Pia Eckhart

Medial Translations and Material Manifestations

The *Fasciculus Medicinae* in Physician-Patient Interaction

1 Introduction

This study on the simultaneity of manuscript and print in the late 15th and 16th centuries focuses on the so-called *Fasciculus medicinae*, a medical book comprised of short treatises and images on the subjects of uroscopy, phlebotomy, women's health and reproduction, surgery, and anatomy.[1] It offers ample opportunity to examine the interrelations of manuscript and print since its many material manifestations differ in language, medium, size, content, arrangement, paratextual features, and visual organization. In order to better understand why the *Fasciculus medicinae* materialized in so many differing shapes, I will consider two key aspects. The first addresses the question of how short texts (and images)—the building blocks of many late medieval and early modern practical and scholarly multi-text manuscripts, composite manuscripts, and *Sammelbände*—moved between media in a European context. This concerns the degree to which printing multiplied and 'fixed' texts and images. The second key aspect regards the history of the medical book itself and the part it played within the cultures of healing of the time, that is, the interaction of the learned and unlearned as well as the validation of knowledge about human bodies and appropriate treatment. My hypothesis is that at least part of the appeal of the *Fasciculus medicinae* lay in its potential to facilitate communication between physicians and patients of middling means and education.

The *Fasciculus* is an interesting object of study for several reasons: After this collection of images and short medical texts had moved from a diverse late medieval manuscript tradition into print in 1491, it underwent several editions and was almost immediately translated into Italian and Spanish. In the early 16th century translations into Dutch and (partly) German followed. But alongside more than 20 prints up to the 17th century, the *Fasciculus medicinae* was still written (and drawn) by hand.

The printed *Fasciculus medicinae* is primarily known for its impressively large and beautiful woodcuts that have been passed on and transformed through the various editions and reprints (Fig. 1a–b and 3). Karl Sudhoff devoted several studies to the

1 I would like to thank Uwe Maximilian Korn for his thoughtful response to an earlier draft of this paper as well as all the conference participants for critical questions and the editors and reviewers for their feedback. I am also very thankful for the opportunity to discuss my findings with the members of the working group "Historische Wissens- und Gebrauchsliteratur", see: https://hwgl.hypotheses.org/ (accessed 26/04/2022).

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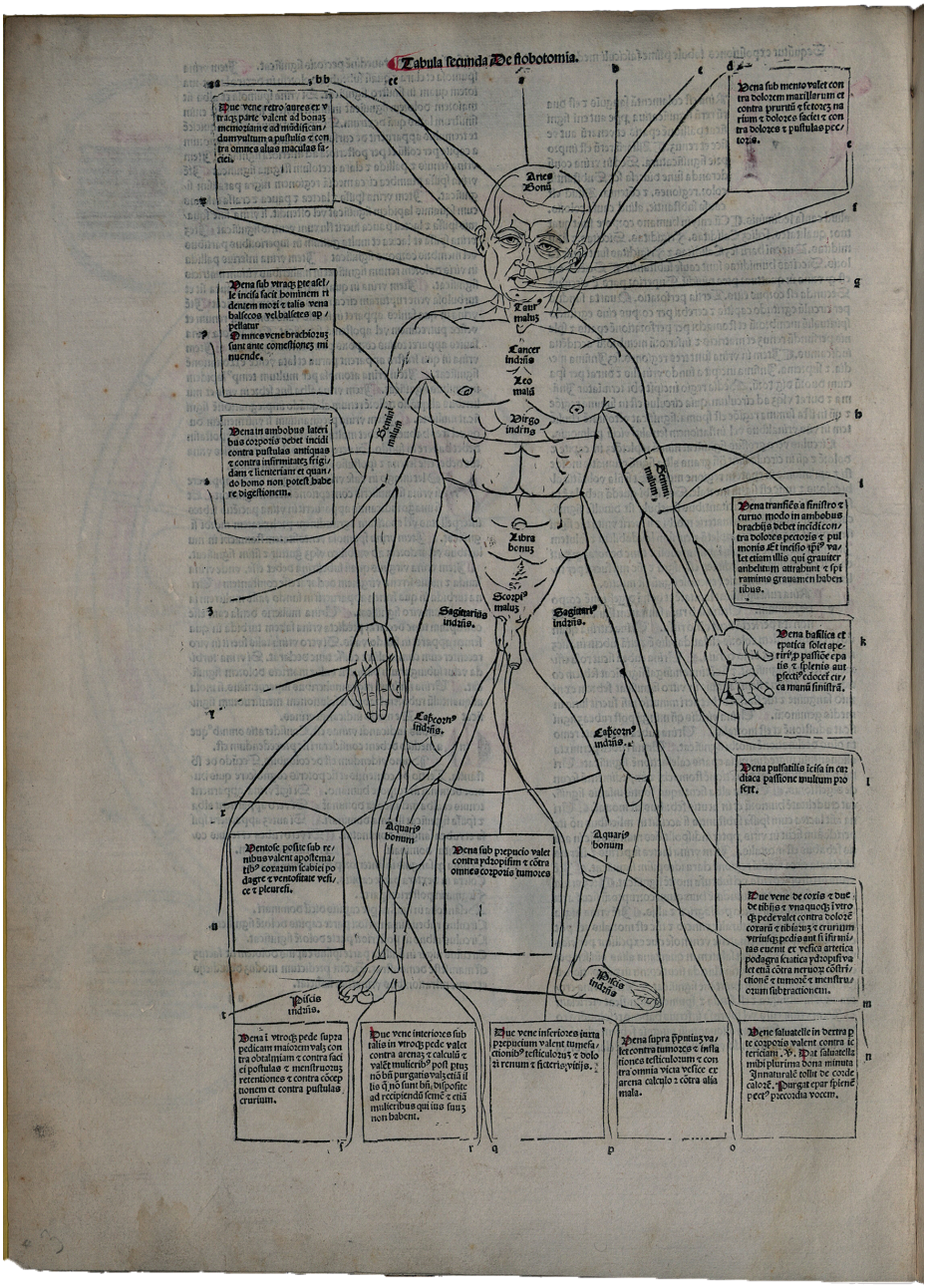
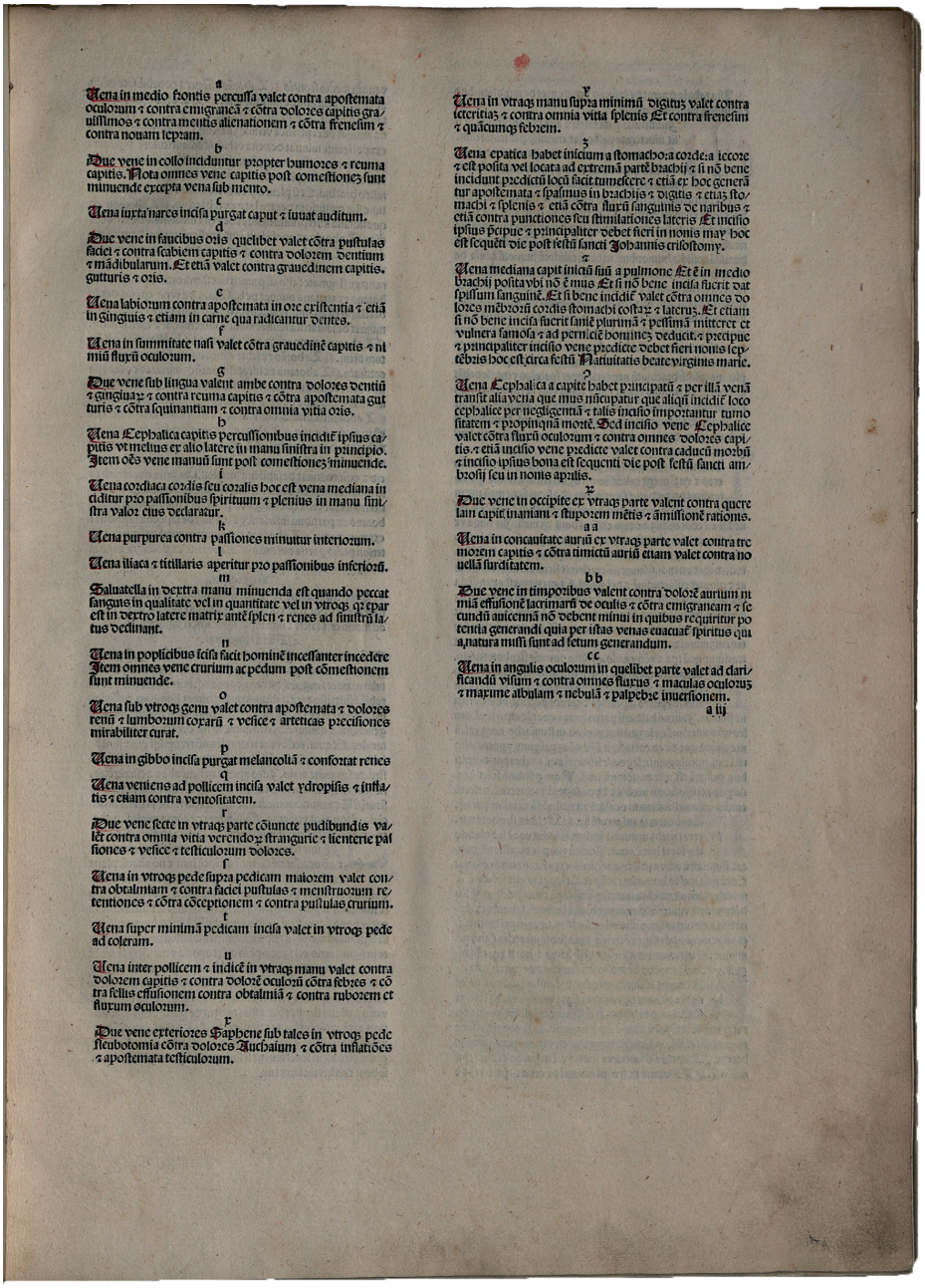


