time become modern Germany and modern Italy has led some to associate the martial traditions of the High Middle Ages with Germany and Italy. Yet, England is known to have produced MS 3542, by an unknown author (Hutton 1901), and George Silver's *Paradox's of Defence* (Silver 1599) among others. France and Spain have also produced similar documents; in total there are in excess of 70 known examples of these *Combat Manuals*.

The international nature of medieval Europe's martial arts and their influences upon each other is a unique matter worthy of some discussion. Certainly through the 14th to the 17th centuries various teachers of swordplay and other martial arts were known to travel throughout Europe teaching their craft. Just as arms and armour was a commodity that could be traded across borders, so too was the art of fighting. Mercenaries fought all over Europe for different employers, and tournaments welcomed travelling knights drawn from throughout Europe. The sources of these martial arts were increasingly written down and illustrated by either the teacher or the students. These works were then, in turn, spread over Europe and studied by the different schools and teachers in the many cities and regions they reached.

The professional combatants of the era understood the matters of inter-personal and intra-group violence according to their own time, place, and culture. Although it might be tempting to read more into the influences, the martial arts in medieval Europe was never a standardized style or done in only one exclusive way. There were

rather a variety of interrelated styles and methods. “For as one are not all of a single nature, so one also cannot have a single style in combat, yet all must nonetheless arise and be derived from a single basis.” (Meyer 1570, 137).

The possible reason that many of these teachers produced their own works could be due to various reasons, such as: disagreements with other teachers over perhaps a technique or approach, or a general dissatisfaction with previous attempts to express a method. The German martial tradition places Liechtenauer as the first master, who perfected the art and laid the foundation of the art for future students. Although he is considered to be an important early teacher, it must be said that this was not an art that he claimed to have invented:

"And before all things you should know and understand that the sword is only one art and it was devised and thought out hundreds of years ago. This art is the foundation and core and it was completely understood and known by Master Liechtenauer. Not that he himself devised or thought out what is described, but he travelled and searched through many lands since he wanted to learn and experience this art." (Dobringer 2005, 13v)

The idea that there may have been pre-existing martial traditions already in Europe before the teachings of master Liechtenauer were recorded is supported by the earlier *combat manual*: MS.I.33 (Lutegerus 1300). Furthermore, if one examines the history of another early master, Fiore dei Liberi, one learns that he himself travelled and studied with teachers in Europe before formulating his own method and setting it down on the page. Interestingly for the purpose of this study, Fiore never claims that his knowledge is the result of being anyone in particular's student or any specific style, although he does allude to various former teachers, Johannes the Swabian being

one. Interestingly, as it supports this paper's hypothesis, and like so many masters of the era, his method is a personal one that is a fusion of the knowledge and experience gained from all the people and places in his travels.

This tradition of travelling far and wide to gain knowledge was not unique to Liechtenauer and Fiore. Filippo Vadi, a student of Fiore dei Liberi's method and a teacher in his own right, says in his treatise that he also "acquired good knowledge from the practical experience and doctrine of many masters of arms in different countries, well versed in their art." (Vadi 1482-87, Rubboli & Cesari 2001, 7).

Moreover, he expands on this saying that he "...acquired good knowledge, from the practical experience and doctrine of many masters of arms of different countries, well versed in their Art." (Vadi 1482-87). Likewise, the Italian master who taught in London, Vincentio Saviolo, stated that: "Since my childhoode I have seen verie many masters the which have taken great paines in teaching, and I have marked their diverse manners of playe and indangering: wherefore (both for the particular contentment & pleasure of the Gentlemen my friends, and for the general help & benefit of many) I have changed five or six sundry maner of plaies, taught to me by diverse masters, and reduced them unto one by my no little labour and paine..." (Saviolo 1595, Book One).

Chapter 3.

The status of Europe's martial traditions.

Until the recent attempts to revive Europe's martial traditions, those studying this area have too often possessed an inaccurate and inadequate view regarding the nature of the combative arts. Equally detrimental to this process are the scholarly errors, myths as well as the inaccurate and pre-conceived notions that spring from the very period in which Europe's martial traditions were in decline.

A huge number of bizarre assumptions were made over the years and not challenged until recently. For example, the early researcher of historical-fencing, Egerton Castle's, dismissive reference to the: "clumsy old fashioned sword." (Castle 2003, 20) or that of Charles Ffoulkes: "The so-called 'Crusader' sword is heavy, broad-bladed, and short gripped. There is no balance, as the word is understood in swordsmanship, and to thrust with it is an impossibility, its weight made swift recovery impossible." (Ffoulkes & Hopkinson 1967, 18). Or perhaps most egregiously from a manufacturer of swords, John Latham of Wilkinson Swords, who in describing a 14th century arming sword stated that:

"You will see from its tremendous weight that it was intended for a time when swordsmen had to deal with iron-plated men, as we have, with iron-plated vessels, and you see how they solved the very question we are debating now. They got the heaviest weight they could, and they put as much force behind it as they could possibly give..." (Latham 1862).

The practical result of this leads to early European systems being misunderstood or treated with disdain. As has been shown the persistent errors normally encountered

today are the assumptions that European swordsmanship in the medieval period was a clumsy affair in unwieldy armour and with heavy weapons, and as a result brute force was the only decider. It is perhaps ironic then that dispelling these persistent myths and scholarly errors are among the primary reasons that attempts are being made to resurrect Europe's martial arts.

However, before this discussion can move to the revival of Europe's martial traditions, it is relevant to the purpose of this paper to discuss how these arts went from the preserve of an ennobled few to obsolescence and general abandonment. The available evidence would suggest that there are a number of sociological factors that lead to the demise of martial traditions in Europe.

If one looks at European martial traditions you see them either declining into disuse or continuing and evolving into a form that is almost purely a sporting one. Over time men had become little less than a cog in the fighting machine of the nation-state, rather than a distinct individual warrior. For example, purely martial swordplay becomes sport-focused fencing. As does wrestling, grappling and boxing which eliminate their most violent aspects to become pure sporting endeavours. Even the martial traditions surrounding riding become sports such as polo or dressage. In some isolated cases there do appear to be purely martial traditions surviving, but these are few and far between. The argument can be made that the rapid spread of manuscripts that we see in the 15th and 16th centuries (and beyond as well) may represent, not only the success of the printing press, but also attempts to secure the future of martial traditions.

Examples of the “sportification” of swordplay in Europe would surely include the Mensur competitions, which still exist in some German universities, and to a degree the smallsword. In the case of mensur, when closely examined it is clear to see that the art has become highly stylised and is of an almost purely sporting nature - there is no footwork, the technique is rigidly and narrowly defined and “combat” features an equivalence of armament. Ultimately the mensur style of fencing is not a true combative technique; rather it is a test of martial resolve, a fact highlighted by the honour bestowed upon those participants bearing the characteristic facial scars. Certainly, an important facet of a true martial art is techniques that aim to reduce personal injury, not increase it (Gambetta 2009, 143 & Kellet 2008, 18).

Equally evident in this decline are the debates over accepted methods of instruction that took precedence over purely pragmatic ones. A key example of this was the adoption of the 'right-of-way' principle in the 17th century. This was, some have argued, the biggest single step in removing martial principles from fencing. Foil was originally an extension of 18th century smallsword. It was considered a gentlemanly accomplishment and a way to stay fit. It was also rather stately in its performance. Prior to the advent of protective fencing masks arbitrary safety rules were imposed, so a right of way rule protected the participants from facial injuries. Also the “torso only” targeting of foil was considered valuable practice for smallsword due to the many vital organs in the torso. (For more on the “unique” nature of modern Olympic fencing see also Priest and Young 2010).

Another factor that cannot be ignored is the increased use of firearms. With firearms gaining pre-eminence on the battlefield the need for a highly skilled soldiery was

reduced. If one looks at the tactics of Imperial France under Napoleon, he relied upon vast armies of conscripts who were poorly trained. Although, it was the arguably better trained armies of Prussia and Britain that defeated him in Europe, even these troops received only short periods of instruction and then only in shooting. The argument that the need for skilled swordsmen, grapplers and horsemen was lessened by the effectiveness of massed musketry and cannon is indeed highly suggestive.

The role of the industrial revolution must not be ignored either. This drew a vast number of people from the rural areas where some martial activities had been kept alive (for example, *singlestick*, the often brutal competitions with wooden staves had been a staple of country fairs. For more see Wolf 2002) and put them to work for many hours of the day in factories, mills and mines. This had a hugely disruptive effect on the social patterns of rural Europe and left only the upper classes with the time to train in any kind of martial activity. This turn of events was in sharp contrast to what we have seen previously, when training in a range of martial skills was enjoyed by a sizable portion of the population (albeit often in a quasi-legal manner). However, as the need for the upper classes to become involved in war had decreased (a conscript with minimal training and a firearm was of more value) their interest in martial activities were soon more inclined to recreation than actual training.

It must also be noted that the two World Wars had a tremendous impact on the male populations of Europe. This immense loss of life had a massive social impact and caused a great number of cultural traditions to almost die out. These were not just martial traditions, in England sword dancing and bagpipe use almost disappeared.

As has been discussed previously regarding the long tradition of fencing schools and fencing masters teaching any who might pay, the ruling classes in Europe took increasingly greater steps to exert control over, or to some extent at least pacify, the lower classes. This is one of the main reasons that previously martial traditions such as boxing and wrestling were pushed towards sporting applications. It is also clear that the rise of the middle classes and the increased levels of disposable income during the Victorian era made these sporting spectacles more popular and open to a wider audience. This, in turn, led to drives to remove the more lethal aspects and developed into the current sporting forms of boxing and wrestling.

As a result of these factors, one can see a real divergence from the combative nature of martial training after the 17th C. During the 17th, 18th and 19th centuries arts such as boxing and fencing remain commonly practiced. However, whilst these are prized for their abilities to impart good spirit and fitness, they are no longer considered effective training for war. Furthermore, the structural changes that conscription entailed might have been more important than the switch to firearms. No longer was war a matter of a "those who fight," but it was everybody's business. Martial skills now had to be transferred en masse to adult men in a short period of time, rather than being transferred over a lifetime of soldiering, all of which favoured a conscript with a firearm over a skilled swordsman.

One might argue that, for example, the English Civil war was a defining moment in England's martial traditions. Up to that point, England's national army (such as it was) consisted for the most part of companies loyal to a Lord or Landowner. These companies very likely had a core of professionals who would have been in a position

to pass on their skills, often with an emphasis on personal skill and ability rather than “working as a team”. It was their job for life.

Come the civil war, there were a large number of men who left their normal professions to fight for something they believed in; they did not want nor expect to be a military man for the rest of their lives. So, just as the face of warfare changed, so did the approach to it. Men were taught what they needed to know, this was coupled with an increase and reinforcement of not only relying on fellow soldiers, but in many cases depending on them.

Over time men became simply a cog in the fighting machine, rather than an individual warrior prized for his skills. The role that had first become a profession, had now become industrialised. As to the passing on of skills, the 17th and 18th century saw a large shift from traditional village life to town life. Which led to a decline in the remaining ties of obligation to the “lord” of the manor. Easily within two generations both the traditions and skills of a region were completely changed in the struggle to survive in the new working conditions.

An argument might be made that, in a sense, Europe’s martial traditions do not start on their way out until the 17th century as is the suggestion of the “military revolution” theory; which argued that the supplanting of the armoured cavalry’s dominant role on the battlefield by infantry throughout western and central Europe, along with the development and spread of gunpowder weapons, which minimised the importance of traditional handheld weapons, and changed the character of infantry combat. Finally the third aspect of this revolution, perhaps even more far reaching in its consequences,

was the subsequent rise in the size of armies (for more on the military revolution theory see Roberts 1956).

However, it is also strongly suggested that this “military revolution”, and the subsequent decline of Europe’s traditional martial arts, started as early as the 14th century; for example, the decline in the dominance of the armoured knight to the lightly armoured foot-soldier (who was also increasingly armed with the longbow or the pike, as well as early firearms, rather than the sword or polearm) not only changed the social basis of power on the battlefield, but, as infantry could be trained more quickly and could be hired simply for wages, the greater expansion in the size of armies was greatly increased (Ayton and Price 1998 & Parker 1996). In this sense, following the Black Death, one finds the start of a long line of decay in hitherto traditional martial activities that reaches its apogee with the conscripted army as epitomised by the Swedish and Dutch armies of the 1570-1620s.

Furthermore, the argument could be made using this line of reasoning, that the flowering of manuscripts in the high medieval period and renaissance may, in fact, represent attempts to shore up a dying tradition. An idea emphasised by repeated injunctions; first not to let the art get to the peasant classes, and second, by assertions like those of Joachim Meyer that the art is almost dead (Meyer 1570, 2).

The modern Revival of Europe’s martial traditions

Historically, those manuscripts that recorded Europe’s martial heritage were preserved but largely ignored by all but a small number of historians and collectors.

Now, the expansion of the Internet has made the distribution of a growing volume of these materials readily available to interested researchers, and a resurgence in the study of historical European martial arts is in progress.

Initially, most study of period treatises was concentrated within the ranks of re-enactment societies and military historians. More recently groups such as The Western Martial Arts Coalition (WMAC), The Academy of European Medieval Martial Arts (AEMMA), The Association for Renaissance Martial Arts (ARMA), Historical European Martial Arts Coalition (HEMAC), The Australian Historical Swordplay Federation (AHSF), British Federation for Historical Swordplay (BFHS), and respected academics like Dr. Sydney Anglo (ARMA, and a Fellow of the British Academy), Dr. Grzegorz Zabinski, Dr. David Lindholm, and gifted amateur historians and archaeologists such as John Waller (Formerly of the Royal Armouries, now retired), Matt Galas (HEMAC), and Ewart Oakeshott (Society of Antiquaries, Arms and Armour Society, and The Oakeshott Institute), have published noteworthy analyses of these manuscripts. The efforts of people and organisations such as these have ensured that many of these materials are transcribed and translated, and as a result more manuscripts are being saved from obscurity.

The evidence for the place of the *Combat Manuals* themselves in society is growing clearer. This evidence suggests that while for much of the High Middle Ages the *Combat Manual* was intended as the sole preserve of the very few, the information contained within them was continuing to reach an ever widening audience. Many historians have detailed the importance of the "printing revolution" in Europe: the Reformation, Renaissance, and science all being held up as positive products of this

revolution. Printing and its availability enlarged the number of available sources for scholars all over Europe (see also Eisenstein 1980). One can argue that the availability of printing would quickly bring an increased literacy to vast numbers of people and in turn increase the availability of texts of all description, including those on martial arts, to a far wider audience.

This study is vital to allow a comparison of actual combat injury with those injury patterns that one might expect from combat treatises. Such a study will allow an opportunity to provide some additional evidence of the actual role and training of the individual in combat and the extent to which martial training had expanded beyond the traditional noble combatant.

Furthermore, two surveys of the injury patterns of modern-day martial artists who study historical martial arts are necessary for comparison with the archaeological record. One is a survey of what one might consider aristocratic weapons and the other focussing on those weapons with less noble connotations such as the sword and buckler. The evidence gained from these studies aids the determination to be made as to the role of *Combat Manuals* in the instruction of fighting technique on the battlefield.

The serious study of these *Combat Manuals* is a relatively recent phenomenon, but one that is quickly gaining speed. The relatively small number of extant *Combat Manuals* along with the limited period of study means that there is a finite amount of published research available to the researcher. In this subject area the average researcher is fortunate to have access to most original sources (in at least an electronic

form) and transcriptions of many and translations and interpretations of many. Much of the work that has been done is limited to several important martial lineages and traditions. The majority of these would include the German Lichtenaur tradition, the Italian *Dei Liberi* tradition as well as the lesser-known English, French and Spanish traditions.

