Medicine, Logic or Metaphysics? Aristotelianism and Scholasticism in the Fight Book Corpus

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Abstract – We tend to study fight books in isolation, which explains why it is so difficult to understand the precise place they occupy in the sociocultural and historical fabric of their time. By doing so, we may miss the many clues they contain about their owner, local society, and intended purpose. In order to unlock this information, we need to study them in their broader sociocultural and historical context. This requires background and research skills that are not always easily accessible to everyone. To illustrate the point, in this article we show in some detail what is required to make sense of the claim that Aristotelian philosophy and science influenced the medieval fight books in relevant ways, and that understanding this influence helps us to better understand the fight books per se. We give an outline of the general historical framework, and apply it to a test case: Talhoffer's Thott 290 2° Ms., with some interesting results. Our hope is that this framework may be of some use to other researchers in HEMA Studies who want to dig deeper into sources of interest to them.

Keywords – Medieval Fight Book, *Hausbuch*, Galenic Medicine, Aristotelian Natural Philosophy, Social and Cultural History

I. INTRODUCTION

It is hardly possible to discuss any aspect of Medieval intellectual life without mentioning Aristotle in some way. Whether it is logic or metaphysics (and hence theology), or practical sciences like medicine, mechanics and astronomy, the writings of 'The Philosopher' exerted an immense influence and his authority weighed in heavily through a number of direct and indirect sources.

> 'Aristotelian' and 'Aristotelianism' are words that students of medieval ideas use constantly and almost inescapably. The widespread usage of these terms by scholars in turn reflects the popularity of Aristotle's thought itself during the Latin Middle Ages: Aristotle provided many of the raw materials with which educated Christians of the Middle Ages built up the edifice of medieval thought. From 1100 it was difficult to receive a good education in Europe without reading at least some Aristotle, along with authors such as Boethius and Cicero who were heavily indebted to the Philosopher's teachings. After 1200 no university-trained cleric was likely to be wholly unfamiliar with the

> essential characteristics of the Aristotelian world-view. Thus, Aristotelianism constituted an indispensable common currency of intellectual intercourse during the Middle Ages.[1]

It is therefore not really a surprise that the topic of Aristotelian influences in European fight books became something of a trope in HEMA Studies over the past years. Pioneering work by, a.o., Brian Price[2] and Jens-Peter Kleinau[3] on the logic of motion in combat and Pierre-Alexandre Chaize[4] on the logic of technical pedagogy in Liechtenauerian sources demonstrated that such claims are based on more than merely flimsy similarities. The intellectual background of the monks who composed the Latin I.33 Walpurgis Manuscript stands out clearly as well.[5] Nowadays it becomes almost commonplace to point out Aristotelian influences in HEMA sources, which range from the fourteenth to as late as the seventeenth centuries.[6]

The problem is, however, that the notion of "Aristotelian influences" is underdefined and often misunderstood; with sometimes harmful consequences for proposed interpretations of the texts at hand (we shall discuss some examples below). This problem is somewhat embedded in the topic itself: Aristotle's influence worked along several different direct and indirect pathways long before his major works became accessible through a wave of new authoritative Latin translations in the second half of the thirteenth century.[7] Aristotle was recognised as a fundamental *auctoritas* in nearly every intellectual field.[8] This was true not only in subjects like logic, or dialectics, and the interpretation of texts, which will constitute the methodological basis of the medieval university curriculum, but also in subjects like, e.g., medicine, physiology, and body mechanics, that came to their readership through an often different, essentially non-Scholastic, chain of Aristotelian text traditions.[9] There is indeed a tendency to trace this whole body of influences back to the teaching in the medieval universities and summarize it under the heading of 'Scholasticism'. However, we will use the term 'Scholasticism' in a somewhat narrower sense, to emphasize that university culture is broader than Scholasticism only, and that its origins and sources are numerous and

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[1] Nederman, 'Aristotelianism', p. 563; Colish, *Medieval Foundations*.

[2] Price, *The Martial Arts of Medieval Europe*.

[3] Kleinau, 'On the Five Words "Vor/Nach, Indes, Stark/Schwach"'.

[4] Chaize, 'Quand la pratique est logique'.

[5] Aka the Royal Armouries MS. I.33 (FECHT I). Cinato and Surprenant, *Le livre de l'art de combat*. Especially the sections 'Un codex universitaire', and 'L'interprétation scolastique', pp. XXIX-XLII.

[6] Acutt, 'Aristotelian Science', pp. 10-28.

[7] Marenbon, *Later Medieval Philosophy*, pp. 50-58.

[8] Nederman, 'Aristotelianism', pp. 563-585.

[9] See below in this article, section III: The Aristotelian tradition in medical literature and practice.

diverse.[10] The interaction between university and non-university disciplines, as well as that between practical and theoretical science, was complex and much less rigid than appears at first glance. The borderline remains vague, though, because subjects like natural philosophy and metaphysics are busy crossroads between theory and practice, method and content.[11] This has implications for applied sciences such as law and medicine, but, as we shall see, also for crafts like martial arts.

Given this state of affairs, we need, when we wish to say something meaningful with respect to this topic, to be thorough and precise not just on what, but also on how the surmised Aristotelian influence might have worked on its target. Sadly enough, it is now rarely the case. Often vague references to Aristotle's work, accessed only through secondary literature or internet resources and cut loose from any specific historical context are mixed with comparative quotes based on superficial textual similarities without proper philological analysis or contextual assessment, to the extent that conjectures which may in themselves be interesting and potentially relevant, collapse under their own lack of scholarly credibility. This is partly due to a lack of critical historiographical and philosophical expertise on the part of authors studying the material, or to philological barriers that prevent presumed citations or references from being consulted in and connected to original sources (ancient Greek, Arabic, even Latin). Our intention in this article is to clear up a bit of the conceptual and historical thicket that surrounds this theme, and thus provide a useful basic methodological resource for HEMA researchers from various backgrounds in their own research projects.

The scope of this paper will remain limited to Aristotelian influence exerted by sources dating back to the beginning of the medieval period up to the High Middle Ages (500-1500), and its target will be manuscript fight books from the early fourteenth to the early sixteenth century. These fight books contain treatises on individual combat — the skills and techniques that an individual fighter needs to win a bout, whether the aim is to win a friendly competition, or to kill an opponent. Although these skills might have had their military uses, it is clear that this literature addresses civilian combat as well, maybe even primarily.[12] From the sixteenth century onwards, the emergence of the printing press, the Reformation, and the Scientific Revolution change the sociocultural context drastically and on a large scale, a fact that leaves its traces in the type of fight books published and on the kinds and styles of weapons discussed therein. Military and civilian use becomes more clearly distinct. Bodily culture changes profoundly, although

[10] On the many definitions of 'Scholasticism', see Schönberger, *Was ist Scholastik?*, p. 15-33.

[11] Jolivet, *Perspectives*.

[12] Verelst *et al.*, 'Introduction'.

this process unfolds itself slowly.[13] During the Renaissance period, the flourishing not only of arts and humanities, but also of a unique brand of Neoplatonist hermetic philosophy that favours symbolism and mystical mathematics leaves a strong imprint on the ideas on (the teaching of) fencing of the day, which were typically written by universal minds who had, aside from fencing, other artistic and scientific occupations, like natural philosophy, painting, engineering and architecture.[14] This is not to say that Aristotelianism became suddenly ineffective during that period. One could even say quite the contrary. From the Contrareformation onwards we witness a revival of medieval Scholasticism, but in a new, modernised cloak, known as Early Modern or Second Scholasticism.[15] My claim would be that the influence of this later kind of Scholasticism is more explicitly clear in the development of the French school of fencing, but that claim has to be left here unsubstantiated.

We will tackle our topic in two major sections. First, a section devoted to providing a historiographical and cultural-historical context and timeline that maps the incorporation of Aristotelian sources from Antiquity into Medieval Europe's intellectual universe in a somewhat crude, but orderly fashion, as well as elaborating on how these sources could have reached our fight book authors. Beware that it cannot be our intention to pursue completeness or historical details on this topic in the short scope of this article. Details will be context dependent and, based on our categorisation, can be further elaborated upon in the relevant research itself. The timeline has three major thematical ramifications: 1) Logic and epistemology, 2) Medicine and physiology, 3) Theology and metaphysics. In this contribution, we shall focus mainly on the first two. In the second section, we will discuss a few examples from contemporary HEMA literature, in which well-intended and sometimes really interesting research tracks get stuck or miss (partially) their point due to lack of clarity about the nature of the Aristotelian connections and the contexts on which they rely. Through remedial proposals in a few specific cases, we hope to provide future HEMA researchers with

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[13] The literature on the shifting attitudes with respect to the body is plentiful and not always consistent. The classical account is Vigarello's *Le corps redressé*. A somewhat more prudent discussion in the context of fencing culture in Brioist et al., *Croiser le fer*.

[14] An excellent general introduction is Hanegraaff, *Western Esotericism*. For the specifics during the Renaissance period: Couliano, *Eros et Magie*. Clear examples of the Renaissance mentality in martial culture are prominent in the Italian and the Spanish School of fencing, like e.g. Camillo Agrippa. See Mondschein, 'The Number of Motion'. A beautiful example for the North-West of Europe (though heavily influenced by the Spanish School) is Gerard Thibault, whose *Académie de l'espée* remains one of the most exquisite fight books ever made. See de la Fontaine Verwey, 'Gerard Thibault'. The standard reference for this period is Anglo, *Martial Arts*.