Fig. 1a: *De Flobotomia.* The Vein Man with explanations, Latin Venice 1491, Munich, Bavarian State Library, Rar. 749, fol. [2v].



a

Uena in medio frontis percussa valet contra apostemata oculorum ⁊ contra emigraneā ⁊ cōtra dolores capitis grauissimos ⁊ contra mentis alienationem ⁊ cōtra frenesim ⁊ contra nouam lepram.

b

Due vene in collo incidūtur propter humores ⁊ reuma capitis. Nota omnes vene capitis post comestiones sunt minuende excepta vena sub mento.

c

Uena iuxta nares incisa purgat caput ⁊ iuuat auditum.

d

Due vene in faucibus otis quelibet valet cōtra pustulas faciei ⁊ contra scabiem capitis ⁊ contra dolorem dentium ⁊ mādibularum. Et etiā valet contra grauedinem capitis. gutturis ⁊ otis.

e

Uena labiorum contra apostemata in ore existentia ⁊ etiā in gingiuis ⁊ etiam in carne qua radicantur dentes.

f

Uena in summitate nasi valet cōtra grauedinē capitis ⁊ nimiū fluxū oculorum.

g

Due vene sub lingua valent ambe contra dolores dentiū ⁊ gingiuaꝝ ⁊ contra reuma capitis ⁊ cōtra apostemata gutturis ⁊ cōtra squinantiam ⁊ contra omnia vitia otis.

h

Uena Cephalica capitis percussionibus incidit ipsius capitis vt melius ex alio latere in manu sinistra in principio. Item oēs vene manuū sunt post comestiones minuende.

i

Uena cordiaca cordis seu cozalis hoc est vena mediana in aditur pro passionibus spirituum ⁊ plenius in manu sinistra valet eius declaratur.

k

Uena purpurea contra passiones minuitur interiorum.

l

Uena iliaca ⁊ titillaris aperitur pro passionibus inferiorū.

m

Saluatella in dextra manu minuenda est quando peccat sanguis in qualitate vel in quantitate vel in vtroq; q; epar est in dextro latere matrix ante splen ⁊ renes ad sinistrū latus declinant.

n

Uena in poplicibus scisa facit hominē incessanter incedere Item omnes vene crurium ac pedum post cōmestionem sunt minuende.

o

Uena sub vtroq; genu valet contra apostemata ⁊ dolores renū ⁊ lumborum coxarū ⁊ vesice ⁊ arteticas precisiones mirabiliter curat.

p

Uena in gibbo incisa purgat melancoliā ⁊ confortat renes

q

Uena veniens ad pollicem incisa valet ydropisis ⁊ inflatis ⁊ etiam contra ventositatem.

r

Due vene secte in vtraq; parte cōiuncte pudibundis valēt contra omnia vitia verendoꝝ stranguric ⁊ lienterie passiones ⁊ vesice ⁊ testiculorum dolores.

s

Uena in vtroq; pede supra pedicam maiorem valet contra obtalmiam ⁊ contra faciei pustulas ⁊ menstruorum retentiones ⁊ cōtra cōceptionem ⁊ contra pustulas crurium.

t

Uena super minimā pedicam incisa valet in vtroq; pede ad coleram.

u

Uena inter pollicem ⁊ indicē in vtraq; manu valet contra dolorem capitis ⁊ contra dolorē oculorū cōtra febres ⁊ cōtra fellis effusionem contra obtalmiā ⁊ contra ruborem et fluxum oculorum.

x

Due vene exteriores Paphene sub tales in vtroq; pede flebotomia cōtra dolores Auchaium ⁊ cōtra inflatiōes ⁊ apostemata testiculorum.

y

Uena in vtraq; manu supra minimū digitus valet contra icteritias ⁊ contra omnia vitia splenis Et contra frenesim ⁊ quācunq; febrem.

z

Uena epatica habet inicium a stomacho: a corde: a iecore ⁊ est posita vel locata ad extremā partē brachij ⁊ si nō bene incidunt precisi locū facit tumefiere ⁊ etiā ex hoc generā tur apostemata ⁊ spasmus in brachijs ⁊ digitis ⁊ etiaz stomachi ⁊ splenis ⁊ etiā cōtra fluxū sanguinis de naribus ⁊ etiā contra punctiones seu stimulationes lateris Et incisio ipsius scipue ⁊ principaliter debet fieri in nonis may hoc est sequēti die post festū sancti Johannis crisostomy.