Combat Manuals and their current availability

Name	Author & Date	Availability/Current location
MS I.33	Lutegerus 1300	http://freywild.ch/i33/i33en.html http://collections.royalarmouries.org/i ... 7fQ==&pg=1
Cod. ms. 3227a	Hanko Döbringer 1389	http://www.thearma.org/Manuals/Dobringer_A5_sidebyside.pdf http://www.hammaborg.de/en/transkriptionen/3227a/index.php http://hroar.com/manuals/liechtenauer/ ... ringer.zip (Microfilm scans)
Augsburg: Cod.I.6.4. 2	Anon. 1470	http://freywild.ch/wiki/index.php?title=Codex_Wallerstein http://gesellschaft-lichtenawers.eu/tsc ... di642.html
Augsburg: Cod.I.6.2. 4	Anon. 1545	http://media.bibliothek.uni-augsburg.de ... 6&id=82166
Augsburg: Cod. I.6.4o.3	Jud Lew 1470	http://www.hammaborg.de/en/transkriptionen/jude_lew/index.php
BSB Cgm 1507	Paulus Kal 1460	http://daten.digitale-sammlungen.de/~db/bsb00001840/images/index.html http://www.hammaborg.de/en/transkriptionen/paulus_kal/index.php
KK 5012	Peter Falkner Late 15 th cent.	http://www.hammaborg.de/en/transkriptionen/peter_falkner/index.php
BSB Cgm 582	Hans Lecküchne r 1482	http://daten.digitale-sammlungen.de/~db/bsb00002184/images/ http://www.pragmatische-schriftlichkeit ... 82_s_e.pdf http://www.hammaborg.de/en/transkriptionen/leckuechner_cgm582/index.php
De Arte Luctandi	Fiore dei Liberi 1410	http://wiktenauer.com/wiki/Florius_de_Arte_Luctandi_%28MS_Latin_11269%29
KK 5013	Anon. 1430s	http://www.pragmatische-schriftlichkeit.de/KK5013.html

Cod. Guelf. 78.2 Aug. 2o	Anon. 1465-1480	http://www.hammaborg.de/en/transkriptionen/gladiatoria_wolfenbuettel/index.php
Hs. XIX, 17-3	Hans Talhoffer 1445-73	http://www.hammaborg.de/en/transkriptionen/talhoffer_koenigseggwald/index.php
Thott Edition	Hans Talhoffer 1459	http://www.kb.dk/en/nb/materialer/haandskrifter/HA/e-mss/thalhofer/thalhofer.html http://www.flaez.ch/talhoffer/
Le jeu de la hache	Anon. 15 th cent.	http://jfgilles.perso.sfr.fr/escrime/bibliotheque/jeu_de_la_hache/index.html http://www.thearma.org/spotlight/NotesLEJEUEDELAHACHE.htm
M.I.29	Hans von Speyer 1491	http://www.hammaborg.de/en/transkriptionen/hans_von_speyer/index.php
78A15 (Berlin)	Hans Talhoffer 1445-59	http://www.hammaborg.de/en/transkriptionen/talhoffer_berlin/index.php
Q556	Hans Folz von Wurms 15 th cent.	http://www.pragmatische-schriftlichkeit.de/q566.html
“Gladiatoria” New Haven	Anon. early 15 th cent.	http://www.hammaborg.de/en/transkriptionen/gladiatoria_yale/index.php
De Arte Gladiatoria Dimicandi	Vadi 1482-87	http://jfgilles.perso.sfr.fr/escrime/bibliotheque/vadi/index.html http://wiktenauer.com/wiki/De_Arte_Gladiatoria_Dimicandi_%28Codex_1324%29
Ambraser Codex	Hans Talhoffer 1459	http://jfgilles.perso.sfr.fr/escrime/bibliotheque/talhoffer_ambras/index.html
Ms. Chart. A558	Hans Talhoffer 1443	http://www.hammaborg.de/en/transkriptionen/talhoffer_gotha_a558/index.php http://jfgilles.perso.sfr.fr/escrime/bibliotheque/talhoffer_gotha/index.html
“1467 Fechtbuch”	Hans Talhoffer 1467	http://www.schielhau.org/tal.html http://www.thearma.org/Manuals/talhoffer.htm
Codex 44 A 8	Peter von Danzig 1452	http://www.hammaborg.de/en/transkriptionen/peter_von_danzig/index.php
Fior di Battaglia	Fiore Dei Liberi 1410	Pisani-Dossi facsimile: http://www.fioredeiliberi.org/manuscripts/novati/ Getty, Morgan and Pisani-Dossi translations: http://www.the-exiles.org.uk/fioreproject/Project.htm http://www.fioredeiliberi.org/getty/ http://www.fioredeiliberi.org/morgan/ http://www.getty.edu/art/gettyguide/artObjectDetails?artobj=1706&handle=book&pg=1
Cgm 558	Anon. 1462	http://daten.digital-sammlungen.de/~db/0003/bsb00035322/images/index.html?id=00035322&fip=77.102.220.112&no=2&seite=1
The Soloth-	Anon. 1423	http://www.thearma.org/Manuals/Solothurner.htm

urner Fecht- buch		
“Gladiator ia”	Anon. 1450	http://www.thearma.org/Manuals/Gladiatoria/Gladiatoria.htm http://www.pragmatische-schriftlichkeit.de/msgermquart16.html
Best 7020	Anon. 1500	http://www.pragmatische-schriftlichkeit.de/transkription/trans_7020_s_lp.pdf
Cod. Pal. germ. 430	Johannes Lecküchne r 1478	http://diglit.ub.uni-heidelberg.de/diglit/cpg430/0012
Cgm 1507	Paulus Kal 1458-67	http://www.pragmatische-schriftlichkeit.de/transkription/edition_paulus_kal.pdf

(Table A. Combat Manuals and their current availability)

Chapter 4:

Injury patterns in the archaeological record.

“Juan de Urbina received the other day, whilst skirmishing with the enemy without his defensive armour, a sabre cut in the face, and a partisan's thrust (golpe de partesana) in the stomach. Neither wound, however, is dangerous.”
(Gayangos 1877, f.167)

Injury patterns in the archaeological record are not unknown. The evidence of trauma has been frequently noted and, to a limited degree with the requisite skeletal populations for this study, assessments of these patterns have been attempted (Robb 1997). In any such assessment of a medieval skeletal population, the considerable social change of the period has the potential to be displayed in the practices of everyday people. Whether or not the extant *Combat Manuals* are representative of methods of combat that predate their existence is yet to be determined. The evidence for the existence of organised warfare prior to the first *Combat Manuals* may be suggestive of, at least, some form of informal European martial tradition or traditions. However, any assessment of martial arts in Europe prior to the late 13th century is, in the absence of sufficient evidence, highly speculative. Clearly evidence of antemortem and perimortem trauma can and will be discernible on skeletal remains, however without any concrete evidence as to the techniques used to deliver that trauma, there remains a gap in the available knowledge. Evidence may be clear that an injury is indicative, for example, of the use of a sharp edge, and experimentation may even determine the sort of weapon used. However, determining whether the user picked their strike carefully or simply swung wildly is the true crux of the issue. Any attempt to reconstruct the martial techniques of Europe prior to the blossoming of evidence in the 1300's remains highly suspect in light of this absence of any written evidence and scarcely any pictorial evidence. Therefore, due to the ever increasing

depth of evidence for organized martial techniques after the 1300's this study will focus specifically on the sites of Fishergate, Wisby Towton, Uppsala (the Battle of Good Friday) and St Mary's (Oslo) where substantial skeletal populations were found and are appropriate for the time period of this study.

Hoplology and the human target

Some of the locations on the body commonly targeted in a combative situation are clear (one might even suggest that they are "instinctual") to even the untrained observer, these being: the cranium, the "face", the core of the body and the upper limbs (especially if they are holding a weapon). However, most are not, the sheer number of possible strikes that a trained martial artist is capable of is notable. Strikes depend on how the weapon is held, and most can be directed to any of several targets, often while stepping forward or backward, to the side, or both. Thus, any targets identified here are simply the most common for a given attack. The most common angles of attack are either vertical ascending or descending cuts, horizontal or ascending/descending diagonal cuts from the corners. In a single combat between two individuals the target areas with the highest potential would include: the head (specifically the face, top and sides) and neck, the torso (specifically the abdomen and the chest), the forearms and the hands.

Strikes made with the point of a weapon can be divided into three different attacks: originating from above horizontal, originating from horizontal and originating from below horizontal. A strike made with the blade edge may be further divided into those made with the 'true' edge or the 'false' edge. As with strikes made with the point

these are further divided into strikes made to the opponent's left and right sides and whether the strike originates from above or below.

Common injury types (blunt, sharp, and projectile trauma)

Of all the activities in the period of history with which this paper is concerned, sport and warfare are the two most likely to leave suitable diagnostic clues through evidence of severe damage to the skeleton. The available evidence suggests quite strongly that these two activities are often closely linked, especially in the area of training. One aspect of this dissertation is to determine a pattern of historic skeletal injury, due to hand-to-hand combat. The other aspect of this paper is to gather data from studies of injuries among modern students of the same martial arts to establish evidence of martial training in the archaeological material based on comparison of the two datasets.

The use of any of the previously discussed martial techniques in a combative setting will result in a high potential of injury or death of one or the other of the participants, and will leave a variety of tell-tale marks. While the signs of sharp force trauma may be observed from skeletal remains, this is merely a portion of the potential results of violent actions. There are many more that leave few clues on skeletal remains and so simply cannot be recorded at this time and are, for the moment, outside the scope of this research. The often-fragmentary state of skeletal remains, especially the crania, may mean that additional wounds in the facial region will remain unrecorded. This fragmentary nature will equally prevent an accurate determination of the scale of blunt force trauma on the medieval battlefield. Although it is reasonable to suggest that individuals on the medieval European battlefield were subjected to blows from weapons other than the blades of knives and swords, for the time being the true nature

of blunt force trauma in a medieval context is likely to remain incomplete, owing to the difficulty of determining blunt force trauma from highly fragmentary remains. Equally, it must be noted that the number of wounds affecting only the soft tissue is likely to have been substantial, and as a result any study of weapon trauma on bones is potentially likely to return an artificially low number of injuries compared with what was likely a much higher number.

This study has focussed primarily on the marks left by the use of edged weapons (i.e. sharp force trauma). The use of these weapons will result in distinct marks upon the skeleton. The diagnostic criteria for sharp force trauma are a: linearity, a clean and well-defined edge, flat or smooth surfaces, and parallel marks on the surface, which are visible under microscopy (Boylston 2000, 361)

Using the point of a sword or knife will create an entirely different mark, and projectiles may unfortunately confuse the matter by making remarkably similar marks upon the body. A projectile point, or the point of a blade such as a spear or sword, could equally cause penetration force trauma at the point of impact. To establish the difference between these two weapon types the most likely method may rest with determining the velocity of the penetrating force behind them. The only other way that they might be determined with any confidence is if the point is in fact still embedded in the bone (Lovell 1997, 141).

Collection and analysis of data from primary sources

The five sample populations utilized in this study for the observation of trauma were the remains of 1185 individuals from the 1361 battle of Wisby in Gotland Sweden,

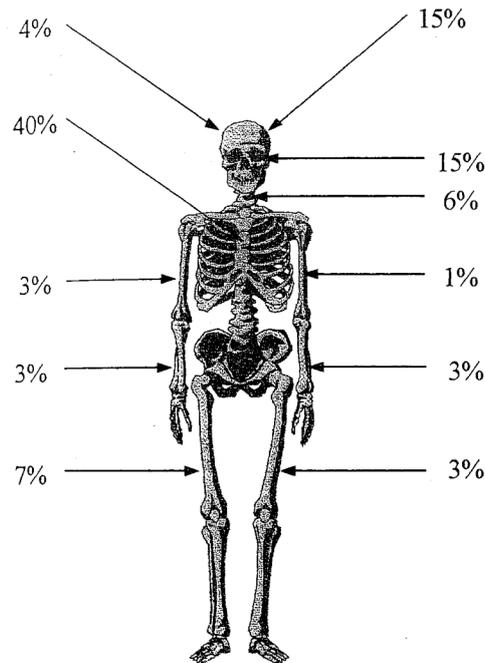
and 29 individuals from Period 6 (mid twelfth century to the late fifteenth century) in the cemetery of St. Andrews church in Fishergate, York. The next sample population was 24 individuals from the 1461 battle of Towton UK, 60 individuals from the 1520 battle of Good Friday in Uppsala Sweden, and finally 71 individuals from the Church of St. Mary in Oslo Norway. The principal sources of data used were; for Fishergate, Craig Wagstaffe 2001 and Stroud and Kemp 1993; for Wisby, Ingelmark in Thordeman 1939; for St. Mary Oslo, Brodholt and Holck 2010; for Uppsala, Kjellstrom 2004; and for Towton from Novak 2007.

Fishergate

One site where one is fortunate enough to have a sizable skeletal population is the St Andrews' cemetery in York (Stroud and Kemp 1993, 232-240). Here, there are two sizable populations, the first dates from the late tenth century to the mid twelfth century (Period 4), and the other from the mid twelfth century to the late fifteenth century (Period 6). This latter population includes 29 males with multiple weapon injuries of the cranial and postcranial regions. The method employed at the time, according to Stroud and Kemp, only allowed for a simple interpretation of the trauma as attacks to the: head, upper body, forearms and the lower limbs. The observed pattern of multiple examples of weapon related trauma on at least 19 individuals resulted in an initial interpretation of the population as suffering from trauma due to less than formal fighting (Stroud and Kemp 1993, 238).

The evidence from this site is strongly suggestive that the most common target area was the upper portion of the body. Although the upper body was a prime target it is quite interesting to note that the limbs were also targeted to a fair degree. In contrast

with the evidence from Period 4, Period 6 demonstrates a much stronger correlation with the expected martial techniques of the era; the head was the primary target followed by the upper quarter with the forearms and lower quarter demonstrating only minor injuries.



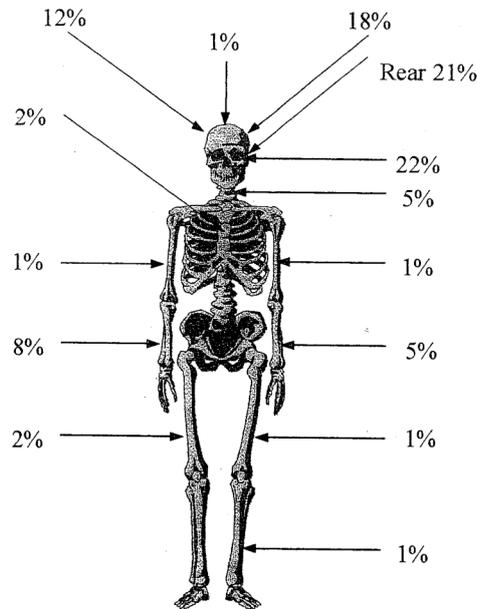
(Figure 9 Fishergate period 6 all strikes. Wagstaffe 2001)

Towton

The analysis of the skeletal population from the mass grave from the 1461 Battle of Towton was conducted by Shannon Novak (2007: 90-102.). In the report it suggested that due to the nature of the trauma patterns there was a significant likelihood that many of the individuals concerned had been attacked from behind and were therefore likely part of the documented rout of the Lancastrian force (Wagner 2001, 272).

In 1996 the site, which was part of an extension to an existing building, was excavated by a specialist team from the University of Bradford. The skeletal

population of this site demonstrated a remarkable degree of evidence of battlefield trauma (Novak 2007, 92). Among this sample there is evidence for blunt, sharp and projectile trauma and within this selection there were a minimum of 24 individuals displaying evidence of sharp force trauma alone.