[15] In addition to the references provided in the rest of the present issue, in particular in Leblanc and Cinato (coll), 'Scholastic Clues in Two Latin Fencing Manuals', see Grossi, *La Seconda scolastica*; Gens, *La logique herméneutique*; Franklin, 'Science by Conceptual Analysis'; and Doig, 'Suárez, Descartes'. On medieval scholasticism, see Weijers, *Le maniement du savoir*.

directions and tools to bring their work up to standard on this point and thus make it more accessible and acceptable to the research community in the humanities at large.

II. ARISTOTELIANISM IN THE 'SCHOOL'

II.1. Logic and Method

The importance and impact of Aristotle on the development of medieval mentality and culture can hardly be overestimated and is commonplace in the academic humanities. There is merit, however, in exploring in detail what this influence entails in a given context. This is not easy.[16] Often we, as researchers, remain the victims of a nineteenth century general historiography that drew a drastic dividing line between the 'erroneous' pre-modern, clerically promulgated Scholastic worldviews of the 'Dark' Middle Ages and our own enlightened, rational, modern scientific worldviews. Even when looked upon more favourably, the apparent weirdness of, e.g., the substance theory in physics or the doctrine of the four humours in medicine, makes it difficult to grasp their real significance, or understand the extent to which we are still now tied by many strings to that past. Whenever we use, say, the word 'energy', we are employing a dynamical concept coined by Aristotle. When we require that something be 'more specific', it is a typically Peripatetic request. In additon, many of the linguistic and epistemological questions we will address today were formulated clearly for the first time by some cleric in a medieval university auditorium or monastic scriptorium. Even if it is evidently true that the transition from the Middle Ages to Modernity entailed fundamental conceptual and technological changes, this process was generally very gradual, and in a number of areas hardly, if at all, perceptible until the Industrial Revolution.[17] It is also important to realize that the medieval period is a culturally and historically layered hybrid and has a number of internal moments of transition itself.[18] Furthermore, we tend to systematically misinterpret the Renaissance as merely a precursory addendum to Modernity[19], while in many respects it differs profoundly from it and remains much closer to the Medieval period; it is, in any case, a distinctive cultural-historical period of

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16 Marrou, *La connaissance historique*.

17 Cultural transitions can, while post factum easily identifiable, take centuries to unfold. They also tend to not go by the same pace in every walk of life. The introduction of the perspective viewpoint in painting and architecture (codified by Leon Battista Alberti in his 1435 book *De pictura*), or the conception of the living body as a machine rather than as an organo-physiological entity animated by a soul are but a few examples. For perspective, see, e.g., Montebelli, 'Luca Pacioli and perspective'. For the body, see ft.13.

18 Wickham, 'Historical Transitions'.

19 Toulmin, *Cosmopolis*, notably chapter one.

its own.[20] Until the seventeenth century, Scholastic Aristotelianism provided the solid common ground on which university education anywhere in Europe rested,[21] even as modern breakthroughs in physics or medicine made their way through the academic landscape of a thousand-year-old intellectual tradition. Furthermore, it had taken more than half a millennium for Aristotelian concepts to prevail completely over other ancient views such as Neoplatonism, which had a vigorous resurgence during the Renaissance[22] — a fact that can be traced clearly in many of the fencing manuals of the period.[23] All this is of particular relevance for a correct understanding of how the medieval reception of and elaboration on scientific and philosophical Aristotelian concepts and sources exerted its effects on the authors we study.

As far as we know, the fight book literature starts early in the fourteenth century[24] — with roots that go probably further centuries back, into at least the early High Middle Ages.[25] One should be well aware that until the thirteenth century, classical sources in the original Greek were hardly available in Europe, except for Sicily (which belonged to the Byzantine Empire before it became an Islamic kingdom[26]), and — curiously — Ireland.[27] Knowledge of a limited number of Aristotle's works was preserved

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[20] The difficulty is evident in two influential studies on the Renaissance scholar Giordano Bruno, each correct on its own terms in its own domain yet contradicting each other: Yates, *Giordano Bruno and the Hermetic Tradition*, and Gatti, *Giordano Bruno and Renaissance Science*.

[21] Blum, *Modern Aristotelianism*. See also Leijenhorst, Lüthy and Thijssen (eds), *Aristotelian natural philosophy*; Schmitt, *Aristotle and the Renaissance*.

[22] Couliano, *Eros et Magie*. See also Allen, *Studies in Platonism*.

[23] The combination of Aristotelian concepts of motion and Neoplatonic symbolic geometry to convey insight in the principles that govern fencing as a science is typical of sixteenth and seventeenth century especially in Italy, France and Spain. For an overview, see Anglo, *Martial Arts*, pp. 61-90.

[24] Bodemer, *Das Fechtbuch*.

[25] The oldest fight book we have is the aforementioned Walpurgis manuscript (Royal Armouries Ms. I.33), deals with (short) sword and buckler, and dates back to around 1300 AD. For a critical edition, see Cinato & Surprenant, *Le livre de l'art de combat*. The first textual witness to the German longsword tradition we have, the Pol Hausbuch or Pseudo-Döbringer (GNM 3227a), states at the start of the gloss to the *Zedel* explicitly that the art 'was discovered and developed hundreds of years ago'. For an edition of the version of the *Zedel* in pseudo-Döbringer, Verelst, 'Labyrinth'. For a translation of the longsword gloss, Chidester, *Long Sword Gloss*, p. 31 sq. Note that we speak here about martial art as the development and practice of individual combat skills. With respect to what we might now call 'war engineering', there are a few older sources, like Villard de Honnecourt (1260) and Guido de Vigevano (1340); see Kleinau, 'Engineers and masters of warfare'. With respect to large scale military strategy, Vegetius's fourth century classic *De re militari* remained popular throughout the Middle Ages. Byzantium contributed Emperor Maurice's *Strategikon*, in which the link between warfare and hunting is made explicitly (which will prove relevant in what follows). Petersen, 'The *Strategikon*'.

[26] Metcalf, *Muslims of Medieval Italy*.

[27] Graham, 'Irish Monks'; Moran, 'Greek in Early Medieval Ireland'.

throughout Europe in translations made originally by mainly two Roman scholars, Boethius and Cassiodorus, who served as advisors and diplomats to Theoric, king of the Ostrogoths, at the beginning of the sixth century.[28] They both deliberately set out to translate, comment and transcribe as much as possible of the ancient literature before it would be lost forever.[29] Boethius's translation of large parts of Aristotle's early logical works (*De Interpretatione, Categories, Prior Analytics*), on ancient argumentation theory and rhetoric (Aristotle's and Cicero's *Topics*), as well as his commentaries on Neoplatonic mathematics (*De institutione arithmetica*[30]) and theology (*Opuscula sacra*), proved especially impactful during the ensuing millennium.[31] During the so-called Carolingian Renaissance (8-9th century), using this literature, the foundation of court and cathedral schools was laid in North-West Europe.[32] Through a focus on logic and linguistic methods (study of Latin, interpretation of (Biblical) texts) and didactic concerns manifest in the establishment of the curriculum of the *trivium* and *quadrivium* (the seven liberal arts), these schools will develop from the twelfth century onwards into the basis of what we now call universities, independent guild-like institutions for learning and research who received formal recognition by authorities that warranted their control on their own education and examination.[33] On the knowledge acquired on the liberal arts level, the three 'higher faculties' (Medicine, Law and Theology) rests. The knowledge from these institutions seeped through again to the vernacular level via lower clergy or medical and legal practitioners in touch with laymen and the common, such as craftsmen practicing trades. Which brings us again to the martial arts.

For the field of HEMA Studies, it is relevant to know what the precise intellectual and practical status of martial arts was amongst the other professional arts of their time. This is important because our understanding of their place in the social fabric will help us understand more precisely the socio-economic and cultural situation of their practitioners within the societies in which they thrived. Medieval thinkers attached much importance to questions pertaining to the status of such 'artistic' activities, as can

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[28] Marenbon, *Boethius*.

[29] Buellens, *The Friar and the Philosopher*, pp. 20-23.

[30] Mostly a translation of Nicomachus *Arithmetica*. His translations of Euclid and Ptolemy did not survive. Masi, 'The Liberal Arts and Gerardus Ruffus'.

[31] Boethius's own treatise (written in prison), *On the Consolation of philosophy* was a philosophical bestseller from late Antiquity up to early Renaissance. It exerted considerable influence on heads of state and intellectuals alike, and was translated in the vernacular by Alfred the Great, Geoffrey Chaucer and Queen Elisabeth I, to name only the English ones. Phillips, 'The English "Consolation of Philosophy"'.

[32] Colish, *Medieval Foundations*, pp. 66-79.