ꝛ

Uena mediana capit inicium suū a pulmone Et ē in medio brachij posita vbi nō ē mus Et si nō bene incisa fuerit dat spissum sanguinē. Et si bene incidit valet cōtra omnes dolores mēbrorū cordis stomachi costaꝝ ⁊ lateruꝫ. Et etiam si nō bene incisa fuerit lamē plurimā ⁊ pessimā mitteret et vulnera famosa ⁊ ad pernicie homines deducit. ⁊ precipue ⁊ principaliter incisio vene predicte debet fieri nonis septēbris hoc est circa festū Natiuitatis beate virginis marie.

o

Uena Cephalica a capite habet principatū ⁊ per illā venā transit alia vena que mus nūcupatur que aliqñ incidit loco cephalice per negligentiā ⁊ talis incisio importantur turno situatem ⁊ propinqñā morte. Sed incisio vene Cephalice valet cōtra fluxū oculorum ⁊ contra omnes dolores capitis. ⁊ etiā incisio vene predicte valet contra caducū morbū ⁊ incisio ipsius bona est sequenti die post festū sancti ambrosij seu in nonis aprilis.

ꝝ

Due vene in occipite ex vtraq; parte valent contra querelam capit inaniam ⁊ stuporem mētis ⁊ āmissionē rationis.

aa

Uena in concauitate auriū ex vtraq; parte valet contra tremorem capitis ⁊ cōtra tinnitū auriū etiam valet contra nouellā surditatem.

bb

Due vene in timporibus valent contra dolorē aurium nimiā effusionē lacrimarū de oculis ⁊ cōtra emigraneam ⁊ secundū auicennā nō debent minui in quibus requiritur potentia generandi quia per istas venas euacuat spiritus qui a natura missi sunt ad semen generandum.

cc

Uena in angulis oculorum in quelibet parte valet ad clarificandū visum ⁊ contra omnes fluxus ⁊ maculas oculoruꝫ ⁊ maxime albulam ⁊ nebulā ⁊ palpebre inuersionem.

a iij

Fig. 1b: *De Flobotomia*. The Vein Man with explanations, Latin Venice 1491, Munich, Bavarian State Library, Rar. 749, fol. [3r].

creation of the first Latin print of 1491 and the manuscript traditions of its individual pictorial and textual elements. In his wake scholars have focused especially on the first Latin and Italian editions and studied them intensively.[2] More attention has been paid to the medical images than to the texts, and print editions have been examined detached from contemporaneous manuscripts.[3] Furthermore, there is no overview of vernacular manuscripts available yet.[4] It should be noted, though, that the material is dispersed all across Europe: In addition to the printed translations, it is found in manuscripts combined with French, Dutch, German, English, and Czech texts.[5] Alas, comparative studies across language borders are scarce.[6] This is a regrettable omission because the processes that took place during translations to meet the cultural expectations of the target audience can be a key to understanding the production and transformation of knowledge.[7] Translations therefore are indicators of the shifts in meaning between manuscript and print targeted by this volume.

The colophon of the first Latin print attributed the *Fasciculus medicinae* to a German physician named Johannis de Ketham. Karl Sudhoff undertook to identify Ketham as Johannes von Kirchheim, a German physician and professor active at the University of Vienna. There is now consensus, however, that Kirchheim was not responsible for either the content or the print edition.[8] Instead, as will be shown in what follows, contemporaries labeled highly diverse handwritten and printed books as 'Fasciculus medicinae' or ascribed them to 'Ketham'. I therefore use 'Fasciculus medicinae' when referencing the notion of a virtually coherent literary work whose multifaceted material manifestations nonetheless differ considerably on the textual, material, medial, and visual level. This terminology does not follow a traditional understanding of the

2 See Sudhoff 1925, which is the historical introduction to the facsimile of Latin Venice 1491; Sudhoff 1911; Sudhoff 1908b; Keil 1983; Singer 1925; Pesenti 2001, summarizes and reflects critically on older scholarship by Sudhoff and Singer; see also Coppens 2009a; Coppens 2009b.

3 Chris Coppens, for example, in his monograph on the 'many lives of a book' devotes himself to identifying all known printed editions and examines the different woodblocks used to illustrate these, but does not consider manuscripts, Coppens 2009a. For a chronology of the complete editions of the *Fasciculus* (in Latin and in translation) and a stemma see Coppens 2009b, 199–203.

4 Portail Biblissima, the beta version of a "virtual library of libraries" that allows to search IIIF compatible manuscript resources across various collections, provides some hits, see: https://portail.biblissima.fr (accessed 28/09/2021).

5 Apart from the manuscripts discussed here and in the cited literature, I would like to mention two manuscripts that have not received much attention yet: A medical collection in Prague, National Library of the Czech Republic, XVII.H. 26; Astrological and medical compilation, San Marino CA, Huntington Library, mssHM 64.

6 See Zaun/Geisler 2011; Herrera 1990 is a critical edition of the Spanish 1494 Zaragoza edition; Singer 1925, is a facsimile and commentary on the Italian Venice 1494 edition. Pesenti 2001 gives a careful comparison between the Latin Venice 1491 and Italian Venice 1494 editions.

7 See Burke 2007; Hosington 2015.

8 For this hypothesis see Sudhoff 1925, 41–43; Keil 1983. For a concise overview on the discussion of the *Fasciculus*'s alleged author see Coppens 2009b, 169–171.

'authorial work', but rather Tjamke Snijders's critical reflections.[9] The virtual work exists as a mental conception that arises from the perception of commonalities when looking at different exemplars. By ascribing meaning to the commonalities, a sense of belonging is established between the exemplars. The virtual work is therefore not an ideal or authorial text but stands for the sum of perceptible properties that connect real objects with each other. For me, it serves above all as a tool to enable comparisons and to work out differences and similarities between book objects, not only on the textual level (which the traditional terminology implies) but also in terms of materiality and visual organization. The term 'Ketham material', on the other hand, in what follows refers to the images and texts that form the core of the first Latin print of 1491, which provides a meaningful reference point in the fabric of tradition.