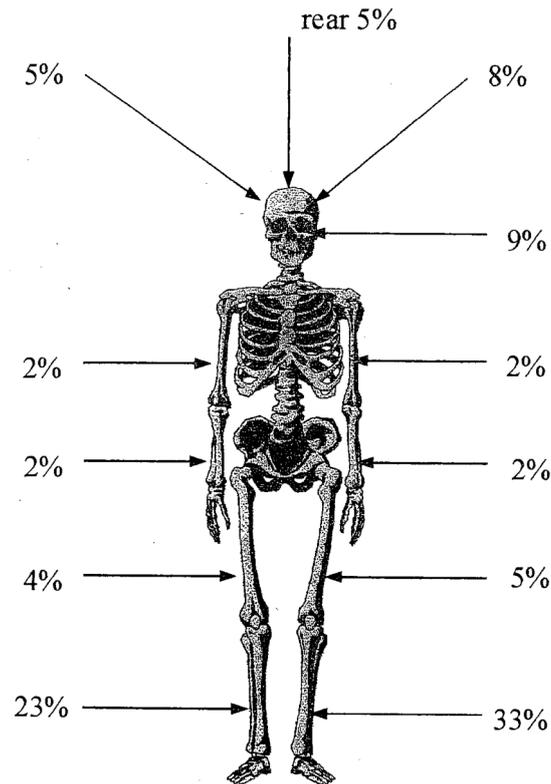


(Figure 10 Towton all strikes. Wagstaffe 2001)

Wisby

The skeletal assemblage from the Battle of Wisby, AD 1361, with an impressive 1185 documented skeletons, is one of the most discussed historical mass graves (Thordeman, 1939). The three mass burials from the Battle of Wisby, Gotland, constitute the largest battle-related skeletal material that has ever been anthropologically examined. The battle between local population/gentry and the royal Danish army in 1361 resulted in the death of 1800 men, from whom 1185 skeletons have been analysed. The injury pattern in this sample is unique in that it demonstrates a high prevalence for evidence of sharp edge trauma on the bones of the lower leg (Fig.11). This is an unusual enough pattern of injury that it is worth a brief discussion. Sustaining injuries to the legs (especially to the knee joint and below)

would seem characteristic of mounted warriors in combat with footsoldiers. After all, to the individual on foot engaging an opponent on horseback, the legs of the mounted individual are the closest and easiest target. However, considering that the vast majority of those buried in the mass graves at Wisby are thought to be Gotlanders (who fought on foot), the mounted warrior theory appears unlikely (Thordeman 1939). A far more probable hypothesis would propose that there is some artefact of the era's combat technique that would explain this injury pattern. As will be discussed in greater detail in chapter 5 the prevalence for lower leg injuries in the Wisby sample is highly suggestive of combatants using the style of strapped triangular shield common at the time. As a result of this piece of equipment they would find their head and torso to be largely safe from attack, unlike their lower limbs. Experiments with these noted that as this shield type is strapped to the lower left arm and controlled by the hand, the body and upper legs are not unsurprisingly difficult for an opponent to engage, where as the lower leg, especially the leading left leg, is within range for an opponent and surprisingly difficult to defend.



(Figure 11 Wisby all strikes. Wagstaffe 2001)

Uppsala

The Kalmar union between Denmark, Norway and Sweden that had begun at the end of the late 14th century broke down in a series of violent campaigns in the early 16th century. Years of violent encounters came to a head on the morning of 6 April in 1520, Good Friday. Swedish troops attacked Danish troops stationed in the town of Uppsala. This was not a battle fought on equal terms, the Swedes consisted primarily of peasant forces and the Danish forces were composed of mercenaries from Germany, France and Scotland (Kjellstrom 2004). Early on in the battle the Swedes were successful; however, as the day progressed their luck changed. By the end of the day the Danes had defeated the Swedish forces. The Danish losses were around 2000, and the Swedish losses are unknown, but are believed to be even greater (Ibid. 2004).

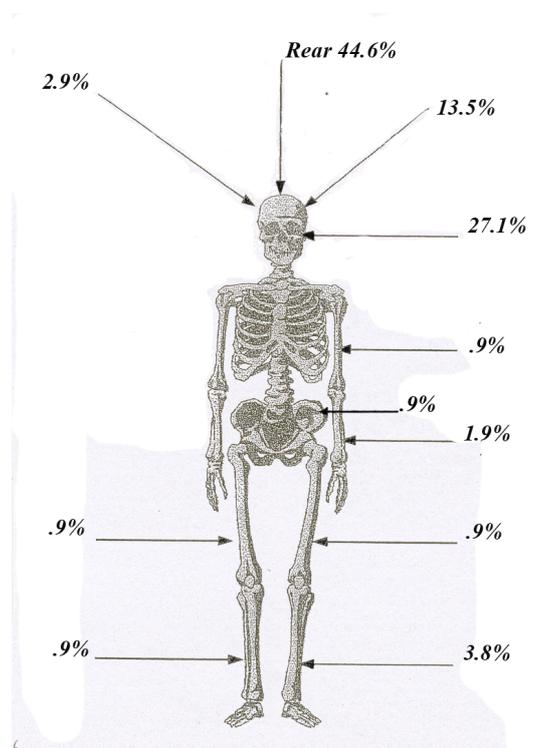
The location of the burial ground for these individuals is unknown and it has been claimed that Archbishop Trolle, who was allied with the Danish King, ordered that the corpses belonging to Swedish soldiers were to be left unburied (Ibid. 2004).

There are claims that the bodies of the Danish mercenaries were buried at the Uppsala Cathedral and adjacent churchyard, but this has yet to be demonstrated (Ibid. 2004).

Like the location of burial grounds, the location of the battle itself is not known with any certainty. However, using those pieces of information garnered from contemporary sources and archaeological finds place the likely location as a large, open flat area today known as Stadstradgarden (Ibid. 2004). In 2001 human remains were uncovered as a result of construction work in the area, not far from the skeletal finds from the 1970s. The resulting archaeological work revealed the skeletal remains of 60 individuals dated to 355±50 BP (Ua-17998), which calibrates to 1440–1650 AD at 95% probability (Ibid. 2004).

Kjellstrom noted that out of the 103 examples of sharp force trauma identified in this sample the majority of these (92) were to the cranium and in particular to the sides and rear, the parietal bones were the most often affected cranial bones on both sides along with the parietal-occipital and temporal-occipital regions (Ibid. 2004, 33). The evidence demonstrates that trauma to the facial and frontal bones, including the parietal-frontal transition were the second highest location (Ibid. 2004, 33). The evidence for postcranial sharp force trauma was few in comparison with those of the crania. Kjellstrom identified 11 instances of sharp force trauma on nine postcranial bones (Ibid. 2004, 36). The breakdowns of these are: two humeri displayed evidence of trauma, one had the lateral part of the distal joint cut off, and on another there was evidence of sharp force trauma in the middle and on the anterior side of the shaft, and

lastly an ulna had the distal joint cut in half (Ibid. 2004, 36). Five wounds were found on three tibiae (one showed three blade wounds on the anterior proximal part of the shaft, another displayed a single wound located on the anterior proximal part of the shaft, and the final tibia displayed a wound in the proximal part of the posterior side of the shaft). There was also evidence of a sharp force trauma to a femur that cut the greater trochanter (Ibid. 2004, 36). In addition an *os coxae*, showed evidence of sharp force trauma superior to the acetabulum that cut the ilium (Ibid. 2004, 36). The final example of postcranial sharp force trauma comes from one of the most complete skeletons in this sample. In this example Kjellstrom relates that the skull, with the cervical vertebrae (C1–C4) still in position, was located to the right of the waist, and that the spinous process and the body of C4 had been cut through (Ibid. 2004, 36).



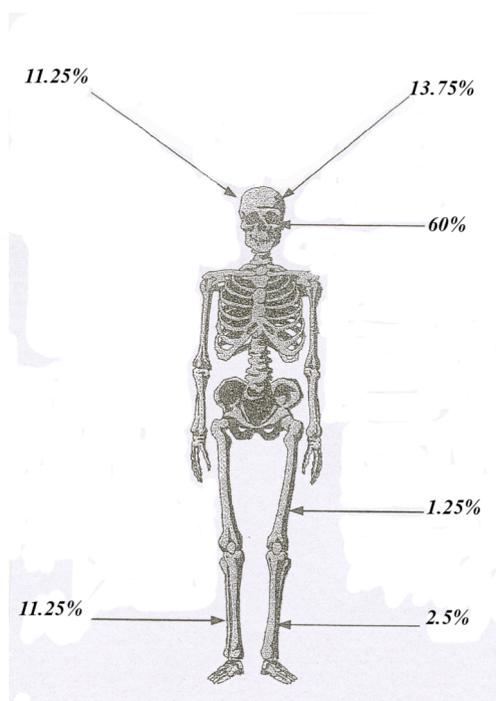
(Figure 12 Uppsala all strikes. Author's 2011)

Oslo (St Mary)

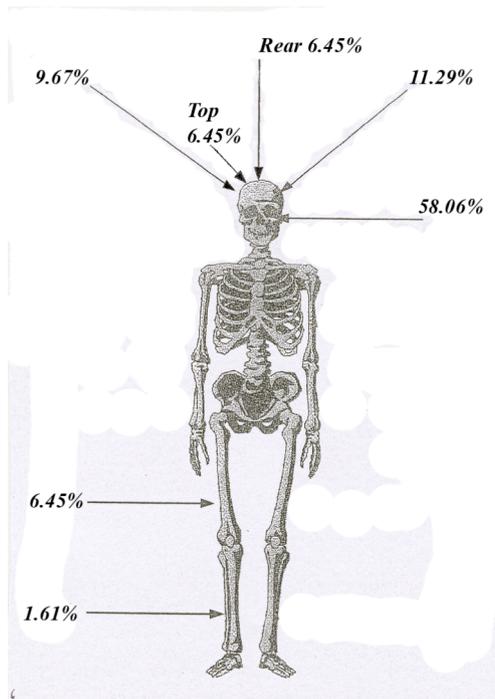
This unique collection of skeletal remains from the royal Church of St. Mary in Oslo reveals evidence of extensive perimortem and antemortem skeletal trauma resulting from sharp-edged weapons. Built originally in mid 11th century the church of St Mary was in use until damaged in 1523. The church's royal significance began in the 1270's with its expansion by King Hakon V and remained important royal site until the 1500's (Brodholt and Holck 2010, 1-2). Despite this long timeline, there is little evidence for the use of the church as a burial ground prior to the 1300's and after which the location new royal status made it a desirable location for the burial of society's upper classes (Ibid. 2010, 2). Much of the evidence of sharp force trauma is observed on the crania with a surprising dearth of injuries on postcranial elements. Interestingly, while the majority of injuries were observed on middle-aged and older men, a number of women and sub-adults in the sample also unusually display evidence of trauma. The consistency of the trauma distribution pattern is strongly suggestive of, although not in itself definitive of, a use of standardized fighting techniques.

The sample is divided between those remains from the cemetery and those from within the church. The first sample comes from the cemetery, 39 of the 83 male crania have a total of 68 injuries. Of these, four are trauma to the nasal bone. A further 35 are related to the frontal bone. Nine are located on the left parietal, nine on the right and one crossing both the left and right. Four more injuries equally divide the fronto-parietal region between left and right. There are four injuries located in the left fronto-orbital region. Finally, there is one injury found on the left temporal bone and a further one located to the left parieto-temporal (Ibid. 2010, 7-8).

When the similarly sized sample from within the church is examined 32 of the 92 male crania show signs of sharp force trauma. There are a total of 57 injuries in this sample and the breakdown of injuries is as follows: two injuries to the mandible and one injury to the left zygomatic bone. Twenty-eight are located on the frontal bone, Seven more are found on the left parietal bone and six are found on the right parietal bone. Three injuries are located on the left, and two are found on the right fronto-parietal region, while four injuries span both the left and right parietal bone. Two injuries are found on the occipital bone, another is located to the left parieto-occipital bone and one more spans the left occipital, parietal and temporal area (Ibid. 2010, 8). In examining the samples, the evidence from the cemetery suggests that 90% of the trauma was inflicted from above with 5% having been delivered from below, and the sample from the church is similar with 80% having been delivered from above (Ibid. 2010, 8).



(Figure 13 Oslo Cemetery all strikes. Author's 2011)



(Figure 14 Oslo Church All strikes. Author's 2011)

Chapter 5:

Injury patterns in modern sample populations.

Having established that there is evidence for a pattern and history of martial education throughout the period of this study, and having shown that there is ample evidence of combat trauma found on human skeletal remains, the next step is to determine whether similar evidence can be determined from the modern population of historical European martial artists. In order to gather that information to test this paper's hypothesis it was necessary to research the injury patterns amongst the modern population.

Sampling

The impetus for this research was the discovery that this growing body of research and researchers was, largely, being ignored. Research into the current literature confirmed that the usefulness of HEMA experimenters as an analogous population had yet to be studied in any depth. For this study the chosen method was a non-probability method commonly referred to as "snowball" sampling (see Babbie 2011, Goodman 1961). Using this method the study began with organisations with whom the author was already well acquainted and had maintained positive relations, and used their contacts to gain access to others. If time and resources had not been an issue, it would, therefore, have been possible to personally meet and gain the trust of those hesitant organisations and in turn survey a greater number of participants across Europe and the Americas in order to increase the sample size.

Snowball sampling (See also Babbie 2011, Goodman 1961, Heckathorn 2002) is a non-probability sampling method in which the research subjects actively recruit other subjects for the same study from among their own community. As the sample builds in size (much like a “snowball”), enough useful data is gathered for research purposes. The argument may be made that using a non-probability sampling technique such as this to infer from the sample population to the general population would be incorrect. As such, it is vital that any generalizations obtained in this way must be filtered through one's own knowledge of the topic being studied.

The greatest disadvantage with this sort of sampling is that non-probability sampling does not involve random selection. While it is, then, possible to argue that a non-probability sample is less representative of the population, that does not necessarily diminish the study's results. At least in the case of this study, the subject population is not the general population and in some respects may function as a hidden population, exactly the ideal population for this sort of technique. Clearly bias is another disadvantage and plays a role within every study, this study being no different; largely because those in the sample were available and willing to participate. However, having a larger number of participants will help with the accuracy of the information. For a greater discussion of the advantages and disadvantages of snowball sampling see Babbie (2011).

Without further research, those studied cannot be taken to be representative; this study: “cannot tell the reader if the phenomenon uncovered are common or extremely rare,” (Williams, Duchenaut, Xiong, Zhang, Yee, Nickell, 2006: 342). Therefore, the aim of this study is specifically not seeking to make generalized claims. Simply

because so little research has been done from this perspective, it would be more accurate to treat this study as pilot research, with the aim to discover how HEMA might be used by other researchers.

Survey

The questionnaire was made available to several hundred individual organisations, which in turn disseminated it amongst their members. This resulted in 60 responses from 35 different organisations. Most of these questionnaires were returned electronically, although a small percentage were answered in person during one of the UK's largest HEMA conferences (FightCamp 2011). The collected questionnaires were then analyzed by reading to identify common injury patterns. This data was then transcribed into a table. See Appendix F for this analysis.

Ethical considerations

Julius Sim (1993) notes that in the ethics of sports medicine-related research the research participant's autonomy needs to be maintained. Although the primary ethical concern of this study was with the potential implications of research, which, due to the nature of the study, focussed so heavily on the very real potential for injury, it was felt that since the participants were not being coerced to engage in any activity that they would not have independently engaged in previously, that this was a minor concern. Ethically, so long as the participants in this study maintained their autonomy and only recorded the results of an activity in which they had previously found wholly acceptable to participate there were no overriding ethical concerns. It is a standard requirement for any ethically acceptable research that any human participants give their consent to take part. In order for this to be valid consent it must be both

voluntary and informed, and most importantly the person giving it must be competent to do so (see also Ruane 2005). It is fortunate for the purposes of this study the participants are all adults and so there are no issues surrounding the involvement of children and informed consent. Since the most common ethical concern with research participants pertains to whether they are able to give valid consent, the obtaining of that valid consent to participate in research would be the primary concern of researchers. Therefore it is vital that a range of features need to be considered when seeking to obtain the valid consent of participants. This would include: the nature of the research, the context in which consent is obtained, the nature of any incentives to take part in research, and lastly the risks and benefits to research participants.