[33] I follow in this McVaugh, 'Galen in the Medieval Universities, 1200-1400', pp. 382-383. See also Marenbon, *Later Medieval Philosophy*, pp. 7-26.

be inferred from the fact that there were recurrent intellectual and legal debates on this topic.[34]

It shall be clear that 'art' is to be taken here in its pre-Romantic sense of a body of knowledge and practices transmittable through apprenticeship.[35] It occupies the middle ground between what we would call 'science' and 'art' today, and comes close to the idea of 'craft'. Evidently, industrialised warfare made such conceptions largely obsolete. It is also crucial to be aware of the fact that education in these arts, whichever their nature, was largely personal and passed primarily through the medium of the spoken word.[36] This was also the case for the intellectual arts taught at university; even when the discipline was theoretical and centered on texts, they were to be read aloud and discussed.[37] Relevant to our subject is also the fact that a practice of logically structured public debate developed, the *disputatio*,[38] which in many respects resembled a duel, and was often compared to it.[39] Again, we can trace its origins to Boethius:[40] he saw the early Aristotelian logical works — the 'old logic' — as the basis for *quaestio*, a method of finding the truth about a given subject-matter in which opposing positions with regard to a topic or problem related to it are developed, and ultimately brought to a conclusion in favour of either of them. The method will be systematised and developed to great refinement by famous theologians of the twelfth century, like Peter Abelard in his *Sic et Non* and in Peter Lombards' *Sentences* (around 1150).[41] Lombard, teacher at the cathedral school of Paris, takes the step of bringing commentaries from authorities on a given doctrinal topic together in an orderly fashion, so that it becomes clear who contradicts whom on what subject, and which questions (*quaestiones*) and arguments in favour or against can be developed and/or refuted about the matter at hand. This method associates with a specific technical vocabulary for structuring the arguments in a

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[34] For an example relevant to HEMA Studies, the *Eisenacher Rechtsbuch*, see Bauer, 'Zedel Fechter'.

[35] Verelst *et al.*, "Introduction", in D. Jaquet *et al.*, *Fight Books*.

[36] See on this problem with respect to martial art Müller, 'Bild—Vers—Prosakommentar'.

[37] 'It is now commonly accepted that the European Middle Ages were "oral", insofar as writing was dictated and reading was carried out viva voce. The term for writing as a method of composition was *dictare*, whereas *scribere* generally only referred to the physical act of putting pen to parchment (…) *Legere*, as late of the fifteenth century, normally entailed an oral articulation of the sounds being decoded.' Fleischmann, 'Linguistics, and the discourse of the Medieval Text', p. 20.

[38] Hoye, 'Die mittelalterliche Methode der Quaestio'. The reference work on the subject is Grabmann, *Die Geschichte der scholastischen Methode*. For an accessible introduction, Marenbon, *Later Medieval Philosophy*, pp. 27-33. See also the references in Bas, 'The arts of fighting and of scholastic dispute', in the present issue, and Schönberger, *Was ist Scholastik?*, p. 52-79.

[39] For more on this topic, see the article of P.-H. Bas, in the present volume.

[40] Buellens, *The Friar and the Philosopher*, pp. 22-23.

[41] Marenbon, *Later Medieval Philosophy*, pp. 11-12.

debate,[42] and will remain for centuries the standard for *inventio* (discovery of new truths) in scientific research in the universities of the time. Over the next centuries, further developments of this technical apparatus emerge after the rediscovery of Aristotle's *Posterior Analytics*, stimulating a movement toward greater systematisation of knowledge, so typical of the great metaphysical and theological *Summae* of the fourteenth century, and continuing into early Modernity.[43]

II.2. Liberal and Mechanical Arts

The idea of a scholarly curriculum of four 'theoretical' sciences[44] — music, geometry, astronomy, arithmetic —, themselves again founded on a smaller curriculum of three preparatory disciplines — grammar, logic/dialectic and rhetoric —, dates back to Neoplatonic circles in late antiquity. Augustine, in his *De ordine*, was the first to give the series its canonical form.[45] Somewhat later it reappears in a curious didactic allegory by Martianus Capella,[46] *De Nuptiis Philologiae et Mercurii*, or *De septem disciplinis* in the early fifth century. Its obscure content notwithstanding, this book became a school manual from the sixth century onwards, was eagerly copied and commented[47], and remained popular until at least the eleventh century AD. Boethius will also take up the idea. It is handed down into the medieval tradition via successors of the scholars in Charlemagne's palace school, of which the most formidable was John Scotus Eriugena. He introduced the term *artes mechanicae*, but never gave a full list.[48] He posits the idea of a parallelism, not a hierarchy, between the two categories, but describes the liberal arts nevertheless as 'divine', and the mechanical arts as 'human'.[49] Another interesting difference is that the liberal arts are 'understood naturally in the soul' while the mechanical arts are acquired by 'some imitation or human devising' — you need to learn them by practice, not by fundamental intellectual intuition, as is the case with the first

[42] Cinato and Surprenant rightly point out in their I.33 edition that the presence of such elements of technical vocabulary (*patet* or *notandum est*) indicate clearly the intellectual university milieu from which the composers of the Royal Armouries MS. I.33 stem. *L'Art du combat.*, pp. xxxvi-xxxvii.

[43] Marenbon, *Later Medieval Philosophy*, p. 116 sq. See also, in general, Weijers, *In Search of the Truth.*

[44] Wagner, *The Seven Liberal Arts.*

[45] Hadot, *Arts libéraux et philosophie*, chapter III.

[46] Stahl *et al.*, *Martianus Capella and the seven liberal arts.*

[47] Winterbottom, 'Martianus Capella', p. 245.

[48] Confusingly enough not a Scottish but an Irish scholar, of around 850 AD. He went to France where he enjoyed the patronage of Charles the Bald, and probably stayed there for the rest of his life. He wrote extensively on logic, natural philosophy and theology. He was amongst the few of his contemporaries who could read Greek, although his textual sources where entirely Patristic. His theology was of Neoplatonic tendency. For his intellectual biography, see Marenbon, *Early Medieval Philosophy*, pp. 55-70. For his theology, Trouillard, 'La "Virtus Gnostica" selon Jean Scot Érigène', pp. 331-354.

[49] The only example he mentions explicitly is, interestingly, architecture. Whitney, 'Paradise Restored', pp. 70-71.

principles that underlie any theoretical science (and any 'art' *per se*) in the Aristotelian sense.

The discussion was picked up again by Hugh of Saint Victor in the early twelfth century, who gave the notion of *artes mechanicae* its canonical form, and through whom it will contribute to the establishment of early scholasticism: Hugh wrote a standard handbook on the division of philosophy[50] (i.e., knowledge in general) and the organization of higher studies that would remain influential for centuries to come: the *Didascalicon*.[51]

> Hugh's first concern is what to read. Mindful, like Augustine, that wisdom is the goal of education, Hugh classifies all learning under the heading of Philosophy, using, as Jerome Taylor notes (1961, p. 8), an Aristotelian four-fold division containing all the arts (by which Hugh means a form of knowledge comprised of rules and precepts). His scheme is as follows: 1) theoretical: theology (contemplation of God and spiritual substances), physics (natural philosophy) and mathematics (the quadrivium of arithmetic, music, geometry and astronomy); 2) practical: solitary (ethics), private (household economics), and public (civil); 3) logical: the trivium (grammar, dialectics and rhetoric); and 4) mechanical: containing seven arts, including agriculture, medicine and hunting.[52]

The mention of medicine in this list will prove to be relevant in what follows. Hugh's complete list contains the following items: fabric-making, armament construction, navigation, agriculture, hunting, medicine and theatrics.[53] Interestingly, the combat arts fall under the latter category, which he describes as the 'scientia ludorum a theatro quo populus ad ludendum convenire solebat'[54] — the science of the games in an open space

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[50] 'The "Quaternary" of the Arts. The first book of the *Didascalion* provides a carefully articulated demonstration that philosophy must comprise four, and only four, master-categories of arts and disciplines—theoretical, practical, mechanical, and logical.' Taylor, *The Didascalion*, pp. 7-8.

[51] For the original text of the *Didascalion*, see 'Didascalicon', in Migne, *Patrologia Latina*, Tomus CLXXVI, col. 739-812.

[52] Fitzgerald, 'Medieval Theories of Education', pp. 575-588.

[53] *Mechanica septem scientias continet: Lanifficium, armaturam, navigationem, agriculturam, venationem, medicinam, theatricam*. St. Victor, 'Eruditiones Didascalicae', in Migne, *Patrologia Latina*, vol. 176, col. 760. The list tends to vary somewhat depending on the author, e.g., commerce instead of navigation, and cooking instead of medicine. These are only superficial modifications, since navigation is the craft that enables commerce, and 'medicine' in this context means mainly the preparation of medical potions and herbal concoctions. The same holds for 'armatura' instead of 'architectura': both concern the construction of things. Finally, 'theatrica' can be replaced by 'militia' joined to 'venatoria' ('warfare and hunting'). That they encompass a similar underlying idea is clear from the fact that even in modern English the name for wild animals to be hunted is still 'game'.

[54] St. Victor, *PL* 176, col. 762-763.

where people are used to come to play. He presents fighting as a game, of course not in the modern sense of merely a pastime entertainment, but in the sense of a (especially for the spectators) joyful, but meaningful practice, regulated and set in a specific park or space (or 'court', German *Hof*), often with a didactic goal.[55] This playful nature does not exclude a potentially mortal outcome at all, as we know from tournament fighting and judicial combat.[56] The use of the term 'zogho' in the early Italian fight books confirms this interpretation.[57] 'Armatura' concerns the construction of (protective) equipment (strengthened by the addition of the qualification 'fabrili' in the explanation in the text), from buildings to shields and armour, but it has nothing to do with the handling of weapons as such, contrary to interpretation that one sometimes finds in recent HEMA literature.[58] The art of *armatura* concerns those who make equipment that protects or shores up. Hugh of St. Victor's own clear words on this are confirmed by a book written three centuries later, in Rome to be precise, and which soon made its way in German translation up into the north: Rodrigo Sanchez de Arévalo's *Speculum Vitae Humanae* (1468), translated by Heinrich Steinhöwel as the *Spiegel des menschlichen Lebens* (1476).[59] The moral treatise, close to the genre of the *Fürstenspiegel*, contains a lengthy chapter on 'den hantwercken', the handicrafts. There we find again, under repeated references to Aristotle, what is basically Hugh of St. Victor's *artes mechanicae* list. With Rodericus, the second art (*armatura*) is 'schmidwerck und zimmerwerck',[60] which he specifies a bit further as, 'waffenschmid, goldschmid, kannttengiesser […] muntzmeyster, steinmetz, maurer, zimmerleut, schreyner […]'. A beautifully coloured illustration shows the blacksmith at work in his forge (Fig.1). The sixth craft is the 'fechten handwerck'. Rodericus adds, 'Theatrica, das is freudenspil genennet'. In his

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[55] As explained by Dutch historian J. Huizinga in his remarkable 1938 study *Homo Ludens*. Cfr. Verelst et al., 'Introduction', in Jaquet *et al.*, *Fight Books*, pp. 21-22.