Because its image-text arrangements survive in highly diverse forms spanning different language areas, the *Fasciculus* provides a valuable case study to scrutinize the simultaneities of print and handwriting as well as the shifts in meaning ascribed to them in a European context. The way scholars described the relationship between printed and handwritten books in the centuries after the establishment of the printing press in Europe has changed, away from 'media revolution' and 'media change',[10] to simultaneity and functional differentiation,[11] and then again to more intertwined processes of production and reception or use of printed books and manuscripts[12] and their social dimensions.[13] Accordingly, the interest in early modern manuscripts and the complexity of print-manuscript interrelations has increased in recent times.

The editors have drawn our attention to shifting meanings that come with the choice of media. Medical and health-related issues remained prevalent in European manuscripts such as household records, and the individually composed 'scientific' or practical codex, which became a common new manuscript type in the later 15th century.[14] The case of the *Fasciculus* is interesting because the material printed in 1491 consists of short image-text arrangements that could easily fit in these types of manuscripts as well. The usual connotation of print in European contexts with textual 'fixedness' and authority or even authorial control does not fit well here.[15] Not least, because the *Fasciculus*'s rich print history overlaps with ongoing processes of manual copying from manuscripts and prints.

9 Cf. Snijders 2013. I have adapted Snijders's terminology before to continuously printed chronicles, Eckhart 2020, 190–193.

10 See on Elizabeth Eisenstein's influential study *The Printing Press as an Agent of Change* and the reactions it provoked Burlinson 2016, 3–4.

11 Cf. Schnell 2007; Brandis 1997.

12 Cf. McKitterick 2003; Meyer/Meier 2015; The Multigraph Collective 2018, 185–203. See also Nafde 2020, who argues that scribes adapted to the aesthetic of print.

13 See Burlinson 2016, 6–7, highlighting poetry and miscellaneous manuscripts; King 2020.

14 See based on manuscripts from German collections Brandis 1997, esp. 55; Wolf 2011, 19–20.

15 See Schnell 2007, esp. 91–93; McKitterick 2003, esp. 4.

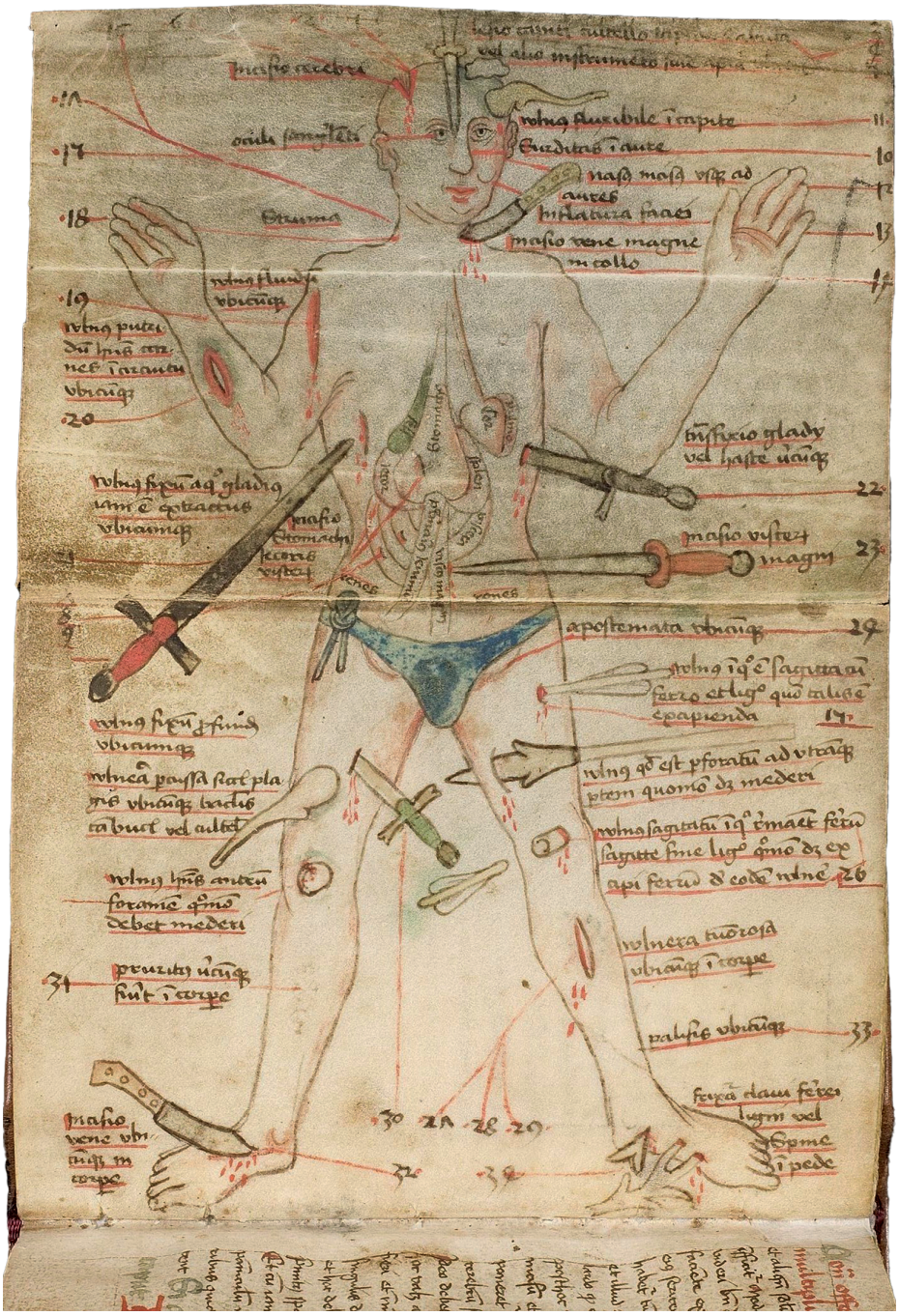


Fig. 2: The Wound Man on a fold-out parchment leave, ca. 1450–1470, Heidelberg, University Library, Cod. Pal. germ. 644, fol. 80r.