This then leads to a second important ethical issue. This issue then is the extent to which research aims to benefit the participants in that research. Moreover this research may also vary in the risk that they pose to those participants. In the context of research into injury patterns in martial arts this raises three interlinked ethical concerns: What counts as a benefit/ risk of harm when it comes to martial arts? Who should make this decision? Is it acceptable to enrol martial artists as participants in research that may pose some risk to them, or may not benefit them?

This issue is then perhaps best answered when the research participants are competent to make the decision for themselves. In such a situation the decision is best left to them, and if they deem the benefits and the risks of participation are acceptable, their participation in the research is acceptable. With this in mind, the discussions with the heads of individual organisations in order to enlist them and their members into this study was premised on an explanation of the goals of the research. Finally there was

also some concern about keeping the identity of respondents private. Therefore all of the names of individual participants are encoded and referred to simply by number.

Comparison of historical and modern populations

In order to test the hypothesis of this study, it was necessary to research the injury patterns amongst the modern population. The proposition was quite simple. A small questionnaire was sent out to the 135 HEMA groups worldwide who taught a curriculum focused on the European martial arts in use between the early 14th century and the mid 16th century. It was intended to be very simple and easy to complete. The participant needed only to tick boxes and provide responses relating to their experiences with competitive freeplay (“sparring”) within a historical European martial arts context. Participants were asked to provide details of the nature and construction of the simulator (ie. weapon analog) used as well as the circumstances at the time (for example: competition, lesson, freeplay, etc). The participants were then asked to provide details of the actions prior their making contact with their partner’s weapon simulator. Finally, if there were any marks or injuries sustained they were to be noted along with the location and the nature of the marks.

The resulting survey garnered 60 responses from groups in America, England, Germany, France, Sweden, Austria, and Canada. The historical European martial arts groups who chose to participate in this research were as follows: Kunst des Fechtens (KdF), The London Sword & Dagger Club (LS&D), Iron Door Collective (IDC), Meyer Freifechter Guild, System D’Armes, Medieval Armed Combat Society (MACS), Academy of Arms, Maryland KDF, HEMA Alliance, Roanoke Sword Gilde, Indes, Soldknechte, Gothenburg Historiska Fäktskola (GHFS), Arts of Mars

HEMA Academy, Uppsala Historiska Fäktskola (UHFS), Les Maitres D'armes, Davenriche European Martial Arts School, ARMA Orange County, Rocky Mountain Swordplay Guild, Bludni Rytieri, ASD, Septem Custodie, Ars Gladiatoria, Dragon's Tail School of Defense, Academy of Arms, Halbinsel Fechtschule, Medieval European Martial Arts Guild (MEMAG), Victoria Sword School, Noble Science Academy, schielhau, New York Historical Fencing Association, Lake Ontario Fechtschule, The Exiles, SG6, Langes Schwert.

The concept of martial intent and its importance to the sample population

Although there is a long tradition of “living history” and re-enactment groups putting on displays for the entertainment and hopefully the education of the general public, the primary goal of those groups is the promotion of a good show, i.e. entertaining the crowd. There is nothing in itself wrong with that as a goal. However, the general public is ill served by the inaccuracies and fallacies perpetuated by some organisations operating under the guise of “re-enactment”. In many cases, this is simply an unfortunate result of a culture that has grown in re-enactment societies around the area of entertaining the public.

For many years, it has been accepted practice to invite re-enactors and similar “living historians” to recreate historical battles and other events at historic locations of national interest, with the hope that this often exciting and engaging event can fulfil multiple duties for the museum or historic site. Firstly, it is hoped that an exciting event might draw larger numbers of the public to the site, which often relies on visitor traffic for its revenue. Secondly, there appears to be a desire to use re-enactors to make the past more approachable to members of the public. Many re-enactors take great care in the details of the historical clothing they wear as well as the rest of their

kit. However, due to balancing the needs of safety and historical accuracy, the re-enactment combat often seen at these events is often grossly inaccurate and doing the public a disservice.

For example, if one were to view many of the groups whose focus is on the Wars of the Roses, one might be led to believe that armies of the day were composed primarily of soldiers armed with pollaxes and swords and that archery was a minor component. For more on this disparity see the societies; “The Woodvilles”, “Buckingham’s Retinue”, “Ecorcheur”, and “The Clarence Household” (The Woodvilles 2006, Buckingham’s Retinue 2008, Ecorcheur 2009, The Clarence Household 2009). Despite the image presented to the public, the simple facts are that, in English armies especially, this ratio is inverted and the bulk of the force would have been composed largely of archers (Bradbury 2004, 281). This historical fallacy is in part the result of the very real difficulty in using archery safely in a re-enacted combat display, as well as a perception that the general public would rather view combat between individuals rather than a hail of arrows. A realistic and logical choice has been made to give the audience an exciting display of hand-to-hand combat. Yet in choosing to promote depictions of hand-to-hand combat to the public, they have created more misconceptions. Moreover, in order to safely allow large groups to meet and conduct this combat for the public, safety precautions had to be taken and guidelines for safe “fighting” drawn up. Since it can be logistically difficult for all the various re-enactment societies to train together prior to a large event and become familiarized with each other, a method of ‘stage fighting’ had to be adopted. Much of the combat witnessed at events is what is often referred to in re-enactment circles as “the fives”. The fives and other related mock-fighting conventions consist of limited target areas and a limited number of allowed angles of attack (for example

a set of diagonal “cuts”, two up and two downward and a final vertical “cut”) or take the form of an agreement to only target armoured portions of the opponent (The Vikings 2003, 8-12). While an outside observer might, quite reasonably, identify flaws this methodology for its depiction of actual combat. It is not the aim of this study to criticize the regulations these societies too harshly, it is after all simply a safe method of recreating historic combat for public consumption. However, it does little to dispel mistaken beliefs and can easily give an inaccurate view of the past.

Since one of the aims of this research is to test whether reconstructed historical European martial arts can serve as an analogue for future research into historic interpersonal conflict, the sample population in this research must avoid the pitfall of involving the re-enactor and the issues surrounding their version of recreated historic combat and instead focus on those individuals and organizations which focus on presenting historic combat without worrying whether the safety equipment is correct to the period. Academia and the general public are not generally used to the concept of ongoing scholarly research into historical combat, especially when it involves experimental archaeology. However, it has been suggested that there are a myriad of new approaches to experimental archaeology yet to be considered (Rasmussen and Gronnow 1999, 142) and this is just one new area of study.

Whereas a re-enactor would “fight” according to set stage fighting techniques which are designed to keep them safe whilst providing an entertaining show, the HEMA practitioner is free to make use of non-historical safety equipment, such as a fencing mask, to maintain the safety that the re-enactor builds into their *technique*. Since many of the reproduced examples of historic head protection seen on the re-enactment field fail to provide the wearer with the level of protection for the face that modern

lives require, most re-enactment groups do not allow for the targeting of certain areas (such as the head) during combat displays. This is not an illogical line of reasoning if it is considered that the re-enactor is unwilling to sacrifice the accuracy of appearance for safety. Historical European martial arts practitioners choose to turn this reasoning on its head and make the choice to forego the historical accuracy of their appearance in order to embrace the accuracy of the technique. Therefore the HEMA practitioner may fight with full *marital intent*, content in the knowledge that both they and their opponent are safe and there is no need to modify the technique for the purpose of safety. *Marital intent* is a concept that requires a slightly fuller explanation for those unfamiliar with it. In a martial arts context when actions are undertaken to modify a martial technique for the purpose of limiting or negating its intended harmful outcome (for example avoiding targeting locations such as the head or avoiding specific techniques), the argument can be made that the technique is no longer being performed with full *marital intent*. The goal then was to make these modern practitioners, who were practicing martial techniques in an environment as close as possible to 'real fighting', the sample population for this study.

Initial results

An examination of the skeletal record for historical combat injury reveals a preponderance of injury weighted heavily toward cranial and lower leg injury. When the recorded evidence for trauma from the sites that made up this study's historic sample are examined, several distinct patterns emerge.

For example the Royal church of St. Mary reveals that the vast majority of the examples of trauma are cranial: the church: 34.9%, the cemetery: 47% (Brodholt and Holck 2010, 8-9). As far as postcranial trauma is concerned, the bone most affected

within the cemetery population was the tibia displaying evidence for 17 injuries, the next most affected elements were the femur with evidence for 5 injuries, the humerus with 3 and lastly the ulna with only evidence for 2 injuries (Ibid 2010, 9-10). The evidence for post-cranial trauma on male remains within the church display similar results to the cemetery, the most affected element being the femur with evidence of 5 injuries, next was the tibia with 3 recorded injuries and lastly one lumbar vertebra with evidence of trauma (Ibid. 2010, 11).

In case of the site of the battle of Good Friday: there is evidence for 85 examples of perimortem sharp force trauma on 60% of the 52 recovered crania (Kjellstrom 2004, 32). The evidence for perimortem sharp force trauma is again weighted heavily towards cranial injuries and away from evidence of post-cranial injuries. Kjellstrom notes that there was evidence of 11 injuries on only nine bodies (Ibid. 2004, 36). The evidence for post-cranial perimortem sharp force trauma was as follows; five wounds on 3 different tibia, one on a femur, one on an os coxae, one on a left humerus and one more on another left humerus, finally a left side ulna was severed at the distal joint (Ibid. 2004, 36). The final post-cranial trauma is on what Kjellstrom identifies as the “decapitated man”; in this case the crania with cervical vertebrae 1-4 in position was found to the right of the forearms and pelvic bone with the spinous process and the body of cervical vertebrae 4 displaying evidence of a horizontal cut (Ibid. 2004, 36).

Interestingly, and relevant to this study, this assemblage also contained evidence of antemortem sharp force trauma. Specifically, this was four depressed fractures on two crania, and Kjellstrom notes that in one of these cases (cranium A4:12) the perimortem evidence matches the locations of the healed antemortem trauma: a detail

that is highly suggestive of an individual with a history of interpersonal combat (Ibid 2004, 37).

The battle of Wisby demonstrates quite a different pattern of sharp force trauma among the skeletal remains. Ingelmark, in his analysis, identified some 375 blade wounds from the assemblage (Ingelmark 1939, and Wagstaffe 2001, 173).

Interestingly a very sizable portion of the observed evidence for perimortem sharp force trauma in the Wisby sample was exhibited on the lower legs, such as the tibia. Ingelmark records 215 examples (57.3%) on the lower leg alone (Ingelmark 1939 & Wagstaffe 2001). However, unlike the previous two sites, only 99 (26.4%) of these were exhibited on crania (Ingelmark 1939 & Wagstaffe 2001). In spite of this, it is worth noting that, of the 99 examples of sharp force trauma on the cranium, 30% of those exhibited trauma on the left hand side and a further 33% were found in the craniofacial region (Ingelmark 1939 & Wagstaffe 2001). This prevalence is highly suggestive of face-to-face combat, assuming a predominance of right-handed combatants.

In the case of the Towton sample, a total of 113 examples of perimortem trauma were observed. Of these only 33% of the individuals displayed any evidence of post-cranial perimortem trauma. Yet, of the crania examined 96% exhibited evidence of weapon-related trauma (Novak, 2007). Of these, although the majority of the evidence for perimortem sharp force trauma was noted in the front and back of the crania, the left side was somewhat dominant (ibid, 2007). In a similar note to the Battle of Good Friday sample, 32% of the Towton sample displays evidence of healed antemortem cranial trauma (ibid, 2007).

The sample from St Andrews' cemetery in York is equally intriguing. Here, as has been discussed previously, there are two sizable populations, the first dating from the late tenth century to the mid twelfth century (Period 4), and the other from the mid twelfth century to the late fifteenth century (Period 6). It is this latter population of 14 males with evidence of weapon trauma to both the cranial and postcranial regions. The evidence from this site strongly suggests that the most common target area was the cranium and upper portion of the body. Although the upper body was a prime target it is quite interesting to note that the limbs were also targeted to a fair degree; the visible evidence of sharp force trauma demonstrates that the head was the primary target followed by the torso, with the forearms and lower limbs demonstrating only minor injuries. Another interesting aspect to the Period 6 burials is, much like those from the Royal church of St. Mary in Oslo, is the diffuse and individual nature of the burials, which strongly argues that the individuals were interred separately, and not as part of a single violent event. Furthermore, it is worth noting the highly prestigious locations of many of burials, which, it may be argued, could be taken to indicate the high status of the individuals interred, and as high status males there is a high likelihood of their have had some form of martial training as was common amongst the nobility.

In Period 6, out of a total of 15 individuals, nine showed evidence of 23 different examples of cranial perimortem weapon trauma (60%), nine individuals also displayed 26 examples in the region of the torso and there were a further 15 other examples of weapon related trauma to other parts of the body (Stroud & Kemp 1993, 238 and Wagstaffe 2001, 136).

Location	Uppsala	Fishergate 6	Wisby	Towton	St Mary Oslo	Total
Face	20	10	33	37	70	177
Cranium, left	35	10	30	31	25	133
Cranium, right	25	3	19	20	17	96
Cranium, rear	11	0	17	35	4	71
Aspects of the cranium	0	0	0	2	9	11
Neck	1	4	0	8	0	18
Torso	0	26	0	4	1	126
Left upper arm	2	1	6	2	1	14
Right upper arm	0	2	6	1	2	12
Left lower arm	1	2	8	9	2	28
Right lower arm	0	2	7	14	1	26
Left upper leg	1	2	20	1	2	32
Right upper leg	1	5	14	3	2	31
Left lower leg	4	0	126	2	11	146
Right lower leg	1	0	89	0	13	103

(Table B. Trauma patterns for historic sites.)

When this evidence is compared to the surveyed modern population, one can easily note the striking differences between them. However, all is not as it would at first appear. Several factors in the modern population of historical European martial arts practitioners will have skewed these results. Firstly, rigorous safety policies within these groups mean that the respondents to the questionnaire were all wearing head protection during their free sparring and competitions and, thusly, with two exceptions, received no head injuries to report despite all being repeatedly struck upon the head. The two exceptions are as follows: one individual reported a facial injury requiring stitches (due to a improperly fitting protective mask being forced into contact with the face during sparring) and the second reported a concussion as a result of a blow to the head.

The other major difference between the two populations is the larger number of lower limb injuries in the skeletal record, this is especially true of lower leg injuries. Two

possibilities that may explain this discrepancy are the lack of modern historical European martial arts practitioners among in the research sample practicing either equestrian combat (particularly against opponents on foot) or using the shields so common during the high medieval period and to some extent the late medieval period. The use of either of these will affect the results of interpersonal combat. Fighting an opponent on foot from horseback and/or the use of a large medieval shield, as opposed to a small buckler, will result in different portions of the body being exposed to harm than would be true on foot. The most obvious example of this is the knee and lower leg, while the shield covers the upper leg, the lower leg remains exposed and, if in stirrups, they are even more vulnerable.

Initial Study Results

Location	Modern population (initial study)	Historic population
Face	1	177
Cranium, left	0	133
Cranium, right	0	96
Cranium, rear	0	71
Aspects of the cranium	1	11
Neck	0	18
Torso	11	126
Left upper arm	2	14
Right upper arm	5	12
Left lower arm	18	28
Right lower arm	28	26
Left upper leg	8	32
Right upper leg	1	31
Left lower leg	3	146
Right lower leg	4	103

(Table C. Initial study results. Recordable evidence of trauma)

Materials

In this study, the examples of trauma were noted, taking into account the weapons and actions that led to the trauma with special attention being paid to the location of strikes on the body. Whenever possible the force used, techniques employed and the direction of strikes was also noted. Finally, when appropriate, to what extent these strikes might have resulted in a fatal wound were noted, along with noting the resulting soft tissue damage.