[56] Jaquet, 'Six Weeks to Prepare for Combat'.

[57] Rubboli and Cesari, *Fiore Dei Liberi*.

[58] Contra J. Acutt, in his recent book *Swords, Science and Society*, pp. 65-66. The fact that e.g. the title of Talhoffer's MS Thott.290.2° refers to 'alte Armatura und Ringkunst' does not make a difference, because obviously, there is a lot of *armatura* related material in it (the Bellifortis material). Moreover, 'Ring' clearly does not refer just to the activity of wrestling, but to the demarcated park in which such activities took place. The title thus encompasses the core elements of the 'Wissenssystem' embodied by the specific genre of the fight book *Hausbuch*. For more on this, see section IV below. To the confusion might have contributed the unlucky German translation 'Kriegswesen' in Bauer, *Zedelfechter*, p. 304. But Bauer immediately adds that 'Die Fechtlehren gehören innerhalb der artes mechanicae zu den Hofkünsten (theatrica) und auffälligerweise nicht zum Kriegswesen (armatura)' — which is entirely correct.

[59] The copy I consulted is in the University Library of Heidelberg, and can be consulted under this link: https://digi.ub.uni-heidelberg.de/diglit/ir00231000. Arévalo was bishop of Zamora, hence he is also known as Rodericus Zamorensis. For more information, see Kurze, 'Lob und Tadel der artes mechanicae'.

[60] p. 148 in the modern pagination.

comment, he refers again to Aristotle, but paraphrases Hugh:[61] 'Dese kunst –*Theatrica*– is von den wort theatrum also genennet. Und theatrum ist die statt gewesen wohin sich das volk samnet die freudenspil zu sehen' (This art –*theatrica*– is derived from the word theatrum. And Theatre was the place where people met to see the joyful play).[62] The illustration that follows (Fig. 2) could have come straight out of a fifteenth-century fight book. This supports the evidence Bauer put forward in his article.[63]

Fig 1: Artes armaturae. From Rodericus Zamorensis Spiegel des menschlichen lebens
© Universitätsbibliothek Heidelberg [GW M38511, 60v]

Here, in line with Mary Carruthers's studies on the medieval arts of memory, it is worth noting that in general, the mechanical arts do not concern only activities that are 'productive' as opposed to those which are not. The idea that the works of the mind would be 'unproductive' because they are 'immaterial' is a typically modern, utterly non-medieval way of looking at them. For the medieval people, the mind is a machine as much as a physical tool is, albeit one of a different nature: it operates and has to be practiced through the soul, not through the human body. It would be absurd to claim

[61] Kurze, *Artes mechanicae*, p. 123.

[62] That is, 'joyful' in the first place for the spectators. We should not forget that a public hanging would take place in a 'court' as well, to the delight of the massively present public. For the quote, see p. 160 in the modern pagination.

[63] Bauer, *Zedelfechter*, pp. 303-304.

that, e.g., a book does not exist as a real product only because the owner is carrying it around in his or her memory, and not as a physical object.[64] However, mechanical arts constitute a group of activities which imply a specific kind of knowledge acquired in a particular way. These activities engaged both the body and the mind — a process in which emblematic cognitive picturing plays an essential role[65] — and had to be acquired under the guidance of a master. As such, they occupy a central place in the imagination and pedagogy of medieval intellectual culture, especially in the period leading up to the thirteenth century.[66]

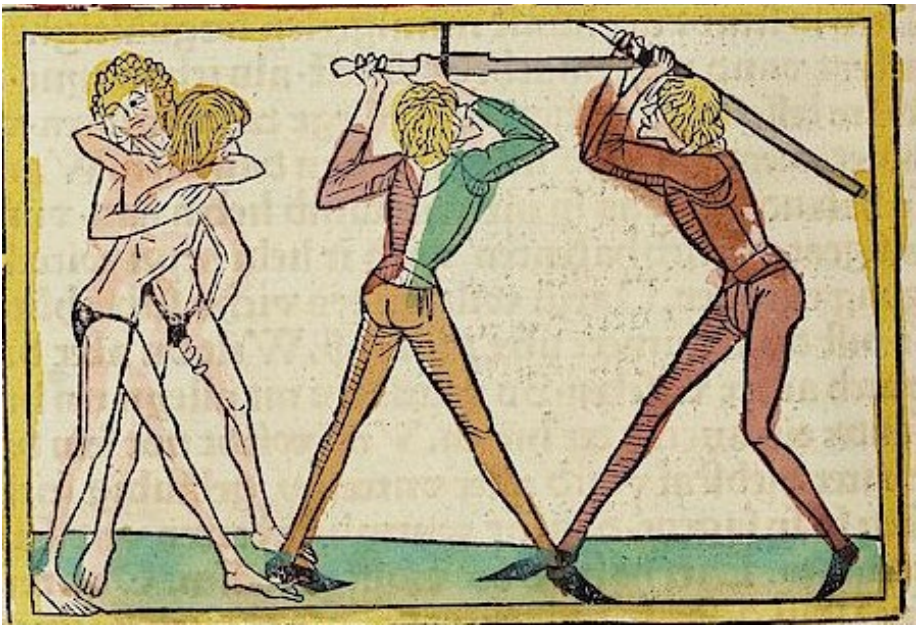

Fig 2: Artes Theatricae. From Rodericus Zamorensis Spiegel des menschlichen lebens © Universitätsbibliothek Heidelberg [GW M38511, 66v]

To end this section, a few words on a third category of arts, the *artes incertae*, or 'uncertain arts', i.e., those for which — as their name indicates — the precise operation and the possible outcomes of their operation are uncertain. The group includes disciplines like natural magic, divination, chiromancy and astrology. The latter discipline shares, with medicine, the characteristic that it was recognised as both a practical and a theoretical art, and was therefore a part of the university discipline of astronomy and a

[64] Carruthers, *The Book of Memory*.

[65] Carruthers, *The Craft of Thought*, p. 2.

[66] The point is made forcefully by Burgon in her brilliant dissertation: *The Mechanical Arts and Poiesis*.

'common' art simultaneously.[67] These arts typically addressed issues like the determination of the 'right moment' to do something or other ways to 'enhance' the outcome of a process or activity.[68] The Church looked down on these arts with great distrust and their practice could be dangerous, but they were nevertheless widespread. Astrology in particular enjoyed an enduring popularity, and was studied and practised by physicians who used this art to determine the right time for their treatments and to increase their chances of success.[69] Astrology was also of great importance in the legal world, for example for establishing the correct and favourable calendar for hearings. Already in the eleventh century, John of Seville (Johannes Hispalensis) of the notorious Toledo School of Translators (to which we will come back below), translated Arab astrological treatises based on Ptolemy into Latin.[70] In the background of these practices, the ancient idea of the relationship between the microcosmos and the macrocosmos continues to play a persistent role. Interestingly, this same John of Seville also translated the *Secretum secretorum*, a pseudo-Aristotelian Arab work containing Aristotle's supposed advice to his pupil Alexander, which will become the model for the later genre of the *Fürstenspiegel*, and which will also play a role in what comes next.[71]

II.3. Old and New Scholastic Logic

We are now arriving at the point where the Arab influence clearly begins to permeate the Christian West. The important point here, from the HEMA perspective, is the confluence of interest in natural philosophy, logic and medicine amongst the greatest of the Arab scholars (Avicenna, Rhazes, Averroes), and the way they shape the reform of the European university curricula from the thirteenth up to the fifteenth century, but also their lasting influence on literate vernacular culture. Moreover, it makes sense, in any case, to finish the story at least in its outline, so that HEMA scholars can situate their topic of interest within the broader historical picture. Keep in mind that the developments we have been outlining so far all take place long before the first fight books sees the light of day. But we will also note that this hardly matters, because sources working on each other can be separated by centuries and connected by an intricate web of transmissions, so as to be hardly recognisable on the receiving side.

We saw before that Boethius's compendium of and commentary upon the logical works of Aristotle (except for the *Posterior Analytics*) laid out the methodological basis of the early period of the School, the so-called *logica vetus*, the 'old logic'. From the twelfth

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[67] Lemay, 'The teaching of astronomy in medieval universities'.

[68] Kieckhefer, *Magic in the Middle Ages*, pp. 1-2.

[69] Weisser, 'Iatromathematik', pp. 652-655.

[70] Burnett, *Abû Mas'har on Historical Astrology*. For a specifically legally oriented text (*Liber introductorii maioris ad scientiam iudiciorum astrorum*), see Lemay, *Kitâb al-madkhal al-Khabîr. Introductorium maius in astrologiam*.