In the case of the *Fasciculus*, the potentially shifting meanings ascribed to it should be seen in the context of the healing cultures of the time. Scholars have usually understood this book as a medical vademecum for physicians, a collection of therapeutic, diagnostic, and iatromathematical treatises, and its images as mnemonic devises for medical practice.[16] Implicitly, this assessment has been made primarily on the basis of its 'original' form of the first Latin and Italian printed editions from Venice. The assumption follows that the *Fasciculus* was addressed to learned physicians and maybe well-trained surgeons. According to Michael Solomon, late medieval medical writers distinguished at least in theory between "knowledge that pertained to a 'regiment of preservation' (hygiene)" on the one hand, which could be shared with non-professionals without entailing risky diagnosis and therapies. On the other hand, knowledge that "pertained to a 'regiment of cure' (therapeutics)" should safely rest with learned professionals.[17] Yet the assertion of a clear hierarchical order, in which learned medicine is on top and common medicine subordinate, is more part of textual strategies and professional self-representation by physicians than a reflection of the social realities of medical practice in medieval and early modern Europe. Different types of healing practices coexisted, while at the same time "medieval scholastic medicine had no serious intellectual rivals".[18] Learned physicians, non-academic practitioners, and ordinary people widely agreed on the fundamental workings of the human body and shared a basic understanding of diseases and their treatments.[19] Against this background, it seems valuable to consider a repositioning of the *Fasciculus medicinae* in its various configurations within practical medicine and health care.

I therefore would like to put forth some general considerations as to why the *Fasciculus* may have materialized in so many differing shapes. The *Fasciculus* offers insights into how short texts moved between media. To what extent could images, textual content, and image-text arrangements be stabilized or 'fixed' by print? How did visual organization and materiality contribute to fixate—or make more flexible for that matter—the contemporary notions of the *Fasciculus medicinae* as a virtual work? Contextualizing its manifestations within the culture of healing of the time sheds light on possibly differing attributions of meaning between learned medicine and lay self-care.

16 Keil 1983, 1152; Coppens 2009a, 10; Coppens 2009b, 171.

17 Solomon 2010, 22. Solomon defines popular medical treatises as texts dealing primarily with instructions on healthy living and self-control, but alleges: "But limiting medical information to the realm of non-natural hygiene, or the daily regulation of the body, proved to be more an ideal than a reality. There are very few vernacular medical treatises that do not contain at least a handful of pharmaceutical and practical therapies for various ailments." Solomon 2010, 23.

18 Horden 2013, 41–42.

19 "When it came to the basic understanding of diseases and their treatment, there was no fundamental divide between the world of learned medicine and that of the common folk." Stolberg 2014, 666.

First, I consider the *Fasciculus*'s print history, focusing on the diversity that comes together under the label 'Fasciculus medicinae' (2). The special case of the German book market that did not produce a full German print edition but a range of partial translations in print and manuscript is then discussed (3). To get the full picture, I will examine the manuscript traditions that led to the Latin print of 1491 and the passing on of the Ketham material in handwriting in the 16th century (4). The last paragraph considers anew the *Fasciculus*'s positioning in (un)learned medical practice and book consumption (5).

2 One Label, Diverse Manifestations in Print

The material that was at the core of what would be called 'Fasciculus medicinae' was first printed by the brothers Giovanni and Gregorio de Gregori in Venice. Although the editions later published under this label are highly diverse, the first print, Latin Venice 1491,[20] serves as a useful reference point. Therefore, its contents and material appearance must be described briefly. This slim but generously dimensioned print of only 16 extra-large folios offered six medical woodcuts accompanied by explanatory legends and short treatises. The pages are set in a two-column layout and a gothic type. The consecutively numbered images (or *tabulae*) structure the print in the following way:[21] 1) *Tabula prima* shows a Urine Wheel and is accompanied by expositions on the different colors of urine and the art of uroscopy. 2) *Tabula seconda de flebotomia* ('bloodletting') shows the Vein Man, a standing male nude, veins marked with fine lines and either short text blocks or small letters that refer to legends on the opposite page (Fig. 1a–b), followed by *De iuditiis venarum et de munitionibus earundem una cum cautelis* ('About the evaluation of veins and their strengthening with precautionary notes'). Subsequently, one finds the *tabula secunda de flebotomia,* the Zodiac Man, another male nude with the zodiac signs arranged on his body parts with short explanatory inscriptions. 3) *Tabula tertia de muliere* shows the Pregnant Woman with open torso, her anatomy marked with letters referring to explanatory paragraphs on the following pages. She is also a Disease Woman, with the names of potential ailments inscribed on her limbs (Fig. 3). The following treatise is *Probleumata de membris de generationis de matrice et testiculis seu de secretis mulierum*. 4) *Tabula quarta*

20 For brevity's sake the various editions of the *Fasciculus* are identified by language, place, and year of publication. For the complete bibliographic information of all print editions discussed here see the appendix.

21 For a more detailed description see Pesenti 2001, 29–82; Coppens 2009a, 9–12 with a special focus on the images. On the medieval manuscript traditions of the image types and texts brought together in Latin Venice 1491 see below, esp. note 69–70. In Munich, Bavarian State Library, Rar. 749 all the printed guide letters for initials are executed in red ink and chapter titles and paragraphs are rubricated, online: https://www.digitale-sammlungen.de/de/view/bsb00052856 (accessed 15/05/2022).