Upon review of the initial survey responses, the lack of reporting of cranial injuries was incredibly disappointing from a research and evidence gathering perspective, as it clearly demonstrates a flaw in the research design. It is worth noting that from a health and safety perspective this lack of evidence for cranial injury is quite commendable. However, viewing modern historical European martial arts practitioners in action it is clear that the “head” is indeed a prime target, and yet it is woefully under-reported in the current research due to the focus on actual evidence of injury. In order to rectify this an experiment was undertaken to determine whether the “head” was indeed being targeted.

Therefore a historical European martial arts school that had previously participated in the injury survey was approached again and a group of the students volunteered to participate in this study. The format of this experiment is intended to be relatively uncomplicated. Fourteen martial artists, who are currently studying historical European martial arts, were asked to spar with each other while using three specific weapon combinations. The simulators used would represent a range of arms and martial styles common in high medieval Western Europe such as: two-handed

weapons (longswords and polearms), sword and buckler, using both the MS I.33 tradition (Lutegerus 1300) as well as the later Liegnitzer tradition (Liegnitzer 1452, 1450's, 1480's, 1491, 1500's, 1508, 1510's, 1564) and sword and shield, the style used was an adaptation that taught by the Bolognese masters Manciolino (1531) and Marozzo (1536). The participants in this experiment employed sufficient modern protective gear to allow proper martial intent in their actions while minimising any risk of injury. It is worth noting that the protective equipment used met and in a few cases exceeded that required by most international HEMA competitions (the protective equipment included, but was not limited to: 1600 Newton fencing masks, throat and cervical protection (rigid backed with padding), padded forearm guards, men's style lacrosse gloves, and rigid plastrons). The participants were then asked to spar freely and to report verbally to the assigned note-taker the location of any strikes upon their person they felt were sufficient to have caused injury had the weapon been real. After several sessions over several weeks the resulting report included 346 different recorded strikes.

EXPERIMENTAL RESULTS

	Longsword	Sword & Buckler	Sword & Shield	Polearm	Strike per location
Face	29	9	4	19	61
Cranium, left	16	4	0	4	24
Cranium, right	23	3	2	5	33
Cranium, rear	3	1	0	3	7
Cranium, top	2	3	0	15	20
Neck	9	5	1	9	24
Torso	21	15	2	7	45
Left upper arm	6	1	5	2	14
Right upper arm	15	2	0	4	21
Left lower arm	21	3	0	6	30
Right lower arm	29	3	4	2	38
Left upper leg	1	0	4	1	6

Right upper leg	6	0	0	1	7
Left lower leg	4	0	2	2	8
Right lower leg	1	1	2	4	8
Total strikes					346

(Table D. Experimental results in recording “full body” targeting)

As has been previously stated when the evidence of combat injuries from the historical skeletal record is compared with the results of the initial survey of injuries among modern practitioners the preponderance of injuries in High Middle Ages were revealed to be weighted heavily toward cranial and lower leg regions, and in contrast with this evidence the results of the original survey of the modern population displayed a dearth of cranial injury that was especially striking.

The inexplicably low number of cranial injuries within the modern population was in stark contrast to the historical evidence. However, all is not as it would seem. When the results of the second survey are included, the modern injury patterns fall back in line with the historical injury patterns, especially when the matter of cranial trauma is considered. For example, when the cranial strike results from this second experiment are calculated they account for 145 individual strikes (41.5%). The clear result of this is that the modern population demonstrates the potential for the same “injury” patterns in all the areas that the historical record has demonstrated to be vulnerable. Quite simply, the comparison of the historical injury pattern with the injury pattern potential amongst modern practitioners shows a high degree of correlation.

The other major difference between the two populations is the larger number of leg injuries in the skeletal record; this is especially true of lower leg injuries. Two possibilities that may explain this discrepancy are the lack of modern historical

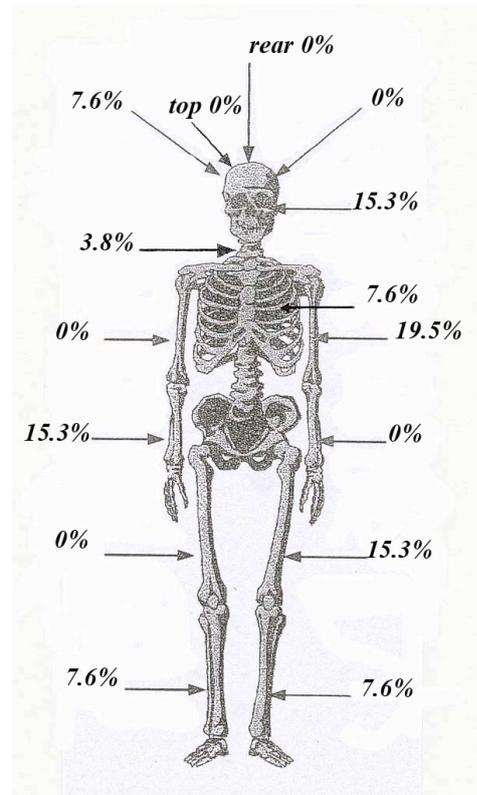
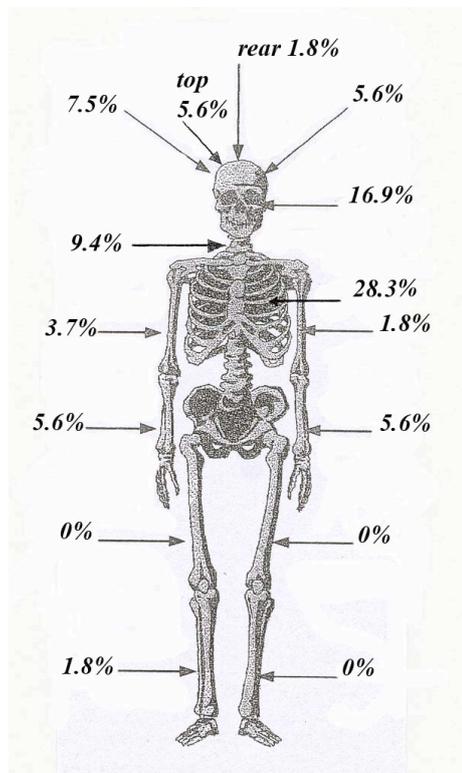
European martial arts practitioners among this survey sample practicing either equestrian combat (particularly against opponents on foot) or using the larger shields so popular during the high medieval period and to some extent the late medieval period. The use of either of these will affect the results of interpersonal combat.

Sword & Buckler versus Sword & Shield

Aside from the issue of the knee being a highly targeted location on mounted warriors in combat with foot soldiers, the issue of the use of the shield in combat must be broached. In its most simplistic use, the shield is a static “target denier”, i.e. the shield is used primarily to deny an opponent access to various locations on the body. In a more complex scenario the shield becomes a component in an active and highly mobile defence. This method frequently features the shield being used offensively to engage both oncoming attacks and the opponent himself. While the many forms of shields native to Western Europe are all equally capable of being utilised in either fashion, some excel in different areas. The characteristically small, hand-held buckler is primarily used in this form of highly mobile and active defence. Due to its small size it must be actively employed to engage the attacks of an opponent, and unlike the triangular strapped shield cannot simply be used as a static defence. This most recent survey demonstrates the differences in injury patterns depending on the form of shield in use. Users of the buckler found their cranium and torso targeted to a significantly higher degree than did the users of the strapped triangular shield.

Conversely, while the users of the strapped triangular shield found their head and torso to be largely safe from attack, the same could not be said for their lower limbs. These users noted that they received attacks to the left upper leg and to both lower

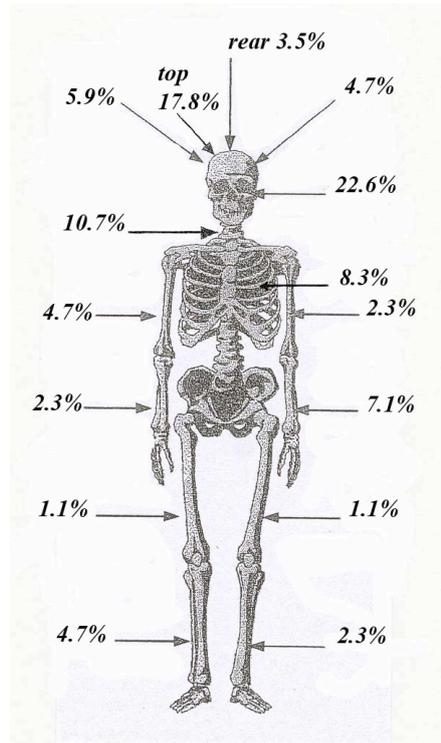
legs. This prevalence for leg injury is likely due to the position and use of the strapped triangular shield. As this shield type is strapped to the lower left arm and controlled by the hand, those areas are not unsurprisingly difficult for an opponent to engage, whereas the lower leg, especially the leading left leg, is within range for an opponent. This is equally true of the left knee and upper leg as they are vulnerable to a rising cut that slips beneath the shield's lower point. The argument might then be made that the lack of lower leg injuries in this population is highly suggestive of the use of the sword and buckler in combative situations. This is because the methodology of the buckler technique, as found in the historical manuals, advocates a vigorous defence characterised by the use of the buckler held extended from the body. Coincidentally this technique is successful in removing the legs from all but the most opportunistic of attacks.



(Fig.15. Modern sword & buckler sample results. Author's 2011) (Fig.16. Modern sword & shield sample results. Author's 2011) (The percentage of strikes per location.)

Polearms

Generally speaking, most polearms do not deliver the kind of sharp force trauma that is observable with either single or two-handed blades. While cutting or slicing strikes may be possible with some forms of polearms, such as the halberd, the two most common forms of polearm depicted in 15th century *Combat Manuals* is what is best described as a polehammer and to a lesser degree a poleaxe. The polearms depicted in the works of Hans Talhoffer (1467), Fiori dei Liberi (1410), and Paulus Kal (1506-14). are all clearly polehammers, in that one end of the weapon features a hammer head, as well as several prominent spikes. Poleaxes, while similar in form to the polehammer, substitute the hammerhead with the eponymous axe head. As such one would not expect to see sharp force trauma from the use of a polehammer; rather the expectation would be for penetrating trauma associated with the points or the crushing trauma of blunt force. Similarly, while the axe head of the poleaxe may have been capable of producing sharp force trauma, it would also exhibit evidence of blunt force trauma closely associated with any cut-marks.



(Fig.17. Modern polearm sample results. The percentage of strikes per location. Author's 2011)

Longsword

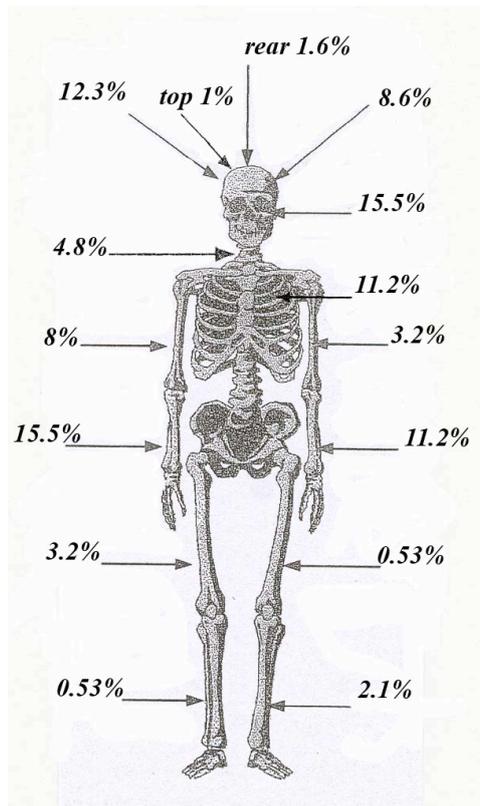
Another major difference between the sample populations relates to the increase in the use of the “longsword”. In order to wield this weapon effectively one must dispense with the use of the shield, and, in doing so, the sword’s purpose transforms to a degree. Previously, the defence against an opponent’s blade was to be found in a combined use of the blade and shield, with the shield occasionally taking a static role and at other times taking an active defensive/offensive role alongside the blade. With the use of a longsword the offensive and defensive roles are combined into one tool. None of the various European longsword traditions advocate what might be described as a passive defence. In fact some, such as the “Lichtenauer” tradition, appear to promote an extremely active offence.

“Here note that constant motion holds the beginning, middle and the end of all fencing according to this art and teaching. That is you should quickly do the beginning, the middle and the end without delay and without any hindrances from the opponent and not letting him strike at you.” (Dobringer 2005, 17v)

As a result of the nature of the longsword, the targeted locations on a longsword-armed opponent are different than those found with one armed with a sword and shield. Certainly, the head (specifically the temporal, parietal, frontal, sphenoid, zygomatic, maxilla and mandibular regions) would see heavy targeting alongside the upper limbs (especially the radius, ulna, and to a lesser degree the humerus). The bones of the hand (metacarpals and phalanges) are another location of likely evidence of trauma when one considers the martial techniques that target the hands. For example, the “Lichtenauer” traditions *hau* (hew or cut) has a subset, the *apschneiden*, which is a slice against the hands or wrists using a rotating pull or push action. The evidence for longsword use is also likely to be evident through the lack, or at least a dearth, of evidence of trauma to the lower limbs, especially the tibia and fibula. The reason for this is directly related to the design of the weapon being used. The longer length of the longsword’s blade certainly allows an opponent to reach the lower limbs with a cut or thrust. This length, however, equally allows the targeted individual to retreat a step, and using the length of their own blade to direct a *countercut* to their opponents now exposed head. Striking at the head is the most appropriate action as it is the most effective and efficient technique as it will likely end the encounter in either death or serious injury.

This most recent survey demonstrates the differences in injury patterns depending on the weapon in use. Users of the longsword found that the front of the cranium, their “face”, was heavily targeted along with their upper limbs to a significantly high

degree. Interestingly, these strikes were weighted appreciably toward the right-hand side. Moreover, the users of the longsword found their lower limbs to be largely immune from attack. This prevalence for head and upper limb injury in this population confirms the method of the longsword technique as found in the historical manuals and the skeletal record.



(Fig.18. Modern longsword sample results. The percentage of strikes per location. Author's 2011)

Chapter 6:

Conclusions

This paper's hypothesis confirms the feasibility of utilizing independent researchers studying historical European martial arts as an analogous population for researching historic combat trauma. It is clear that, over the period covered by this paper, there were numerous changes to the techniques and tactics that were taught, in part through *Combat Manuals*, as well as other sources. However, despite this evolution and variation in technique, a pattern of trauma emerges that demonstrates a high degree of correlation between the taught techniques and the evidence of combat trauma in the archaeological record. This data is pertinent to answering the core hypothesis of this paper. Firstly, the documentary evidence suggests that the teaching of the martial arts in medieval Europe was a widespread practice and that it reached most social classes. The physical evidence is also highly suggestive of the idea that these martial skills were not the sole preserve of only the noble combatant. To the contrary, this evidence suggests that a significant percentage of the combatants engaged in intra-group and inter-personal conflict did so as trained professionals. Secondly, the evidence presented within this paper reinforces the notion that experimental archaeologists, independent researchers and martial artists working to better understand the historical martial arts of Europe are a potential resource for any future research in this field.

Future Potential

Recent examples of archaeological work, such as at Towton or Uppsala, where there was a greater collaboration between archaeologists, historians and biological anthropologists, demonstrates the greater ability of researchers to ensure that an

adequate recording of the burial and any unusual features, such as trauma, are accurately recorded. As such, this area of research is outside the true scope of this paper, and yet it is still filled with great opportunity, as these increasingly improved methods mean that those studying trauma in the future may have an increased likelihood of having sufficient data to analyse. While this study reviewed the most notable mass graves containing large samples of combat trauma, there are still a sizable number of smaller examples of combat trauma available for study. Further study of these smaller skeletal populations are needed to expand the sample size available in this area of research. There are two other areas which warrant future research: one of these is a much larger and far more focused study of HEMA practitioners. This would be akin to this paper's second survey, but with a larger sample population and a more intense focus on individual combat techniques as well as video documentation. Another area that warrants further study is the effect of weapon trauma upon bone. Further experimentation to test the effects of different types of weapons on bone is needed to better identify the full range of weapon types employed historically.