[71] Brinkmann, *Die apocryphen Gesundtheitsregeln des Aristoteles*.

century onwards, major Aristotelian texts and commentaries by Arab philosophers become available in Latin translations based on Arab sources, made in the Spanish city of Toledo by scholars like Gerard of Cremona, who translated Aristotle's *Posterior Analytics*, *Physics* and *De caelo* from the Arabic, as well as important medical works: Ibn Sina's (Avicenna) *Canon of Medicine* and Al-Razi's (Rhazes) *Liber ad Almansorem*. Half a century later, around 1220, the key figure is Michael Scotus, to whom are attributed translations of Aristotle's *De anima*, *De Caelo*, *De generatione et corruptione* as well as two great commentaries on Aristotle's *Physics* and *Metaphysics* by the extremely influential late twelfth century Arab scholar Ibn Rusd (Averroes, 'The Commentator').[72] Toledo had been a part of Al-Andalus, the Muslim-ruled part of the Iberian peninsula, and continued to be a cultural hotspot and home to a very influential school of translators, where Christian, Jewish and Muslim scholars and scientists not only encountered each other, but also actively cooperated in the sharing of knowledge on different disciplines.[73] Avicenna in particular had a profound influence on both philosophy and medicine. From the second half of the thirteenth century onwards, Latin translations of all Aristotle's major works from the original Greek become available, mainly through the efforts of two men: the English theologist and Bishop of Lincoln, Robert Grosseteste and the Flemish Dominican friar William of Moerbeke, stationed in Greece as Archbishop of Corinth for many years. On request of Thomas Aquinas, Moerbeke translated several major works of Aristotle into Latin directly from the Greek, and revised existing translations.[74] Aquinas mostly used his translations while writing his great philosophical and theological *Summae* even though, as we saw, the text corpus of the *logica vetus* based on Boethius's works remained in use as well. Supported by Aquinas's authority, Moerbeke's translations became a key factor in the renewal of the university curriculum in Paris and elsewhere in Europe.[75] But the 'old logic' did not disappear. The 'new logic', starting from the idea advanced in the *Posterior Analytics,* that knowledge can be organised in a *system* based on first principles accessible to intuition,[76] will integrate the techniques of the 'old logic' and use them to expand to other fields of knowledge like natural philosophy and metaphysics, but also to more practical arts like medicine.[77]

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[72] Schmieja, *Secundum aliam translationem*, pp. 316-338.

[73] Arráez-Aybar *et al.*, 'Toledo School of Translators', pp. 21-33.

[74] Buellens, *The Friar and the Philosopher*, pp. 47-48.

[75] For a detailed chronology of Aquinas' works and their relation to Moerbeke's translations, see Torrell, *Initiation à saint Thomas d'Aquin*.

[76] McKirahan, *Principles and Proofs: Aristotle's theory of demonstrative science*.

[77] Marenbon, *Later Medieval Philosophy*, pp. 47-49.

III. THE ARISTOTELIAN TRADITION IN MEDICAL LITERATURE AND PRACTICE

It is indeed no coincidence that around the same period as the one we discussed before (fifth-eleventh century AD), another process of transmission of ancient knowledge, this time not with respect to logic, but with respect to medicine and systematic philosophy, took place in Southern Europe, following a different road through the Middle East. Aristotle's *Posterior Analytics* and his key metaphysical works, as well as the medical literature based on his natural philosophy, had been studied jointly for centuries by famous Arab scholars and their works started to find their way into the West. By the twelfth century, the interest in medicine paved the way for the great Arab philosophers to slowly gain more widespread currency in Europe's university curricula,[78] as well as in more practical, vernacular literature; a fact relevant to HEMA-related *artes*-literature, as we will see. The Aristotelian approach to medicine is epitomised in the works of Galen,[79] who merged Aristotle's natural philosophy with the Hippocratic bodily humours theory[80] and his theory of temperaments.[81] Galen wrote an enormous number of books with empirical observations on nearly everything medical from that point of view.[82] His teachings, along with a host of empirical observations, have been compiled in a famous medical syllabus called *Tegni* which was used in medical schools in sixth-century Alexandria and would remain influential for centuries.[83] When the city fell to the Arab armies in 642, it travelled via Syria[84] to Bagdad, but also to Italy, where some early Latin commentaries and practical compendia on Galenic medicine were preserved. Four centuries later, the complete works of Aristotle and Galen came back to Europe via Arabic translations, following the opposite path of their initial transmission,

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[78] McVaugh, 'Galen in the Medieval Universities, 1200-1400'.

[79] Hankinson, 'The Man and his Work'.

[80] The four humours blood, phlegm, yellow bile and black bile should be in balance (*eucrasia*) in order for body and mind to be healthy. Hence the diet, the *regimen sanitatis*, plays an important role in medieval medicine. This is explained in the Hippocratic *On the Nature of Man*, to which Galen wrote a commentary. Kalachanis & Michailidis, 'The Hippocratic View on Humours', pp. 1-5; Keil: *Humoralpathologie*, pp. 641-643; Bergdolt, Keil: *Humoralpathologie*, pp. 211-213.

[81] Schmidt: *Temperamentenlehre (Neuzeit)*, pp. 1382-1383.

[82] He wrote a.o. *On the Elements*, *On temperaments*, *On Anatomy*, *On Therapeutics*, *On the uses of the parts of the body*, *On the causes of respiration*, *On the pulse*, *On Remedies*, *On the composition of drugs*, etc., He also wrote commentaries on the major works of Aristotle and Hippocrates. For an overview of his most important medical works, 'Selected works of Galen', translated by Montraville Green. For a full biography of the extant corpus: Kotrc and Walters, 'A bibliography of the Galenic Corpus', pp. 256-304.

[83] 'Tegni' is the Latin rendering of a Hellenic pronunciation of classical 'Technē' (τεχνῆ), art, technique, practical knowledge.

[84] Watt, *The Aristotelian Tradition in Syriac*.

accompanied by a number of top-quality works produced by Arab and Persian physicians and philosophers, like Rhazes, Avicenna, and Averroes.[85]

The oldest medical school in the proper sense of the word in Europe was the School of Salerno (*Schola medica Salernitana*), which originated at the beginning of the ninth century in the South Italian city of the same name.[86] The school likely started in a local monastery, but quickly rose to fame, attracting many students from Europe and the Middle East. Apart from its excellent reputation with respect to medical practice and empirical approach, the main reason was the systematic translation effort of Greek[87] and Arabic versions of lost works of Hippocrates, Galen and Dioscorides.[88] Sources in both Greek and Arabic would have been more easily available there than elsewhere in Europe, given the nearness of not only Alexandria, but also of Sicily, which used to be part of the Byzantine Empire, but was between the ninth and the eleventh century an Islamic kingdom, before it was conquered by the Normans. Interestingly, the school, which continued to exist until the eighteenth century, admitted women, of whom some rose to fame both as practising physicians and as medical scholars.[89]

During the eleventh century, the arrival of Constantinus Africanus (+1098), a monk from Tunis who brought a number of Arab books in his luggage, gave a significant boost to the school in Salerno. He composed the *Liber Pantegni* (παντεχνῆ), 'the Book of complete (medical) techniques')[90], a huge compendium of fragments of Greek and Arab medical texts, of which Galen's *tegni* and the Kitab-al-maliki (*Liber Regalis* or Royal Book) by the Arab physician Ali ibn al-Abbas al-Majusi (Hali Abbas) were the key parts. This book, a famous and widespread work from which many manuscripts survive, was part of the so-called old *ars medicinae*, a collection of seven texts that build up the medical curriculum at European schools and universities from the tenth until the first half of the thirteenth century.[91] We will come back to this book, because it is explicitly mentioned in Talhoffer's Thott Ms. 292 n2, a case I shall discuss in detail below. It is no coincidence that Toledo in Spain played again such a crucial role over the next two centuries, since it was European territory under Arab rule at a time when the Islamic world was experiencing a cultural boom and Arab rulers were pursuing tolerant policies

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[85] Campbell, *Arabian Medicine and its Influence on the Middle Ages*; Bourras-Vallianatos and B. Zipser, *Brill's Companion to the Reception of Galen*, especially Part II.

[86] Buellens, *Friar and Philosopher*, section: *Aristotle in the 'School' of Salerno*, pp. 34-35.

[87] Jacquart, 'Aristotelian Tought in Salerno'.

[88] Kristeller, 'The School of Salerno', pp. 138-194.

[89] They are known as *mulieres Salernitanae*, the women of Salerno. The most famous of them was Trota of Salerno (twelfth century), the world's first known gynaecologist. They were erased from editorial history from the sixteenth century onwards. Green, 'In search of an "Authentic" women's medicine', pp. 25-54. See also Green, 'The Development of the *Trotula*'.

[90] Burnett and Jacquart, 'The *Pantegni* and Related Texts', pp. 121-160.

[91] McVaugh, 'Galen in the Medieval Universities', p. 382.

towards their Christian and Jewish subjects.[92] A century later, the previously mentioned Gerard of Cremona (†1187), another a member of the Toledo School of Translators, was responsible for numerous new translations from Arabic into Latin during the twelfth century, amongst which a new version of Galen's *Tegni*, Avicenna's *Canon of Medicine* and Rhazes's *Liber ad Almansorem*. To the latter work, we find, again, a reference in the already mentioned Talhoffer Thott manuscript.