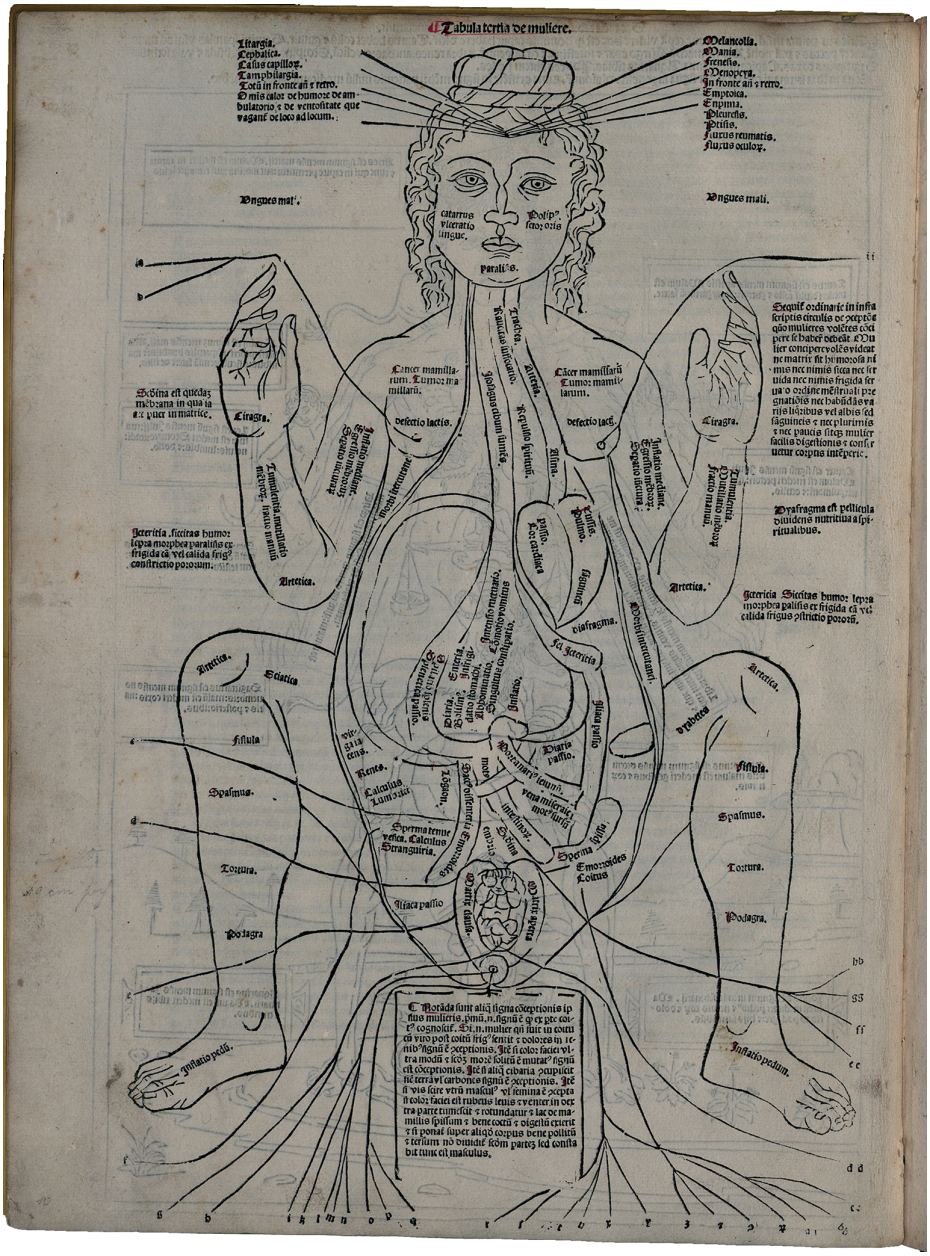


Fig. 3: *Tabula tertia de muliere*. The Pregnant Disease Woman, Latin Venice 1491, Munich, Bavarian State Library, Rar. 749, fol. [5v].

de cyrugia shows the Wound Man, a standing naked man with open torso and all sorts of cuts and stabbing injuries, labeled and explained as in the previous images. It is followed by a collection of ointments (*unguenta*) and other recipes. 5) *Tabula quinta*

de anatomia shows the Disease Man, a standing naked man, with potential ailments written on his naked limbs and in lists next to his body. The accompanying text is an untitled list of diseases in alphabetical order. At the end of this list stands the colophon: *Finis fasciculus medicine Johannis de Ketham* [...].[22] 6) As an addendum after the colophon follows *Consilium clarissimi doctoris domini Petri de Tausignano per peste evitanda*, i. e., a pest regimen by Petrus de Tussignano.[23]

Scholars have understood this collection of medical images and texts as a mnemonic device for physicians and medical practitioners that could support medical training.[24] Because of the size and quality of the woodcuts as well as the partly synoptical image-text arrangements the collection could have been used as a visual aid, a form of picture book or *Tafelwerk*, in teaching. Sold unbound, the folios even might have been used as pin-ups. In any case, the extra-large format and especially the large-size images distinguished the *Fasciculus* of 1491.[25]

Only three years later the earliest translations into Italian and Spanish added new texts to the *Fasciculus* and expanded the page count considerably. The Italian Venice 1494 print with 52 folios, translated by Sebastiano Manilio Romano, presents itself in a completely reworked design: The format is a smaller folio, the pages are set in single-column and an elegant Antiqua type.[26] Most remarkable is the new program of now ten woodcuts that updated the original ones and included scenic pictures of academic teaching and patient-physician interaction.[27] At the same time, the former synoptical image-text arrangement was abandoned as well as the reference systems between figures and textual content. The 'Ketham' material is presented in a different order and, most importantly, Manilio's translation of the *Anathomia* by Mondino dei Liuzzi was added. Tiziana Pesenti has argued that these rearrangements, additions, and even alterations of the Pregnant Women were due to an effort to update the

22 Munich, Bavarian State Library, Rar. 749, [fol. 13v], online: https://www.digitale-sammlungen.de/de/view/bsb00052856?page=30 (accessed 15/05/2022).

23 The exemplar in Boston, Countway Library of Medicine, Rare Books, Ballard 408, is missing Tussignano's regimen. For information on the older edition of the pest regimen used for the Fasciculus, see Coppens 2009a, 11.

24 See the assessment by Sudhoff 1925, 40: "die Lehr [sic] und Gebrauchsgraphik des ärztlichen Praktikers, sein unentbehrliches Merkbild". Keil 1990, 145, distinguishes between accompanying illustrations and 'demonstration drawings' ("Demonstrationszeichnungen") for teaching. According to Coppens 2009a, 10 the illustrations functioned as a mnemonic system.

25 Cf. Sudhoff 1925, 39.

26 The exemplar in Paris, National Library of France, département Réserve des livre rares, RES FOL-T22-4, is partly colored, online: https://gallica.bnf.fr/ark:/12148/bpt6k9900000 (accessed 10/05/2022).

27 See Pesenti 2001, 83–148; Coppens 2009a, 20–34 with special focus on the woodcuts. The new scenes are: the library of Pietro da Montagnana, a urinoscopic consultation scene, a visitation at the sick bed, and an anatomy class with dissection. As Coppens shows, this program was reused, partly adapted, or copied by various Italian, Latin, and Dutch editions. See also Singer 1925, passim; Murray 2020, 347–351.

Fasciculus.[28] They gave the Italian Venice 1494 print the appearance of an illustrated handbook.

The transformation of the *Fasciculus* into a handbook is even more apparent in the Spanish translation and all dependent editions and reprints.[29] The *Compendio de la salud humana* printed by Paulus Hurus in Zaragoza in 1494 not only offers a translation of the Latin Venice 1491 edition but thoroughly remodels it: The format is a slightly smaller folio (three of the copied woodcuts therefore are printed anopistographically on fold-out double pages), whereas the page count increases from 16 to 67 folios because of added texts.[30] However, not only the physical appearance and textual arrangement differ from the template; the Spanish edition also shows a new and consistent visual organization. The title page, a two-column layout, foliation, and running titles throughout give the singular image-text arrangements the impression of unity.[31] No longer the *tabulae* but paratexts structure the volume: Incipits and explicits frame the *ocho tratados speciales*, which are indicated in the running titles and further divided into chapters. The index gives the folio number for all treatises and chapters. All these revisions clearly show that the focus had shifted from the images to the text. The synoptic arrangement of medical images and explanatory legends was abandoned in the case of the double-page prints of the Vein Man, the Pregnant Woman, and the Wound Man. The clear hierarchical structure and visual organization ensure the readers' easy orientation throughout the book. The *Compendio* enables selective reading according to specific topics. As indicated by the Spanish title, it was intended and formatted as a compendium or handbook. The new format, structure, and visual organization were to become defining features of all following Spanish editions.[32]

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28 Cf. Pesenti 2001, esp. 114.