Limitations to the study

The recognition of trauma on skeletal remains depends heavily upon the reconstruction of often highly-fragmentary material. The evidence for perimortem injuries may easily be missed amid the often highly fragmentary remains. The often fragmented condition of skeletal remains creates a further dilemma for the researcher; it is often extremely difficult to determine blunt force trauma in comparison with the far easier to spot sharp force trauma and is potentially under-recorded in research and casts doubt on whether data is a true reflection of patterns of injury in the past.

Equally, the evidence of healed antemortem weapon injury may also be more easily recognised and may, like perimortem weapon injuries, be over-represented by comparison.

Significance of the Project

The fundamental aim of this research is two fold: one, to provide answers to the suspected but undocumented connection between the body of evidence supporting martial arts training and its use in medieval European warfare and two, to encourage the use of a hitherto unrecognised resource of experimental data. Historically, and to some degree even today in some circles, the popular view of medieval inter-personal and intra-group conflict was considered to be inefficient and brutal (see also Cramb 2009 and Anon. 2010). In this light, such affairs were thought to incapable of being anything but extremely vicious and untutored exchanges. However, in recent years, new research and experimentation has begun to question this hypothesis. Should the nature of inter-personal combat in medieval Europe matter; should this be the subject of study? This paper argues that this subject is worthy of study and that the perception of medieval European warfare as a vicious, uneducated affair is an uncorroborated one, and one that perpetuates an image of the past that may well be inaccurate. Most crucially, this sort of unsupported observations can distort perception of the past and that, in turn, affects the quality of information that can be drawn from it. In closing, the most significant aspect of this research lies in the future potential to unlock a hidden aspect of Europe's history and to dispel the cobwebs of myth and misunderstanding surrounding the nature and mechanics of conflict.

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Appendix A.

The Poem of the Pell

Of fight the discipline and exercise

Was this: to have a pale or pile upright

Of mannys hight [man's height], thus writeth olde wyse;

Therwith a bachelor or a yong knight

Shal first be taught to [stand] & lerne fight;

A fanne of doubil wight tak him his shelde,

Of doubil wight a mace of tre to welde.

This fanne & mace, which either doubil wight is

Of shelde & sword in [con]flicte or bataile,

Shal exercise as wel swordmen as knyghtys,

And noo man (as thei seyn) is seyn prevaile

In felde or in gravel though he assaile,

That with the pile nath first gret exercise;

Thus writeth werreourys olde & wise.

Have [use] his pile or pale upfixed faste,

And, as [it] were uppon his mortal foo,

With wightynesse & wepon most he caste

To fighte stronge, that he ne shape him fro,

On him with shild & sword avised so,

That thou be bloos, and prest thi foe to smyte,

Lest of thin owne deth thou be to wite.

Empeche his hed, his face, have at his gorge,

Bere at the breste, or [serve] him on the side

*With myghti knightly poort, eue as Seynt George,
Lepe o thi foo, loke if he dar abide;
Will he nat fle, wounde him; make woundis wide,
Hew of his honed, his legge, his thegh, his armys;
It is the Turk: though he be sleyn, noon harm is.
And forto foyne is better than to smyte;
The smyter is deluded mony [ways],
The sword may nat through steel & bonys bite,
Thentrailys ar cover in steel & bonys,
But with a foyn anoon thi foe fordoon is;
Tweyne unchys entirfoyned hurteth more
Then kerf or ege, although it wounde sore.
Eek in the kerf, thi right arm is disclosed,
Also thi side; and in the foyn, coverrt
Is side & arm, and er thou be supposed
Redy to fight, the foyn is at his hert
Or ellys where, a foyn is ever smert;
Thus better is to foyne then to kerve;
In tyme & place ereither is tobserue.*

(Vegetius 1935, 14-15)



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Appendix B

Martial training and education amongst the nobility

Ideals of military training, 1475

“How lordis sonnes and noble men of birthe, for the defense of her [their] londe, shulde excersise hem in armes lernyng. And also moreover for the grettir defens of youre roiaumes [realms] and saufe garde of youre contreis in tyme of necessite, also to the avauncement and encrece of chevalrie and worship [honour] in armes, comaunde and doo founde establisshe, and ordeyne that the sonnes of princes, of lordis, and for the most part of alle tho [those] that ben comen and descendid of noble bloode, as of auncien knightis, esquiers, and other auncient gentille men, that while they ben [be] of grene [young] age ben draonen forthe, norissed, and excersised in disciplines, doctrine, and usage of scole of armes, as using justis [jousts], to can renne [learn to run] withe speer, handle withe ax, sworde, dagger, and alle othir defensible onepyn, to wrestling, to skeping, leping, and rennyng, to make them hardie, deliver [adventurous] and onele brethed [bred], so as when ye and youre roiaume in such tyme of nede to have their service in enterprises of dedis of armes, they may of experience be apt and more enabled to doo you service honourable in what region they become, and not to be unkonnyng [incapable], abashed, ne astonied, forto take enterprises, to answeere or deliver a gentilman that desire in worship to doo armes in liestis [lists] to the utterance [bitter end], or to certain pointis, or in a quarelle rightfulle to fight...But now of late daies, the grettir pite is, many one that ben descendid of noble bloode and borne to armes, as knightis sonnes, esquiers, and of othir gentille bloode, set hem silfe to singuler practik, straunge [different] from that fet [feat], as to lerne the practique of law or custom of lande, or

of civile matier, and so wastyn gretlie their tyme in suche nedlese besinesse, as to occupie courtis halding [holding], to kepe and beare out a proude countenance at sessions and shiris halding, also there to embrace [attempt to influence a court illegally] and rule among youre pore and simple comyns [commons] of bestialle [stupid] contenance that lust [desire] to lyve in rest.

(Worcestre 1972 76-77)

A Squire's Training

And as lordes sonnes bene sette, at four yere age,

To scole to lerne the doctryne of letture,

And after at sex to have thaym in language,

And sitte at mete semely in all nurture;

At ten and twelve to revelle in thair cure,

To daunse and synge, and speke of gentelnesse;

At fourtene yere they shalle to felde I sure,

At hunte the dere, and catch an hardynesse.

For dere to hunte and slea, and se them blede,

Ane hardyment gyffith to his corage,

And also in his wytte to takyth hede

Ymagyninge to take thaym at avauntage.

At sextene yere to werray and to wage,

To juste and ryde, and castels to assayle,

To scarmyse als, and make sykur courage,

And sette his wache for perile nocturnayle;

And every day his armure to assay
In fete of armes with some of his meyne,
His might to preve, and what that he do may
Iff that we were in such a jupertee
Of werre by falle, that by necessite
He might algates with wapyns hym defende:
Thus should he lerne in his priorite
His wapyns alle in armes to dispende.

- John Hardyng (1378-1465)

(Dunn-Pattison 1910, 17)

Appendix C
Civilian martial education and formal training.

17 Sept. 1300

"Richard Tripaty and Laurence de Shirebourne were attached to answer a charge of having used insulting language to Roger de Lenne, servant of John atte Gate, before dusk in Thames Street in the parish of Allhallows the Great in the Hay, and that afterwards they entered the house of William Marisone, and asked William's wife to open the door of a room, in which they wished to indulge in bucklerplay [ad bucularium ludere], and when she refused, they drew their swords and attacked her, and when, owing to the tumult, Richard le Barber, beadle of the Ward, came with his rod to keep the peace, they assaulted and beat him also. The defendants denied that they did any harm to the woman or the beadle, and the defendant Richard said that they found the beadle and the servant Richard fighting, and that the latter struck the beadle on the breast, but that neither he nor the other defendant did anything."

(Thomas 1924).

AD. 1483

"there hangs by the side of each a sword no less long than ours, but heavy and thick as well. The sword is always accompanied by an iron shield; it is the particular delight of this race that on holidays their youths should fight up and down the streets clashing on their shields with blunted swords or stout staves in place of swords."

(Mancinus 1483, 99)

1252 AD.

"At least once in every year, let a general inquisition be made by authority of the Chancellor, among the Principals and Manciples specially sworn for this occasion concerning peacebreakers and public taverners and such as practise the game of buckler-play. "

(Coulton 1918, 68)

1442 AD.

"The deposition of John ffelerd, servitor to Oliver Hore, sworn and examined concerning a breach of the peace between himself and William Bishop of St John's Hall...He saith that he and his friend were communing together concerning the game vulgarly called swerd and bockelere or pykyd staff, saying such games come from merriment of heart; and, among other things, the said William said to this aforementioned John, sofft and ffayre! whereunto John made answer sofft and ffayre ynogh! The William departed and brought back with him two scholars whose names are unknown, and the aforesaid William said unto the same John, "where is he who would fain play at this game aforesaid," adding "where are the weapons?" "Here am I," replied John; "and here are the weapons"; and the said William with his fellows laid hold of the staff at one end, and the said John would have drawn it away by the other end. Then said the same William and his fellows "Leave us the staff!" and he would not, but tore it with great force from them, and so he smote the said William even unto the shedding of blood; but before he smote him, a certain scholar coming with the said William drew out a knife called hangere, wherewith he would have smitten John ffelerd; which John aforesaid was convicted of this before me Master John Kexby, chancellor of Oxford University."

(Coulton 1918, 68)

Late 12th century.

On festival days throughout the summer young men exercise through sports such as athletics, archery, wrestling, shot-put, throwing javelins (by use of a strap) beyond a marker, and duelling with bucklers (parris). "Cytherea leads the dance of maidens and the earth is smitten with free foot at moonrise."

(FitzStephen 1860, 20)

Philip Treher: Fencing Master and Fishmonger, 1446.

“By the King,

REVEREND fader in Gode right trusty and wellbelovede, For asmoch as we in consideracion of thattendance and labours thatoure welbelovede Philip Treher fyshmonger hath hade byoure special commandement, aswel in teching certain pointes of armis unto the Prioure of Kilmayn which late appellede þerl of Ormonde of [hault] treason as in teching and counselling Johan Davy which late hath appelede oon Johan Catour armorer of treason also, have yeven unto hym xx. £i. by weye of rewarde to be taken by the handes ofoure Tresorer of Englande, we wol and charge you þat underoure prive seel being in youre warde ye do makeoure letres directede untooure saide Tresorer and the Chamberlayns ofoure eschquier, commanding them to paye unto þe saide Philipe þe saide xx. £i. by weye of rewarde in redy money or ellis to yeve him suffisant assignement of the same, and þeeseoure letres shal be youre warrant. Yeven underoure signet atoure castel of Wyndesore the xxviij. day of Decembre þe yere ofoure regne xxv.”

(Nicolas 1837, 59).

14th Century English references to deaths resulting from either
fencing contests/training.

4 May 1353

“Pardon to John atte Wode of Maidenstan of the king's suit for the death of Robert de Cornwaill, ' maceon', on testimony that he killed him by chance by a blow of a stick (virgule), which he gave him at play; and of any consequent outlawry.”

(Anon 1907)

18 Feb. 1354

“Pardon to William de Aeilmer of Geytonthorp of the king's suit for the death of John Makhait of Glatton and of any consequent outlawry ; it having been testified before the king that in the time of the last mortal pestilence the said William without any malice struck the said John on the head with a rod, at play, and soon afterwards the latter died.”

(Anon 1907).

10 June 1366

“Pardon, at the request of Henry de Percy, ' le filz' and the king's yeoman, John Herlyng, usher of the chamber, to John Faukes of Tillyngham of the king's suit for the death of his fellow John Treonelove, and of any consequent outlawry; as the king is informed that, while they were playing together, John Treonelove accidentally received a light blow on the head which brought on an attack of the falling sickness, to which he was liable, whereof he died.”

(Anon. 1907).

15th Century English references to fencing contests/training

"Item Edward Skelton servaunt of John Marchall, mercer, John Box, servaunt of William Growman, mercer, & Thomas Rouley, servaunt of John Rouley, mercer, severaly examyned confessen & knowlichen & at in & e said Fest of Corpus Christi they were present with o&ere in &e forsaid Toure of &e Royall but they seyn &at they were never assented ne sworn unto &e said confederacye and &e said Edward Skelton seith &at as sone as he saone &e forsaid 'Richard' Taillour &ere pleyng atte sonerd with &e forsaid Rouley he departed fro thens and wold not tary In asmuche as aforetyme his seid maister had forbod hym &e felisship of &e said 'Richard' Taillour

"Item it is founde by examynac'on þt þe same John Cotton taught diverse of þe said malefaitours to pley atte sonerd in þe said Tour atte Ryall where þe said confederacy was first taken & þe same Cottone examyned knowlicheth þt he was present at Hoggesdon with þe said malefaitours but he seid þt he never kneone of their saide malicieus purpose ne never was sworn ne assented therunto and sothe it is þt he is not accused by any of þe said riottous persones of þt he shuld have be privee or assented unto their saide confederacye Except onely of his said beyng with them at Hoggesdon etyng & drinking And þe same Cottone seith þt þe said Thomas Randes departed not with hym from Hoggesdon but abode there with þe saide malefaitours Also he seith þat Richard Mapy servaunt of William Denton mercer whiche Richard is departed & gone first stired him to come to Hoggesdon for his disportes

(Sharpe 1911, Folio 296 b.)

Appendix D Crime and violent disorder

“Concerning keeping the peace

For the purpose of protecting and preserving the king's peace in the city of London and its suburbs, the king and his council have, with the assent of the mayor, aldermen and community of the city of London, made ordinances as follows. That no-one be so bold as to wander about the city or suburbs after the hour of curfew has been rung at the church of St. Mary-le-Bow, unless he is a man of known and good reputation, or his servant, [going about] for a good cause, and then with a light. The which curfew is to be rung at the church when day turns into night. If anyone is found wandering contrary to this ordinance, he is to be captured and sent to Newgate prison, remaining there until he has paid a fine to the city for his defiance and can find reliable guarantors for his [future] good behaviour.

No-one is to go about armed

Also, that no-one, regardless of status, is to go about armed in the city or its suburbs, nor bear arms by day or night, except for: the squires of the great lords of the land, who carry the swords of their masters when accompanying them; the sergeants-at-arms of the king, queen, prince, and the other children of the king; the city officials and persons who, at their command, go about in their company to assist them in preserving and upholding the peace. Upon penalty as mentioned [i.e. imprisonment?] and the confiscation of their weapons and armour.

Concerning innkeepers

Also, that every keeper of an inn or a lodging-house is to have his guests warned to leave their weapons in the houses where they are lodging. If they fail to do so, and someone is found bearing arms contrary to the proclamation, due to lack of warning from his host, that host is to be punished by imprisonment and a fine to be determined by the mayor and aldermen.

Concerning the power to arrest felons and wrongdoers

Also, that every man of good standing and reputation within the city, whether alderman or commoner, has the authority in the absence of [city] officials to arrest felons and wrongdoers and to take them to the houses of the sheriffs, so that those wrongdoers can receive the punishment due them.

No-one is to draw sword or knife

Also, in order to keep the peace better and to help discourage people from breaking the peace, it is ordained that no-one is to draw a sword, or knife, or other weapon, [upon penalty of] paying 6s.8d or being imprisoned at Newgate for 15 days – so long as he does not use it. But if he draws blood from someone, he is to pay 20s. to the city or be imprisoned for 40 days.

If he strikes someone with his fist without drawing blood, he is to pay 3s. to the city or be imprisoned for 8 days. If he draws blood with his fist, he is to pay 3s.4d to the city or be imprisoned for 12 days. Such offenders are to find reliable guarantors for

their good behaviour before they can be released. Notwithstanding these [punishments], those against whom the offences were committed may recover [damages] through the legal process. Offences involving the shedding of blood, in breach of the king's peace, are to be tried from day to day before the sheriffs, without any essoins or other delays.

(...)