During the fourteenth and fifteenth century, this high-level academic literature started to spread outside the confines of universities and penetrate the realm of the traditional vernacular medicinal literature of herbals and *Arzneibücher*.[93] The German *Handschriftencensus* lists literally hundreds of medical manuscripts[94] from the early Middle Ages onwards, ranging from herbal treatments and preparations dating back to local oral traditions as well as to works on diagnostics and surgery clearly influenced by classical sources. Remarkably, a German compendium with treatments ascribed to the School of Salerno has survived in more than ten copies.[95] Another busy crossroad between learned sources of ancient origin and vernacular literature are the many varieties of 'iatromathematics', which is basically astrology employed for medical reasons. Galen's theory of elements and temperaments was merged with a fourfold scheme of planetary influences and bodily relationships based on Ptolemy's celestial mechanics.[96] No physician or surgeon worthy of the name would simply disregard astrological knowledge needed for determining the right moment for treatment of a disease of a specific organ, or for calculating the moment of its onset.

> As early as the mid-13th century, European physicians had an extensive foundation of astrology of ancient, Arabic and Hebrew origin, which had arisen as a result of the various waves of reception and assimilation in ancient and oriental astronomy and astrology. Thus,

[92] Tschanz, 'The Arab Roots of European Medicine'.

[93] Apart from local, Germanic knowledge, there was a very influential classical source on herbal treatments that never went out of circulation, the *De materia medica*, written by Pedanius Dioscorides in the first century AD. It left its traces even in the vernacular literature and may help to understand why medicine was so often connected to cooking and brewing, and hence to alchemy (in a large sense). It also helps to understand in what sense medicine might be considered a productive craft in the sense of the *artes mechanicae*. An interesting study highlighting this point from a modern perspective is De Vos, 'European Materia Medica in Historical Texts'.

[94] 479 to be exact. https://www.handschriftencensus.de/search/hss/1/medizin. Also Eis, *Mittelalterliche Fachliteratur*. And Riecke, *Sprachgeschichte und Medizingeschichte*.

[95] Keil, 'Deutsches salernitanisches Arzneibuch', p. 348. Also Fürbeth, "Das wissenvermittelnde Schrifttum des Mittelalters in deutsche Sprache", p. XXIII. For a list of copies of the mss. known so far, https://handschriftencensus.de/werke/82.

[96] Weisser, 'Iatromathematik', p. 654.

> the doctor could draw conclusions about the causes, therapeutics and prognostics of diseases from the constellation of the stars. [97]

These iatromathematical insights find their way to the public through the literature on the *Planetenkinder*, figurative emblems in which the relationships between stars, organs and moral properties are symbolically represented in highly imaginative visual depictions. They allow the practitioner to get an idea of the astrological constellation favourable to a planned undertaking quickly and efficiently, whether it be in medicine, martial arts or jurisprudence. An intricate web of interconnections and interactions between vernacular and learned sources on this topic thus finds its way into the hands of people who could build up a remarkable level of expertise without necessarily having had access to formal university education. They could even be literate without attending church school or university. Many more people than we are tempted to think could read and write back then, even if they did not possess any books (which were extremely expensive). [98] For many professions a modest level or reading and writing skills, as well as arithmetic, would be expected. Hence the success of the so-called Abacus schools that flourished in Italy from the thirteenth century onwards. They provided people who pursued a career in craft or commerce with basic skills in reading and mathematics thought in the vernacular.[99] The wide distribution of professional *artes*-literature in many disciplines and in every possible vernacular language is another telling evidence of this fact. We should not forget that Fiore, in the introduction to his *Fior di Battaglia* (Getty Ms.),[100] states explicitly that without books his craft could not be mastered, because it is so vast that nobody could memorise it. The quote is relevant for several reasons, because Fiore prides himself on being able to read, write (and draw) without being a university master. More than that, he equates his level of expertise with that of a university doctor in one of the higher faculties, for he claims he has comparatively spent as much time on it (40 years!) and read as many books about it as a university lawyer, theologian or physician would:

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[97] 'Bereits um die Mitte des 13.Jh. verfügte der europäische Arzt über einen umfangreichen Fundus an Astrologie antiker, arabischer und hebräischer Herkunft, wie er als Folge der verschiedene Rezeptions- und Assimilationswellen in der antiken und orientalischen Astronomie und Astrologie entstanden war. So konnte der Arzt aus der Konstellation der Gestirne Rückschlüsse auf Ursachen, Therapeutik und Prognostik von Krankheiten ziehen.' Weisser, 'Iatromathematik', p. 653.

[98] An interesting example is the Low Countries. Discussed in De Munck and Symoens, 'Education and Knowledge: Theory and Practice in an Urban Context': '(…) there was a relatively broad base of literate, skilled and educated people in the towns of the Low Countries, but (…) they thought principally in terms of practicality and functionality. Indeed, more recent research has shown that urban culture in the Low Countries was especially receptive both to neo-Latin influences from humanists and to the development of literature and scholarship in the vernacular.' p. 220.

[99] Grendler, *Schooling in Renaissance Italy: Literacy and Learning.*

[100] Rubboli and Cesari, *Flos Duellatorum.*

> Also I say that none of my students, especially those mentioned above, have ever had a book about the art of combat, except for Messer Galeazzo da Mantova. Because he said that without books no one can be a good master or a good student in this art. And I, Fiore, confirm it to be true, because this art is so vast that there is no one in the world who has such a big memory to keep in mind the fourth section of this art without books. Though not knowing the fourth section of this art I would not be a Master any more. So that I, Fiore, being able to read and write and draw, and having books about this art and having studied it for 40 years and more, yet I am not a perfectly good master in this art, although I am considered a good and perfect master in the art I mentioned above, by great noblemen who have been my students. And I say that if I had studied for 40 years law and politics and medicine as I studied the art of combat, I would have been doctor in those three subjects.[101]

This fits in a broader context, in which a growing approximation between 'the world of the mind and the world of practical action' takes place:

> Whereas a number of artists and wealthier or better-trained artisans acquired aspirations to belong to the learned and literate world of the liberal arts, the physical and manual knowledge of the mechanical arts gradually came to be seen as a legitimate form of access to the knowledge of divine creation.[102]

This state of affairs explains why we are confronted with the seemingly paradoxical situation that 'medicine' can be listed on the one hand by Hugh of St. Victor as one of the *artes mechanicae*, i.e., one of the 'lower' practical crafts, while on the other, it had developed into one of the three 'Higher faculties' (together with Law and Theology) in the upcoming university system.

> The quantity and variety of medical practitioners in the medieval period was overwhelming; they were literally everywhere, from members of the mendicant orders, to the village blacksmith who would also pull teeth. What might be termed the 'professional medical establishment' included a small group of university educated physicians and a much larger group of apprenticeship trained surgeons, barbers and barber-surgeons whose practice was organised by urban craft guilds. These

[101] Translation by E. Litta and M. Easton (second draft). http://www.fioredeiliberi.org/getty/

[102] De Munck- Symoens, 'Education and Knowledge', p. 220.

> groups began, in the later medieval period, to feel threatened by specialist retailers who were most commonly called apothecaries.[103]

Therefore, having access to medical handbooks was, certainly form the fourteenth century onwards, neither exceptional, nor in itself an indication of a specific social status.[104] In order to properly understand what we are dealing with when trying to pinpoint the origin of a direct or indirect reference to such a source, we have to take additional sociological and contextual data into account. The same is true with respect to other *artes*-literature as well. These arts were often not strictly regulated qua training or even in terms of practice, except in some cases at the local level. There was no guild nor *magister*-title for cooks, engineers or architects, while the number of books written on these subjects is very large. European martial arts, our main focus here, constitutes a special case in this respect: guilds do appear, but they are a rather late development.[105] Their authority moreover, remains local and even within a single territory, rarely goes unchallenged. the widespread availability and use of manuscripts in knowledge transmission confirms the pattern also in this case.

The next huge step in the development of medieval medicine, especially in the universities, takes place from the thirteenth century onwards. It is roughly the same period which saw the rise to prominence and intellectual independence of the university as an institution in its own right, and the appearance of the 'new logic' as opposed to the 'old logic' as the basis for academic argument and discovery. It started with the 'great age of Galenic translation' at the School of Toledo during the twelfth century, when Gerard of Cremona translated Al-Razi's (Rhazes) tenth century 'Kitab al-Mansouri' (*Book of Medicine dedicated to Mansur, or Liber ad Almansorem*), dedicated to Rhazes's patron Abu Salih Al Mansur, the governor of Ray,[106] and Ibn Sina's (Avicenna) extremely influential 'Al-Qanun fi al-Tibb' (*Canon of Medicine*) from Arab into Latin. This was followed by a number of translations from Arab and Greek into Latin, both from Galens' works and from his Arab successors. It took almost a century for these new translations to slowly penetrate the university curricula at Paris, Montpellier and Bologna, where it not so much replaced as complemented the 'old medicine' by the 'new medicine'.[107] Interestingly, both Rhazes and Avicenna also wrote comments on Aristotle's logical and philosophical works, like the *Analytics,* the *Physics*, the *Metaphysics* and the *De anima*, some of which got translated as well.

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[103] Booth, 'Physician, Apothecary, or Surgeon?'.

[104] "'learning while doing" does not rule out the fact that there were handwritten sets of instructions in the vernacular circulating in the day-to-day practice of, for example, medicine.' De Munck & Symoens, 'Education and Knowledge', p. 223.

[105] Gevaert & van Noort, 'Evolution of Martial Tradition in the Low Countries', pp. 376-410.