29 On the Spanish editions see Coppens 2009a, 11–19; Herrera 1990; Zaun/Geisler 2011.

30 The Spanish Zaragoza 1494 edition comprises: 1) a prologue, revised Urine Wheel, and extended urine treatise; 2) the treatise on phlebotomy; 3) the treatise on the twelve signs of the zodiac, which is treated as a separate *tratado*; 4) the *Probleumata* however appear as a chapter of the treatise on women's health; 5) the treatise on *Cirurgia* is here followed by some recipes 'for the male genitals'; 6) between the image of the Disease Man and its explanatory legends falls a short text on the pulses, 7) the pest regimen of Petrus de Tussignano is replaced by a Latin oration to Saint Sebastian and Vasco de Taranta's tract on the pestilence; and 8) Michael Scotus' *De physionomia* is added. After the colophon and Hurus's printer's device, an index lists all treatises and chapters by folio number. For the similarities and differences in the woodcuts between Latin Venice 1491 and Spanish Zaragoza 1494 see Coppens 2009a, 13–15. The image of the Pregnant Woman is missing in Madrid, National Library of Spain, INC/51.

31 Another paratext, the prologue, is not a general preface but belongs to the treatise on uroscopy, which is expanded and revised. See Zaun/Geisler 2011, 979–981, esp. n. 39.

32 The Burgos 1495 edition is a reprint of Zaragoza 1494. A new treatise on reproduction was added at the end, so that the index could be reused unchanged. Coppens 2009a, 15, mentions added recipes and the short text on the human pulses, but these were already part of the 1494 Zaragoza edition, see above n. 30. According to Coppens 2009a, 16–19, both the Pamplona 1495 and the Sevilla 1517 edition

Compared to the Spanish *Compendio*, both Italian Venice 1494 and Latin Venice 1495 have a more open design and are much less thoroughly structured. In the Italian edition, printed guide letters for decorative initials are used very sparingly, and chapter titles are visually highlighted only by indented lines. New paragraphs or items in lists too show a slight indentation of the next line and small bold initials. Some of the texts have incipits, indented but not otherwise decorated. The structuring of the book relies again on the (unnumbered) full-page images. There is no title page and neither running titles nor foliation or indices were used. Only a very concise table of contents, or rather a summary stands after the colophon.[33] What truly set it apart was the new program of woodcuts. Interestingly, in Latin Venice 1495, which also features the new woodcuts, the references between marked details in the *tabulae* and the correspondingly labeled and listed text were restored.[34]

None of the editions following Latin Venice 1491 adopted its extra-large format. All of them feature a much higher page count and are more or less thoroughly designed as handbooks.[35] It is important to note that these Spanish, Italian, Latin, and later Dutch compendia all added or replaced treatises, so each offers a different combination of texts.[36] Accordingly, the scenic pictures of academic teaching and patient-physician interaction introduced by the Italian Venice 1494 edition were assigned to different texts in subsequent editions (Fig. 7). Even the core material defined by the Latin Venice 1491 edition could be rearranged so that the order of the topics varies.

Printing the *Fasciculus medicinae* therefore entailed stabilizing effects as well as a high level of flexibility. The first Latin edition of 1491 seems to have been very influential insofar as it established the notion of a specific collection of medical images and texts labeled 'Fasciculus medicinae'. This collection and its label were carried on and some of the following translations and editions referenced a (German) author figure, Johannes de Ketham, even though the first illustration program was eclipsed by the innovative woodcuts of 1494 and the originally printed material was immediately reordered and supplemented by diverse new arrangements. Different strategies of pre-

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are reprints of the Burgos 1495 edition. In the Pamplona edition, the index is adapted to meet the correct folio numbers.

33 For the Latin Venice 1495 edition, the same publishers used a two-column layout with gothic type and decorative initials, again without foliation, running titles, or an index. The summary is now part of a title page and lists the most important texts numbered consecutively.

34 Cf. Coppens 2009a, 35–41.

35 An interesting example are the Latin and Italian editions printed by Cesare Arrivabene in Venice: The Latin Venice 1522 edition has a clear outline of numbered treatises, running titles, and foliation as well as a *repertorium* or index to ensure usability. Arrivabene's Italian edition is less systematically subdivided; the treatises are unnumbered and the running titles only give keywords. Nonetheless, the colophon favorably highlights the edition's design or *forma*: *Nouissimamente reuisto,* [...] *in meglior, & più chiara forma redatto* ('revised and in a better, clearer form drafted'), see Italian Venice 1523, fol. LXVv.

36 The Dutch Antwerp 1512 edition is discussed in more detail below.

sentation accompanied these rearrangements and expansions: Some of the editions highlighted the supplementary character of the added tracts, thereby demarcating the 'original' *Fasciculus* verbally and visually.[37] Others used all the means offered by paratextual and visual features to merge new texts into the *Fasciculus*, blurring the lines between 'old' and 'new' and thereby creating an expanded medical compendium adapted to current notions and needs under the established label.[38] As a highly recognizable eye-catcher, the images introduced by the Italian Venice 1494 edition must have established a link between the following Latin, Italian, and Dutch prints as well as the manuscripts in which those images were copied, adapted, or rearranged.

3 German Manifestations of the Ketham Material

Chris Coppens noted that most of the *Fasciculus* editions were published in Italian cities, whereas reworked translations were printed on the Iberian Peninsula and in the Netherlands but not in German speaking lands.[39] This seemed surprising because Coppens, Sudhoff, and others assumed that the template for the oldest print came from a German-Bohemian context.[40] Coppens assumed that the first two Latin editions of 1491 and 1495 were printed in a two-column layout and gothic type (see Fig. 1b) in order to attract conservative and, above all, German readers with these 'traditional' aesthetics.[41] There is actually no full German translation of the printed *Fasciculus medicinae*.[42] It took another route there: German printers published reworked parts of Ketham material as short thematic booklets mostly in quarto format on either women's health and reproduction or surgery and phlebotomy.

37 Already in Latin Venice 1491, the pest regiment stands after the colophon (see above).

38 The colophon of the Italian Venice 1494 edition integrates all added texts into the *Fasciculus*, i. e., the pest regimen, Mundino's *Anatomia* and two short texts on medical herbs: *Qui finisce el Fasciculo de medicina Vulgarizato per Sabastiano Manilio Romano,* see ibid., [i4a]. The colophon of the Latin Venice 1500 edition refers to all the treatises as part of the *Fasciculus* (*explicit fasciculus medicine in quo continentur* […]), including Rhazes' newly added *De egritudinibus puerorum*, see ibid., [fiiiib]. The *Compendio de la salud humana,* Spanish Zaragoza 1494, though, neither refers to the 'Fasciculus medicine' nor 'Ketham'.