Concerning proper watches for [preserving] the peace

Also, that each alderman arrange within his ward for proper and suitable nightwatches, so that the peace can be better preserved. So that if some evil occurs through default of the nightwatch, the alderman and the whole community of that ward remedy the situation, at their peril [should they fail]. Each alderman is to have the names of all those who are inhabitants, or who lodge with residents, in his ward, as well as of those who are put in private places to work with the others.” (Riley 1859, 387-90).

Assaults with daggers

“William Hughlot was attached to make answer, as well to the Commonalty of the City of London, as to John Rote, Alderman of the same city, in a plea of trespass and contempt: who made plaint by John Reche, Common Countor of the said city, that the said William, on the Saturday last past, went to the house of John Elyngham, barber,

in the Parish of St. Dunstan West, in Fletestrete, in the suburb of London, and, against the will of the same John Elyngham, by force of arms entered the same; and there upon the same John made assault, and with his knife, called a "dagger," struck him, and wounded, beat, and maltreated him.

Whereupon, the wife of the said John Elyngham, seeing her husband so maltreated and beaten, and perceiving the aforesaid John Rote passing along the King's highway towards the Church of St. Dunstan aforesaid, with great outcry called aloud for him to come and help her husband, whom the same William was trying to slay. Wherefore, the said Alderman, by reason of the office which he held, whereby he was bound to the utmost of his power to keep and maintain the peace, as being an officer of the King, went there; and upon seeing the said William so assaulting John Elyngham aforesaid, he notified him that he was an Alderman of the City, and an officer of our Lord the King, and commanded him to desist from his violent and evil conduct, and surrender himself to the peace of our Lord the King. Upon which, the same William, though well knowing that he was an Alderman and an officer in the City of our Lord the King, refused to yield himself up, but with the same knife made assault upon the Alderman himself, and would have struck him therewith; whereupon, the Alderman seized his hand in which he held the knife, and forced him to put it back into the sheath; and then further, the said William, persisting in his malice, drew his sword upon the Alderman, and would have slain him with it, had not the Alderman manfully defended himself.

And upon this, John Wilman, who was one of the constables of Fletestrete, hearing the affray aforesaid, went there, and seeing that this William was trying to slay the said Alderman with his sword, so drawn, went up to him, and attempted to arrest him;

but he refused to submit to such arrest, and again drawing his dagger, wounded the constable with it; as well in contempt of our Lord the King, as to the dishonour of the Mayor, Aldermen, and Sheriffs etc.” (Riley, 1868, Letter-Book H. fol. ccx)

“Afterwards, on the Friday following, the same William was brought here by the Keeper of the Gaol aforesaid, before the Mayor and Aldermen, and, after the matters before mentioned had been restated, because that precept had oftentimes been orally given, as well by our said Lord the King as by his Council, to the Mayor and Aldermen, and their predecessors, that they should diligently keep the peace within the City, and in the suburbs thereof; and because that, by counsel of the whole of the last Parliament, holden at Westminster, it was ordered that divers lords, (fn. 1) chosen by the same to ordain and advise for the governance and tranquillity of our said Lord the King, and of his realm, should dwell within the same city for one year then next ensuing, for peacefully making their Ordinances there, as being the most safe and secure place in the realm etc.; and also, because that there is a greater resort, as well of lords and nobles, as of common people, to that city, than to any other places in the realm, as well on account of the Courts there of our said Lord the King, as for transacting business there; and therefore there is the greater need of good governance therein, and of peace, in especial; and more particularly, seeing that it is the capital city and the watch-tower of the whole realm, and that from the government thereof other cities and places do take example; and to the end that, through default of punishment of misdoers, grounds might not be afforded to others for committing the like offences, but rather, that they should refrain from their crimes, and be put on their guard; it was therefore adjudged, according to the custom of the City in like cases

provided, that, for the trespasses and contempt so committed as aforesaid, as well against the said John Rote as the City, by reason of his office, he being one of the judges and governors thereof, and, after the Mayor, of the highest rank in the same, the right hand of the same William, with which he first drew the dagger, and afterwards, threatening his malice, drew his sword upon the said Alderman, intending to slay him therewith, should be cut off etc., unless he should meet with an increase of favour from the same John Rote, Alderman etc. And precept was given to the Sheriffs of London, to do execution of the judgment aforesaid.” (ibid, 1868, Letter-Book H. fol. ccx)

“Be it remembered, that about the month of May previous, it befell at Acon, in the Holy Land, that a certain Saracen, a malicious traitor, who knew the French language, came to the Court of Sir Edward, and assumed the character of one of the domestics there, as though he had been one of his household; and accordingly, one day approached him, saying that he wished to speak with him in private on a matter for his own benefit and welfare. Whereupon, Sir Edward, who was too trusting and gave an unreasonable degree of credit to this traitor, received him in his chamber, no other person remaining there. Accordingly, this wretch, having shut the door of the chamber, approached Sir Edward, as though about to speak to him, and instantly, drawing a poisoned dagger, attempted to slay him, giving him four most dangerous, and almost deadly, wounds. Edward however, manfully exerting himself, with a strong hand threw the malefactor to the ground, and with the traitor's own dagger cut him to pieces, blessed be God! and so slew him. Afterwards, it became known that the Soldan had sent him to slay Sir Edward; just as the Old Man of the Mountains had

been wont to do, who, in the time of Richard, King of England, caused the Marquis de Munferat to be assassinated, at Tyre in the Holy Land, by two of his retainers, as related in the history of King Richard before-mentioned. (Riley, 1863, 1272-3)

“Thomas Predeox of Ashperton, gentleman, examined before the Mayor (Michael Germyn) and Nicholas Martyn, justices, deposed that about seven of the clock at night on Aug. 27, 1583, he was at the Southgate of the city when Lewes Glavell followed him and charged him to have said certain days past that he (Glavell) did smell of ale. P. said that he knew him not, and G. said that P. was a very knave and did strike him with his fist two or three blows and then drew his dagger and again assaulted him. Wherewith P. gave ground, backed and was driven back to the place of one Collyns a cutler, without Southgate, and there was like to be slain by the said G. Then P. took a rusty rapier upon Collyns' stall to defend himself withal. He then gave back again and received divers blows, and went from P. again unto the wall of the late Graye ffreers there by Southgate, and never gave blow to G., but G. did run wilfully upon P.'s rapier, which he had taken from the stall.

Edward Winditt, servant to Richard Collins, cutler, was at work in his master's shop when G. quarrelled with P. After receiving two blows, P., who was in the Inne Syde would have avoided, but could not. P. then told G. that he should be contented, for that was no place to quarrel, but G. still pressed him. P. then caught up the rapier at the stall and said: "Nowe I myghte runne through thee if I wolde," and prayed him to depart. Collins the Cutler then came to part them, but G. still pressed upon P. with his dagger, and therewith wrapped his cloak about his arm ran upon P., and in running

fell upon the point of the rapier, which P. then had in his left hand, and so was hurted, and P. took up his cloak and went to his Host's house, which was thereby.

George Patrike, servant to George Scarell, baker, saw the two quarrelling, and G. said to P.: "Thou arte an arrant boye" and that he would make him a boy if he had him in the field, gave him a blow with his fist, and said that if it were not for shame he would draw upon him. G. then drew out his dagger and strake the said P., who stepped upon his cloak, which fell from him, and therewith reached his left hand unto the stall and took a rapier there and holding the same before him said: "Now if I wolde I might strike of thy headd or legges," or such like speeches. G. then bid him to do it if he would. Then Collins (who was an old man of 75) came to part them, and had P. by the arm, but P. being in fear shaked himself from Collins. Then G. ran upon P. to strike him with his dagger, and G. therewith was hurted. P. lept away from him, but G., "fyndinge him selfe to be hurted sayde he was killed."

Charles Holl, cobbler, deposed that G. overtook P. and said: "You are a boye and you have geven evell wordes by me, and I will make thee a boye." P. denied this. Then G. pulled P.'s hat over his eyes and played with his nose and gave two blows with his fist to the head. P. then gave him ground towards the cutler's stall. After getting the rapier, P. again gave ground "towardses the ffreers wall," and G. thrust at P. with his dagger so violently that the witness "supposed the said P. to have been hurted rather than the said Lewes."

Richard Collyns, cutler, deposed to the "sharpe speeches" and the "cople of blowes," &c. When P. got the rapier, he said "This coulde I doe and I wolde," but G. casting his

cloak about his arm ran upon the point of the rapier, P. never opposing nor giving any blow, "and so running upon the rapier he was slayne." (Anon. 1916, L.88)

“It happened that on the evening of Thursday, 7 March 1297 a certain William de Neushom a groom of Sir John de Ketegreins died in a certain guesthouse where Sir John had lodged the previous Tuesday, in the parish of St. Martin, Oxford. The following morning, on 8 March, he was examined by the coroner and was found to have a wound on the front of his head, 4 inches wide, 6 inches long, and one inch deep. An inquest was held the same day by the oath of: Nicholas de Overton, Thomas de Boleworth, Roger de Wallingford, Walter de Wycombe, John le Longe salt-dealer, William de Oseney, and John de Abindon, jurors from St. Martin's parish; Walter de Witney, Robert de Bampton, John Bishop butcher, William le Orfevere, Philip le Gaunter, John de Hakeburn, Robert Smart, jurors from All Saints' parish; William de Brehull, John de Tywe, John Payn, Robert Kepeharm, Hugh le Bastiller, and Thomas le Marshall, jurors of St. Aldate's parish; John de Ardern, Richard le Espicer, John de Weston, Geoffrey le Mercer, Richard de Otyndon, and Alexander de Bloxham, jurors of St. Peter's in the Bailey parish. And all the jurors say under oath that on Tuesday, 5 March 1297 William de Neushom and others of the household of Sir John de Ketegreins came in a hurry to the butchers market after curfew and saw John Beneyt junior standing between two stalls and urinating. William de Neushom drew his sword and with its point slashed John Beneyt across the front of his head. John at once raised hue and cry, went into the house of John Beneyt senior, and looked for his sword. Then he, together with John Beneyt senior and John de Walteford followed them to the guesthouse to which Sir John de Ketegreins, William de Neushom, and

his colleagues had retreated from them. In the fight that ensued between them John Beneyt junior, answering force with force, struck William on the head and gave him that wound of which he died on the date mentioned, although he received all the last rites. The jurors say that no-one else is guilty of the death except for John Beneyt junior because, they point out, John Beneyt senior and John de Walteford came only in response to the hue and cry that had been raised, for purposes of protecting the king's peace. John Beneyt junior was arrested and was held in gaol until he could be delivered to trial.” (Rogers 1891).

“It happened on Sunday, 26 April 1299 that Margery de Hereford died in a certain house in St. Aldate's parish, Oxford. The same day an examination was made by John de Oseneye coroner and she was found to have a wound beside her left breast, one inch wide and 5 inches deep. On the same day an inquest was held before the coroner, by the oath of: Thomas le Marescall, John Bishop, Thomas le Parmenter, John de Twye, Thomas le Turnur, Hugh le Pastiler, and Geoffrey de Langeford, jurors of St. Aldate's parish; William Chaunterel, William le Halte shoemaker, Thomas de Weseham, Gilbert de Dos, John Sewy, and John le Tayllor, jurors of St. Frideswide parish; William le Fletcher, Ralph le Wall, Geoffrey le Sutor, Walter le Cha, William le Plomer, and Thomas de Sutton, jurors of St. Michael Southgate parish; John de Goseford, William de Barton, John de Barton, Richard le Baker, Roger de Haleghton, and Nicholas de Forsthull, jurors of St. Thomas the Martyr parish. All the jurors say under oath that the previous Friday a certain clerk, whose name they do not know, around the hour of curfew led Margery to the king's hall and there had sex with her; and because she asked him for her fee, he drew a knife and wounded her by her left

breast, so that she died, but she had all the last rites. The clerk immediately escaped from there, so that he could not be arrested nor could his identity be determined.”

(Ibid 1891).

“It happened that on 21 August 1306, around midday, Gilbert de Foxlee clerk died in his lodgings in the parish of St. Peter's in the East, Oxford. The following day he was examined by Thomas Lisewys the king's coroner of the town of Oxford and found to have a wound in his left shin, below the knee, 4 inches in diameter and one and a half inches deep. An inquest was thereupon held before the coroner, by the oath of etc. [names not transcribed]. They say under oath that on the evening of the festival of the Nativity of St. John Baptist [23 June] previous, the tailors of Oxford and other townsmen who were with them, spent the whole night in their shops, singing and entertaining themselves with harps, viols and various other instruments, as is their practice and the custom there and elsewhere regarding the celebration of that festival. After midnight, when they did not expect anyone to be wandering in the streets, they and the others who were with them left the shops and took their choir out into the high street heading for the drapery. As they were enjoying themselves, they suddenly came upon Gilbert de Foxlee with his sword drawn and naked in his hand. He immediately started to argue with them, demanding to join their choir. Since they had among their number some persons of note, they approached him and asked him to go away and not cause anyone any trouble. Gilbert was not prepared to agree to this, but broke away from them and then dogged their footsteps, hurling insults at a certain William de Cleydon and threatening to cut off his hand with his sword unless William promptly surrendered to him his place in the choir. At this, Henry de Beumont crusader [?],

Thomas de Bloxham, William de Leye servant, John de Leye, and William de Cleydon rushed Gilbert; Henry gave him a wound on the right arm with his sword, Thomas stabbed him in the back with a dagger, while William de Cleydon felled him with a blow to the head. Immediately after, William de Leye, with a hatchet called a "sparsh", gave Gilbert the wound on his left leg, by the knee, from which he died on 21 August – he having lived for 8 weeks and 2½ days and having received all the last rites.” (Ibid 1891).

Was a weapon simulator used? Please detail type and construction.

--

Circumstances?	Tick	Details
During competition		
Lesson		
Practice fight		
Other		

Nature of injury

Please tick part(s) of body affected. Please put the type and location of injury under details and on the body recording form.

For example: A two-inch bruise/haematoma to the right forearm that lasted approximately four days.