[106] Hence the Latin Title. A copy of *The Book of Medicine Dedicated to Mansur and Other Medical Tracts* is kept at the Library of Congress.

[107] McVaugh, 'Galen in the Medieval Universities', pp. 382-386.

This intricate connection between philosophy and medicine goes back to Antiquity and is related to conceptions on the intimate relation between the 'microcosmos' and the 'macrocosmos':[108] *The Best Physician is Also a Philosopher* is not without reason the title of one of Galen's own works.[109] In the Arab world this was recognised to the extent that physicians with a serious background in philosophy were designated by a special term, *Hakim*, to distinguish them for mere practitioners.[110] A century later, the aforementioned William of Moerbeke translated several works of Galen directly from the Greek,[111] which again found their way into the renewed university curriculum. So, we can say that at the apex of High Medieval university Scholasticism, the two fundamental pathways along which Aristotle's influence had worked its way over the past millennium, philosophy and medicine, finally came together again to form the bedrock of what would become the standard for intellectual life in the West in the next four centuries, and what we consider today as 'Scholasticism' per se. Of course, the history of Scholasticism does not stop here; it will continue to evolve and adapt to new circumstances and to exert its influence until deep into the seventeenth century, even in the new style of fight books that will start to appear on a large scale after the invention of the printing press.[112]

IV. A HEMA CASE: TALHOFFER'S THOTT MANUSCRIPT

IV.1. The *Hausbuch* genre as System of Knowledge

Let us review a pre-eminent example in HEMA Studies where a closer engagement with the kind of broad intellectual context marked by Aristotelian influences we discussed before would be helpful, since it clearly acts on it from various sides. Our focus will be on 1) genre issues (Hausbuch, *Füsternspiegel*, and their origins in the Aristotelian-Arabic *Secretum secretorum*-tradition); 2) the related question of the relevant systems of knowledge used (in the sense of Aristotle's *Analytica posteriora*, which connects again to point 1); and finally 3) concrete references and paraphrases or quotations from various sources in seemingly unrelated domains, like medicine and astrology. My claim is that such a review can help answer many remaining historiographical questions both methodologically and qua content or solve specific source-related interpretative conundrums.

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108 Weisser, 'Iatromathematik', p. 653.

109 Drizis, 'Medical Ethics in a writing of Galen', pp. 333-6.

110 Gerabek *et al.*, 'Philosophie und Medizin', p. 1151.

111 McVaugh, 'Galen in the Medieval Universities', p. 387.

112 Anglo, *Martial Arts in Renaissance Europe*.

Several manuscripts are attributed to Hans Tallhoffer,[113] the one of interest here is the manuscript of Copenhagen (Kongelige Bibliotek, Thott Ms. 290). In an excellent recent book on about it,[114] C.H. Tobler dedicates a contribution to the final pages of the Codex with 'Addenda and Esoterica'. Two elements in his discussion are relevant here: the format of the overall codex, and the medical and astrological references at its end. Tobler remarks that the Thott manuscript mixes fencing with 'seemingly unrelated subjects', and adds that it is not the only fight book that does so:

> Fencing treatises mix liberally with those on siege craft, veterinary science, astrology, magical formulae, name-based divination, and recipes for food, gun-powder and the hardening of iron. In the case of the commonplace book Hs. 3227a, the fencing material is just one of these subjects. The 1459 Talhoffer manuscript is, however, first and foremost a *Fechtbuch*, so it raises the question, why is there other material included?[115]

We should add 'medicine' to that list. The attentive reader might note that the enumeration of subjects given by Tobler consists entirely of mechanical and uncertain arts of the kind discussed before, namely to 1) armature, for the construction of protective martial equipment; 2) medicine, for the treatment of potentially inflicted wounds in a fight, 3) astrology, the art to find the perfect moment for a fight, and 4) magic, the art to influence the fights' outcome. The choice is clearly less 'unrelated' than it might appear at first glance, especially when we take Talhoffer's specialisation as master in judicial duelling into account.[116] Hence, we can confirm Tobler's conjecture that Talhoffer's choice has something to do with 'the holistic nature of medieval knowledge', not just in general, but in the well-defined context of a specific format, destined for a particular audience. Indeed, Tobler's next question concerns the format of the book, its presumed purpose and user. He hypothesizes that, given the broad collection of subjects, it could be a *Hausbuch* (a commonplace book), but then states that it seems too neat in its design for merely the author's own use. Tobler seems to believe that *Hausbücher* were exclusively created for personal use. However, we have commissioned examples that contradict this notion and happen to closely resemble the

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[113] For a review of these 5 works (and their later copies), see Burkart, 'Die Aufzeichnung des Nicht-Sagbaren' and Jaquet, 'Les arts magiques et les arts du combat'. For a list of the secondary literature on the manuscript, see the entry of Welle, 'Hans Talhofer' in the DLL.

[114] Tobler, 'Addenda and Esoterica in the Thott Talhoffer Codex', pp. 179-186. The catalogue entry at the Royal Danish Library can be found here:

https://soeg.kb.dk/discovery/fulldisplay?context=L&vid=45KBDK_KGL:KGL&search_scope=MyInst_and_CI&tab=Everything&docid=alma99123118027505763

[115] Tobler, 'Addenda and Esoterica', p. 179.

[116] Cfr. Jaquet, *Six Weeks*.

contents of our codex. A nice example is the *Hausbuch von Schloss Wolfegg,*[117] a handwritten and artfully illustrated compendium commissioned by an unknown noble patron and executed by multiple authors in the fifteenth century. Its contents deal with interrelated topics of practical knowledge intended for use by a nobleman of the time.[118] It is true that Wolfegg occupies a position somewhere between the genres of the *Hausbuch* and the *Fürstenspiegel*:, as we saw before another literary connection to the Aristotelian tradition that came to Europe via the Arab world.[119] The Wolfegg Hausbuch contains to a large extent the same kind of material as the Thott manuscript, except that the part on fighting is replaced by an elaborate chapter on different kinds of activities of the 'adeliges leben' (noble life), like hunting and tournament fighting (the reader will notice: all are examples of mechanical arts), and taking a bath or a stroll with your beloved one. Interestingly, all this is preceded by a Latin chapter on the art of memory, to make sure it is understood that the information in the book should be mastered and made one's own properly.[120] The function of the *Hausbuch* was indeed to provide its owner with all the practical knowledge in an integrated manner he or she needed in order to run the *Haus*, the family property.[121] Understandably, a large concluding section of the book deals with household tools and war machines in the tradition of Konrad Keyser's Bellifortis: one had to be able to maintain and defend one's property. Another topic that Thott shares with Wolfegg and Bellifortis is a *Planetenkinder* astrology.[122] Contrary to those works, however, our codex does not present beautifully executed illustrations of the planets and their qualities as mythological *Turnierreiter*;[123] it rather contains an elaborated explanatory text for each planet.[124] It also contains instructions on what seems to be onomancy (divination based on someone's name), currency exchange and arithmetic, calculating with the abacus in the Indo-Arabic number system. This difference in precision regarding astrology compared to the Wolfegg might not be merely coincidental. The fact that the Thott Codex is so focused on martial competence, combined with the renown of master Talhoffer as a specialist in judicial duels, might provide an explanation. For a distinguished master of judicial duelling, more sophisticated knowledge of various

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117 Keil, 'Wolfegger Hausbuch'.

118 Fürbeth, 'Das Wissensprogramm des Hausbuches', pp. 200-226.

119 Cfr. ft. 71.

120 Hoppe, 'Das Wolfegger Hausbuch, der Bellifortis und der junge Maximilian', pp. 15-50.

121 What Fürberth calls the 'Wisselnprogramm'; Fürbeth, 'Wissensprogramm'.

122 Klingner, *Die Macht der Sterne. Planetenkinder*, pp. 17-28. This is again related to what we saw before about the use of emblems for the cognitive mental machine; Carruthers, *Craft of Thought*, p. 2. It is moreover part and parcel of the mnemotechnic art of memory whose use was widespread from Antiquity up to the Renaissance. Discussed in Carruthers, *The Book of Memory*.

123 Tournament horseman, surrounded by the constellations his planet rules, and by the qualities and symbols. See Klingner, *Kraft der Sterne*, p. 128.

124 Tobler, 'Addenda and Esoterica', p. 182.

divination techniques would be vital in determining the constellation under which his client's fight will take place, and hence his chances of success. Like his fighting skills, the master shares his knowledge with his client in a specially designed *Hausbuch* with a specific *Wissensprogram*[125] (coherent system of knowledge) designed to prepare someone fully and completely for the occasion — it was, after all, a matter of life and death. The Thott Codex as a whole thus constitutes a unique variant of *Hausbuch*, intended for noblemen who faced this particular kind of duelling situation. This interpretation is supported by the fact that onomantic techniques are much more extensively treated in similar Talhoffer manuscripts, like the Gotha,[126] but were typically included also in the original version of the *Fürstenspiegel*, the *Secretum secretorum*, but the dangerous *ars incerta* was left out of most later copies.[127] In the pressing case of a judicial duel coming up, the need to include it was apparently stronger than fear for ecclesiastic authority. The presence of exercises with the Jewish alphabet in the Thott Codex might also fit into that same vein. Name mysticism has strong roots in the Kabbalistic tradition.[128] Why would it otherwise make sense to 'translate' German names and sentences into Hebrew characters, if it were not for onomantic purposes? After all, Kabbalistic magical and symbolical practices had been present in Europe at least since the twelfth century and had been part of a more secretive (for very good reasons) mystical movement.[129]

IV.2. Iatromathematical Themes in Ms. Thott 290.2°

Final elements Tobler discusses in his piece are the medical fragments that follow immediately on the astrological part of the Thott Codex. We previously discussed the synthesis between Galen's humoral pathology and Aristotelian-Ptolemaic cosmology. The composition of Talhoffers' 'Esoterica' in the Thott manuscript follows this pattern neatly, as Tobler rightly points out, however without drawing the proper conclusions

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125 Fürbeth, 'Wissensprogramm'.