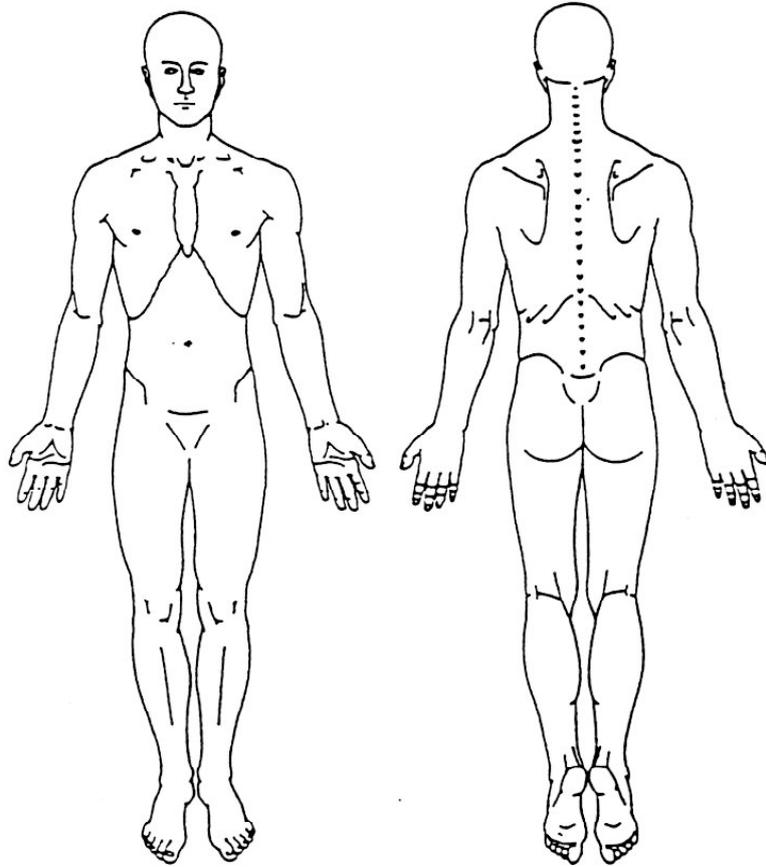
Part of the Body	Tick	Details
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Head		
Face		
Eye		
Ear		
Neck		

Chest		
Back		
Abdomen		
Pelvis		
Shoulder		
Upper arm		
Elbow		
Forearm		
Wrist		
Hand		
Thigh		
Knee		
Lower leg		
Ankle		
Foot		

Other		
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Signature..... Date:



Appendix F
Original Survey responses and analysis

The type and construction of the weapon simulator used:

1. Single handed synthetic wasters
2. Synthetic longsword
3. Synthetic longsword
4. Synthetic longsword
5. Single handed synthetic wasters
6. Steel small sword with diamond blade
7. Wooden longsword waster.
8. Bamboo Shinai, about 36 inches long.
9. Synthetic arming sword
10. Synthetic longsword
11. Synthetic arming sword
12. Synthetic longsword
13. Shinai w/ crossguards and weights added
14. Single handed nylon waster
15. Oak cudgel
16. Albion Meyer
17. Padded waster
18. Padded Waster
19. Steel feders with blunted tips and quillons
20. This was a Polish-made "federschwert." About 4'6" in length, steel.
21. Albion Federschwerter
22. Hanwei Type II Federschwert blunt, flexi-steel simulators.
23. Hanwei h&h practical longsword
24. Metal longsword, with blunt edges
25. Pentti nylons.
26. Shinai
27. Nylon waster.
28. Hanwei Tinker - steel simulator.
29. He was using a Hanwai backsword hilt with a practical rapier blade on it
30. Blunt steel longsword
31. Albion Lichtenhauer v. Albion Epee de Guer (both steel longswords)
32. Rebated steel Long sword, blade length 110cm, overall weapon length 140 cm
33. Spear simulator: a simple rake handle of 180cm
34. Wooden waster
35. Blunt practice longsword
36. Aluminum waster
37. Newest model Hanwei Federschwert
38. Paul Chen Longsword
39. Aluminum drilling longsword
40. Aluminum longsword, 1 kg
41. Aluminum longsword, 1 kg
42. Shinai
43. Nylon, made by Brian Hunt

44. Hard plastic (nylon) pentti sparring waster, 48" long, 2.5 lbs
45. Swordcraft Liechtenauer - Aluminium
46. Steel blunt with rubber tip.
47. Padded sword, RSW, made in China by a HEMA practioner.
48. Weighted shinai longsword.
49. Synthetic longsword
50. Synthetic longsword
51. Synthetic longsword
52. Synthetic longsword
53. Rapier. Stiff bladed.
54. 1/4" wide spring steel dagger
55. Synthetic longsword
56. Synthetic longsword
57. Steel blunt short sword
58. Padding weapon (FRP rod & foam)
59. Shinai weighted

Descriptions of any marks left as a result of the sparring/freeplay session:

1. 1" cut and swelling on the inside of the leg below the right knee
2. A 3"x2" bruise on the left thigh
3. 2" bruise on the outside of the left forearm
4. 1" welt on the inside of the left ankle
5. 1" cut and swelling on the inside of the left elbow
6. One small (1 inch) welt across the belly, one small impact on shoulder from a point (1 inch)
7. Bruised ring finger on my right hand.
8. 3 blows to left lower leg/back of the knee (approximately 1-2" in length). Not very severe bruising, but red marks and sore for a while.
9. 6" long across the back, shoulder to shoulder
10. 4" long, running along my right upper arm from the inside of the elbow
11. One 3 inch bruise, left chest
12. One 3 inch bruise, left forearm
14. Large straight 4 inch bruise on right bicep, small bruise on right thumb, small bruise on shoulder
15. Facial scars (cut lip, required stitches, Broken knuckles (both hands), Bruises to the abdomen (indistinct/roundish).
16. Slight 1" bruise on the right forearm.
17. Dislocated right knee
18. Bruises; one 1" and one 3" on the inside of my right forearm.
19. Bruising on the right thumbnail
20. One linear bruise on right shoulder, approximately 1.5 inches long and a less than 1/4 inch wide
21. A few scrapes on knuckles and right thumb tip, none more than an inch in size.
22. Single 3 inch long, 2 inch wide bruise on right anterior bicep
23. 1 small bruise (1 cm) on left thumb
24. Bruise on thumb of the right hand
25. Two 2 inch, light bruises with slightly scraped skin on the right forearm and right thumb.

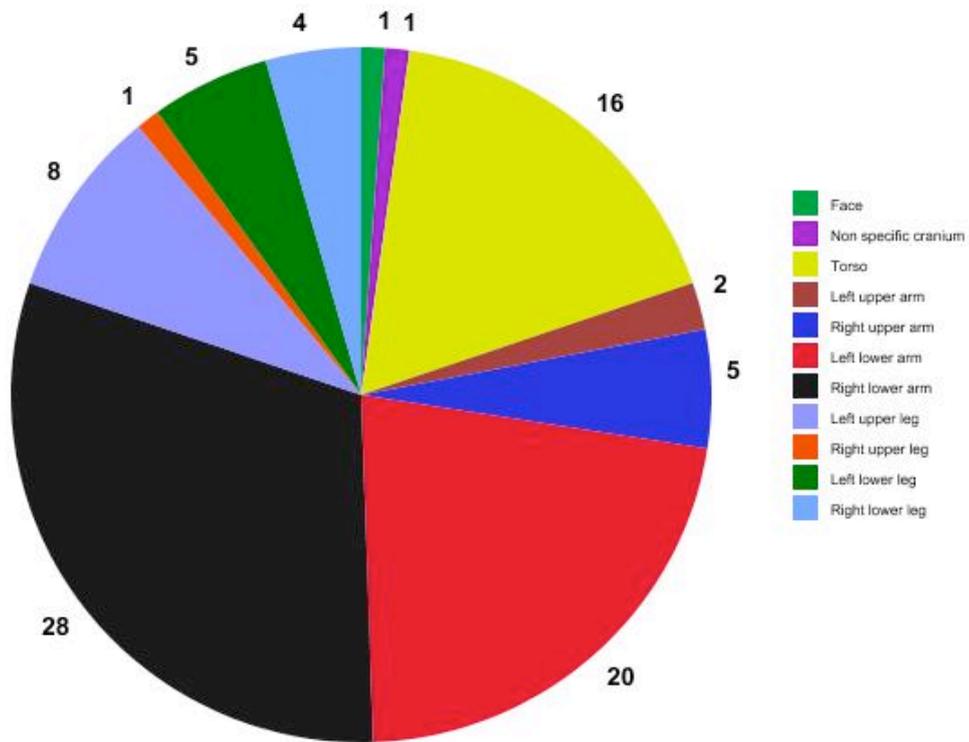
26. Small scratches (2) and 2"-3" bruises (2) on my upper left arm.
27. One blue thumbnail on left hand.
28. Bruise to the right thumb - medium
29. Left elbow bruised and swollen, light bruising on ribs. Bruised index finger on my left hand.
30. Bruise on left thigh, 2 inches (5cm) across
31. Bruises of skin on right side/over ribs
32. My thumb on the right hand was cut to the bone. The blade entered the thumb from the left side of the nail and stopped approximately in the center of the nail, where it hit the bone and broke it. The resulting wound was about three centimetres wide, followed by MASSIVE bleeding. I was able to significantly reduce the bleeding by cold water, bandages and by holding the wounded hand above my heart level for several minutes. The bleeding stopped completely only after the wound was stitched.
33. Slight hit on the right thumb, mild pain which faded in an hour.
34. 2 small bruises on the left hand
35. Several bruises, ranging from minor to large; one (1") above the left elbow, one (3") across the right bicep, 2 minor (1" or less) bruises on the chest).
36. Bruised bone on the right thumb.
37. 2 quarter to half-dollar size bruises on right forearm, one on left ribcage, two on left thigh.
38. Two fingers hit on right hand
39. Knuckle bruises on index and middle finger of the right hand.
40. Broken left hand
41. Broken left pinky finger
42. Swollen knuckles on my right hand, bruised ribs
43. 2 Lumps on the left forearm, welt on back
44. Bruise to right shoulder
45. Bruise on right forearm, internal bleeding in right pinkie
46. Bruised/fractured right hand
47. No mark...but a concussion was incurred.
48. 2" bruise to the lower back (near kidneys)
49. 2 one inch bruises on the outside of the left calf.
50. Heavy bruising to the base of the left thumb and wrist, 3.5" long.
51. 2" bruise to inner right calf
52. Stab wound to the right upper arm. Travelled along the muscle and exited at the top of the right shoulder. 1/2" entry wound and 1/4" exit wound.
53. Stab wound. 1/4 to 1/2" deep to 1/2" wide puncture to the left chest.
54. Heavy bruising on the thumb and palm, initially thought to be a break
55. Small bruise on the knuckle of the right index finger
56. 1-2 cm deep, 1 inch long cut on left elbow (required stitches)
57. Bruises on right thumb-nail (0.5 cm ²) and the left forearm (2 cm ²)
58. Light 10cm bruise on the left forearm, small bruise on the left side below ribs (2 cm in diameter)
59. Small bruise on the right calf (2 cm), a bruise on the left bicep (2 cm).
60. Despite wearing sparring gloves, the 5th finger of my right hand was injured. We can see that swelled at the second joint.

Details of the actions/techniques performed just prior to receiving these marks:

1. My opponent voided my fendente, and made a fendente cut to my lead leg
2. Opponent fainted a cut to the head and made a mezzano to the thigh
3. My rising cut was met with a fendente
4. My opponent voided my fendente, and made a sweeping cut to my lead foot
5. I was recovering to a high guard, my opponent made a rising cut.
6. I advanced lunging toward him and he tagged my belly, the second time I lunged and he performed a punta reversa and tagged my shoulder.
7. Stabbing to their head, they cut at my hands.
8. Opportunistic cuts that I couldn't move my leg out of the way of quick enough, because it was carrying most of my weight.
9. I covered his cut (from the left/downward) from finestra and he wound into my cover and around my back.
10. I failed to cover his cut (downward) and he struck my arm with very vertical cut
11. An unparried thrust from a low guard
12. I covered his cut (from the left/downward) and he wound into my arm
13. Three failed attempts to cover or parry his fendente cuts.
14. Fendente to right hand, sottani to the left hand, mezzano to the abdomen, thrust to the face.
15. Partner attacked downright blow, I stopped too late.
16. Just normal sparring doing German longsword and I went in for a zwerk and planted my foot wrong
17. Longsword of the German Meyer school
18. A failed schrankhut
19. This was a thrust with an un-buttoned federschwert. The thrust came from ochs...I'm not sure what I was doing. Probably failing to wind correctly
20. Practicing a zorn ort
21. Closing to a bind hilt to hilt and winding
22. During sparring, winding.
23. Received a thrust from sparring partner (he coming from Alber - me going from Pflug to Ochs)
24. Practicing i.33/ Buckler
25. Cutting zornhaw and the opponent did a durchwechsel. Twice
26. Fendente to the arms
27. He hit me with his sword on the one spot of the protective glove that is not protected - the end point of the thumb. I think he made an oberhau or zornhau. I also think his blade slid along my sword (from "binden") and down on my thumb.
28. I threw a squalemrato with an evasion to my outside as he moved to his outside and hit me with a tondo that clipped my left elbow and hit me in the ribs.
29. Stop-thrust to the leg from a low guard.
30. Thrust to the torso while blade binding/winding
31. After a failed durchlaufen attempt and disengagement, I had to quickly use versetzen against the partner's sword and forgot my thumb on the crossguard :)
32. Moulinello
33. Block and counter in single time vs attack
34. We were training the zornhau master strike
35. Basic cutting & thrusting, lots of wrestling at the sword.
36. Krieg work (binding, winding, duplieren, verzucktenhau...) das gayszlen.
37. Despite thick leather gloves, training partner striking too fast for a beginner and missed the target thus smashing my thumb

38. Close up weapon binds transferring to cutting the opponents wrists
39. Aluminum longsword hit my hand with a rebatarre as I was thrusting from ochs
40. Aluminum longsword hit my hand with a rebatarre as I was thrusting from ochs
41. Free play session. The first shot from a vertical height on the left arm, the second was horizontal.
42. Student was practicing disengaging the blade
43. My adversary thrusting, Me: trying to climb to the crown
44. Sparring with nylon longswords: mezzano and sottani cuts.
45. A badly disengaged strike from above right.
46. I attacked and struck a student, who instead of responding to the threat of my attack struck me after I struck him.
47. My opponent countered my fendente, closed the distance, grabbed my hilt and struck my lower back w/their sword.
48. I failed to cover his cut (downward) and he struck my leg with a fendente cut...twice in a row.
49. My hands where out to far while standing in the ward "vomtag" my opponent seized the initiative and hand snipped me.
50. My opponent voided my fendente, and made a sottani cut to my lead leg striking me on the right calf, below the knee.
51. Thrust to the arm.
52. Going forward I received a thrust to chest from the dagger. The blade broke and penetrated (angled downward) into the right pectoral above the nipple.
53. Fedente to the left hand
54. I failed to cover his cut (downward) and he struck my left hand with a fendente
55. Sottano to opponent's face w/ longsword & opponent (S&B) made a mezzano to left elbow.
56. Attacked w/a sottani, opponent countered with a fendente across my arms.
57. Made a rising cut and was met with a fendente to the left forearm arm. The second was an opportunistic thrust.
58. Zucken and Oberhau
59. Rotation (Winden): wrist rotation after stabbing

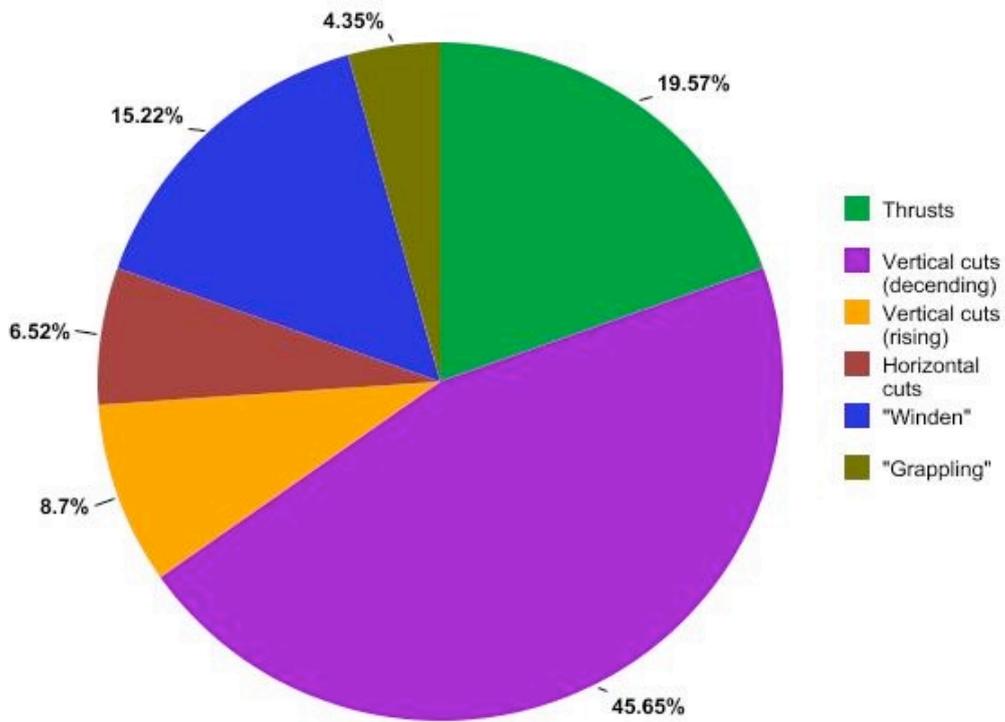
Injury patterns among HEMA practitioners



(Authors 2011)

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Combat techniques resulting in trauma



(Authors 2011)