126 From its composition, it is clear that the Gotha Talhoffer Codex belongs to the same category of judicial Hausbuch defined above, even though the Bellifortis kind of material is scarce, and the medical part is not in there at all. The overall *Wissensprogramm* presented however, contains all the basic elements we indicated. The reason why the medical part is lacking, might be that a judicial duel was on life and death anyhow. The extensive elaboration of the onomantic part in Gotha stresses even more the shift in focus form 'result' to 'right moment' when compared to the Thott Codex. See Jaquet, 'Les arts magiques et les arts du combat'. The Gotha (MS. Chart A 558) is kept at the library of the Universität Erfurt: https://nbn-resolving.org/urn:nbn:de:urmel-d010e5c0-48e3-4c36-afdb-ee09b55d647d6.

127 Compare, e.g., with the onomantic tables in the Russian version. Surviving copies which still do contain that part are found in Spanish, English and Russian translations. Burnett, 'The Prognostications of the Eadwine Psalter', pp. 166-167; Ryan, *The Bathhouse at Midnight: An Historical Survey of Magic and Divination,* pp. 314-316.

128 Tirosh-Samuelson, 'Kabbalah: A Medieval Tradition', pp. 552-587.

129 Dan, 'The Kabbalah in the Middle Ages'.

from it.[130] In the astrological part, a lot of effort goes into an iatromathematical description of the planetary 'natures', and how they influence their human 'children' (*Kinder*). First, there is a very brief anatomical and physiological description of the main organ functions (with extra attention to the lungs and the importance of 'good air'). Then follows an excerpt from a tract on humorpathology clearly in the Galenic-Aristotelian tradition, which is attributed to a certain 'master Almonser,' who is said to have written a book 'Panthagin' in which a hot and dry, or wet and cold nature is in line with the tradition attributed to the various organs.

> In the book that is called *Pantegni*, Master al-Manṣūr says that some limbs in the human being are hot and dry, and some limbs are cold and wet in their nature.[131]

The various interpreters of the text seem to feel somewhat at a loss here. That 'Panthagin' refers to the *Pantegni*, the compendium of Galenic and Arab medical sources made by Constantine the African (discussed before) in the eleventh century seems clear enough, but who is 'master Allmonser', its supposed author? D. Bachmann (followed by Tobler) hypothesises on Wiktenauer that the reference could be to Mansur ibn Ilyas, an early fifteenth century Persian physician of some renown. He definitely is not the author of the *Pantegni*, which probably explains why Bachmann claims that Mansur is referred to merely as an authority in Talhoffer's source.

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[130] Tobler, 'Addenda and Esoterica', p. 185.

[131] 'Maister allmonser spricht in dem buoch daz da haisset panthagin, daz ettliche gelider an dem menschen haiß und trucken sind und etliche kalt und fücht an der Nature.' Transcription by Bachmann, translation by Garber, in: Chidester, Wiktenauer: 'Hier lert der Jud Ebreesch', https://wiktenauer.com/wiki/Hie_lert_der_Jud_Ebreesch

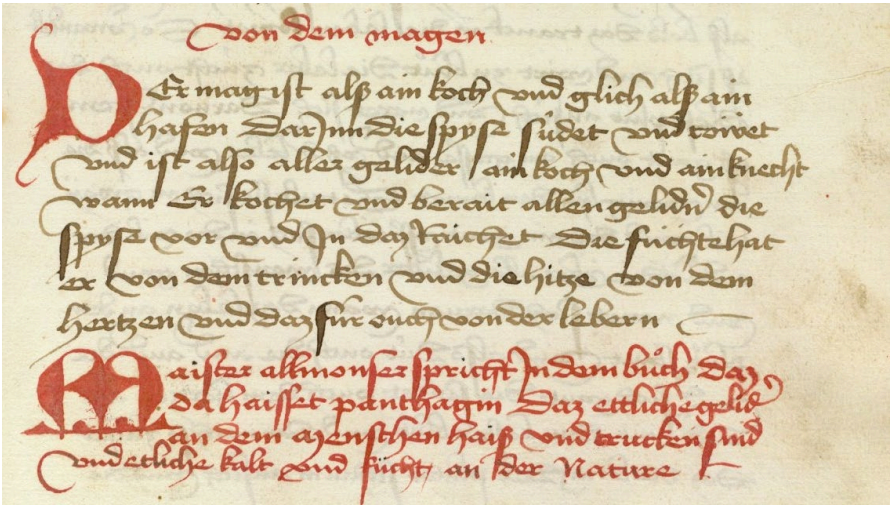

Figure 3: A page from the Talhoffer Thott Codex referring to 'Allmonser' © Royal Danish Library [Thott 290 folio, 141r]

However, given the time needed for transmission, it is highly unlikely that Mansur's writings would have reached Europe already to such an extent that someone like Talhoffer would have access to them, which casts doubt on the claim. Besides, the book title cited and its presumed author in Talhoffer's source have nothing to do with each other in reality: the Persian Mansur never wrote a *Pantegni*, and we know the person who did. How can this be explained?

My guess is that Talhoffer's source for the medical part of his manuscript is some iatromathematical compendium in the vernacular, that its author did not know Greek and possibly not even Latin, and that he therefore rendered the Greek title phonetically. The reason would be a lack of understanding of its real meaning on the part of the the book's copyist. In fact, we need no further hypotheses, because we know exactly who 'master Allmonser' was. He was no medical author, but the governor of Ray and the patron of the very influential tenth century Arab physician Rhazes[132], who dedicated his *Book of Medicine dedicated to Mansur* to him, a book that is known in the Latin world by the title 'Liber ad Almansorem', as we saw before. Moreover, this book enjoyed an enormous authority and reputation. The *Pantegni* wasn't written by 'maister Allmonser' either, but by Constantinus Africanus — as a compilation of parts of the works by Al-Majusi (Hali Abbas) and Galen, which we discussed before.

So here is my claim: Talhoffer quotes from an iatromathematical text source in the Galenic tradition, written in the vernacular and clearly a compilation in which authorship is confused, and which dates back to much older sources. We know that

[132] Bazmee Ansari, 'Abu Bakr Muhammad Ibn Yahya Al-Razi: Scholar and Scientist', pp. 155-166.

such books existed.[133] It is indeed very probable that Talhoffer got his medical information from works like, e.g., the *Deutsches Salernitanisches Arzneibuch*.[134] Books like this were kept for centuries in the monasteries' libraries, and could well have been used by visitors from many places, centuries after their production or acquisition. Being old for a text was, contrary to our own times, not considered a bad thing; it rather contributed to a sources' authority. There were hundreds of such books in circulation. This one serves merely as a possible example; I do not claim at all that Talhoffer used this book in particular in any way. In order to do so, a detailed textual analysis and comparison between the relevant parts of the two manuscripts has to be carried out, an endeavour which falls outside of the scope of this article.

V. CONCLUSION

We still tend to study fight books too much as an isolated genre. In order to understand the precise place they occupy in the sociocultural and historical fabric of their time, and to help them unlock a better understanding of our own culture in its dealings with armed combat and violence, we need to be broader and more specific at the same time. Fighting was an art, and part of a not always explicit, but nevertheless coherent system of knowledge. Detailed textual analysis combined with the evaluation of a number of sociocultural and sociohistorical data is the kind of work required to assess the origin and precise meaning of references to and quotes in fight books from, e.g., medical or astrological sources available at the time, and to place them within the prevailing larger intellectual framework, shaped by a complex interplay between university scholasticism and the practical arts. This framework turns out to be permeated with Aristotelian influences in more ways than is to be expected. Our analysis of the final part of Talhoffer's Thott's manuscript shows that from this perspective, a coherent interpretation of its seemingly heterogenous content is possible, and that specific references to Arab and Hebrew sources start to make sense. More generally, at least some fight books appear to belong to a proper subgenre on the crossroad of the *Hausbuch* and the *Fürstenspeigel*, and constitute a system of knowledge *sui generis* within the larger category of *artes*-literature. This conclusion will remain true with respect to many other subjects that appear in fight books, especially in those from the sixteenth and seventeenth century. It will also help us unlock the precise interconnections between different societal strata and practices: literacy, its distribution and its use; the nature and evolution of the interaction between different professional domains, didactical systems of knowledge and ways to convey them (the Latin university tradition vs. the vernacular of the practical arts); knowledge and social mobility, to name only a few. The work can

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[133] Fåræus, 'Grundlegende Fakten über die Pathologie der Körpersäfte und ihrer Relikte in Volksmedizin', pp. 444-458.

[134] Like the *Klosterneuburg, Augustiner-Chorherrenstift, Cod. 1239,* second half of the 13th C., digitised by the Austrian Academy of Sciences: https://manuscripta.at/diglit/AT5000-1239/0001

be tedious but it is definitely worthwhile, because it is only by studying these microphenomena that we attain a much clearer and deeper insight in the macroworld of the period. I hope that this summary of topics and sources and its application to one particular case may be of some help to the researcher who wishes to do more than merely scratch the surface.

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