39 Coppens 2009a, 5: "Merkwaardig is dat, op een Duitse houtsnede na, de editie uit 1491 alleen in Spanje navolging vindt, alle verdere volledige edities in Italië verschijnen, en in Antwerpen een Nederlandse vertaling het licht ziet, die enkele keren wordt herdrukt."

40 Cf. Coppens 2009a, 9; Sudhoff 1925, 41, n. 7; Singer 1925, 20f. compares the German and Czech words found in Latin Venice 1491, especially in the explanatory text of the Wound Man, with the Italian translation of 1494.

41 Cf. Coppens 2009a, 35f. See also Pesenti 2001, 62.

42 One possible explanation could be lower demand. As Pantin 2013, 14 points out, in general only medical books on anatomy and surgery had illustrations, if at all. The exception, though, were medical books printed in Germany, Pantin 2013, 26f. The Ketham images, so appealing to non-German audiences, might have seemed less extraordinary there.

From the early 16th century on, the image of the Pregnant Woman, its explanatory tract, and the *Probleumata*, as they are known from *Fasciculus medicinae* editions, were translated into German and survive in diverse combinations in print as well as in manuscript.[43] The known editions and manuscripts do not refer to the label 'Fasciculus medicinae' or to 'Ketham'. The earliest prints are slim booklets and do not contain the *Probleumata*. *Ein gut artznei die hie nach stet das frawen vnnd mann angeet* ('A good medicine that follows concerning women and men') was published in 1510 in Strasbourg and Augsburg respectively; both editions are without a printer's device and undated.[44] Although the wording is almost identical, the two editions differ in physical appearance and visual organization. The Strasbourg edition in folio format contains six folios. The title page gives the content of the booklet in verse. The woodcut of the Pregnant Woman on fol. 2r shows inscriptions in German and the letter labeling that links the body parts to the text. The Pregnant Woman seems to be a close copy of the illustration used in the Italian Venice 1494 and the Latin Venice 1495 editions.[45] The image is also very close to an undated Pregnant Woman with Latin inscriptions that apparently survives only in one exemplar, either a single sheet broadside or a fragment of an otherwise unknown printed book(let).[46] The Augsburg edition, on the other hand, is six folios in quarto format and presents a woodcut of a physician holding a *matula* on the title page.[47] On fol. 2r, however, one finds the image of the Vein Man, noticeably different in style to the Italian examples. There are no textual inscriptions, but the veins are labeled with Roman ciphers.[48] The Vein Man evidently has no thematic connection to the following tract on women's health. The text is still structured by the now dysfunctional letter-labels referencing the non-existing image of the Pregnant Woman.

43 See Kruse 1999, esp. 20–28; Kruse 1996, 23–34, for the transcription of a 16th century manuscript see 337–369. The explanatory text focusses on infertility, signs of pregnancy, and various recipes, see Ferckel 1912/13, esp. 211–212. See for the *Probleumata* as an excerpt from the widely known collection *Omnes homines* Pesenti 2001, 37–38.

44 The dates and/or printers of both editions have been corrected in the *VD 16*, but Kruse refers to the older information. She therefore assumes the Augsburg 1510 edition to be the oldest (erroneously dated ca. 1502, printed by Hans Froschauer) and the Strasbourg 1510 edition to be printed by Johann Prüss the older. See Kruse 1999, 268–269, n. 99.

45 See Coppens 2009a, 55–56.

46 See Lint 1923. He reproduced what he conceived as a broadside with permission of its owner, the American collector Leroy Crummer. Sigerist 1923, 177 suggests that the German woodcut was printed from the same altered block and that de Lint's Latin broadside might be a fragment of an otherwise lost (Latin) edition similar to the German booklet.

47 The same woodcut of a physician with a *matula* was used for the title page of Tallat, Ertzney. See Kruse 1999, 25–26. Tallat's book is a German abridged reworking of the *Gart der Gesundheit*, see Duntze 2007, 114.

48 The same woodcut of the Vein Man is found in Buchlin Augsburg 1516, [e1b]. This is another German excerpt of the *Fasciculus medicine*, a booklet on surgery and bloodletting, which is discussed in more detail below.

Unfortunately, the relations between the Strasbourg and Augsburg editions, undated but close in time, remain unclear.[49] They show, however, how the *Fasciculus* could be abbreviated into a thematically specialized booklet. Later editions added more texts on women's health and reproduction.[50] As Oliver Duntze notes, the text of the Strasbourg 1510 edition was later added to German prints of the *Secreta mulierum*, beginning in 1531.[51] At the same time, such thematic combinations were also thriving in German manuscript compilations, as Britta-Juliane Kruse has demonstrated: Until the end of the 16th century the Ketham material on women's health and reproduction including the excerpts of the *Probleumata* survived in combination with other thematically relevant texts such as the *Secreta mulierum* or the *Trotula*.[52] These manuscripts' relations to Latin or German print editions are vague at best and none of them contain images.[53]

The second type of thematic booklet on surgery, wound care, and bloodletting has not been studied in depth yet, and I will thus confine myself to a few observations. The surgical booklets can be divided roughly into two groups, published under two different titles. The first group of six editions from the first two decades of the 16th century called *Buchlin,* or little books, explain their content and usefulness on the title page.[54] Here the image of the Wound Man functions as an eye-catcher and herald of the booklet's thematic focus.[55] It is followed by a short summary of the contents, divided into four chapters, and a preface about the workings of the human body with references to

49 Duntze 2007, 117 assumes that Hupfuff's print is the oldest because of the dysfunctional image of the Vein Man in the Augsburg edition. Hupfuff published a number of medical books such as Tallat's *Ertzney*, the *Secreta mulierum*, and the *Problemata Aristotelis*, ibid., 106–118.

50 Eyn gut artzney Mainz 1515, with 24 folios; this edition is much longer, but the exact contents are unknown. I was not able to see the only surviving exemplar in Frankfurt, University Library, Biblioth. Hirzel 15. Kruse 1999, 268–269, n. 90 refers to older information (Strasbourg 1510, printer unknown), now corrected in the *VD 16*. She mentions an exemplar in Nuremberg without shelf mark that I was unable to track down. A fourth edition is even more elusive. It is neither listed in the *VD 16* nor the *USTC*. The online catalogue gives little information about the alleged exemplar Zurich, Central Library, Alte Drucke und Rara 3.143,2: https://swisscollections.ch/Record/990065160940205508 (accessed 17/10/2022). According to the short description given by Kruse 1999, 26–27, the print contains the image of the Wound Man, recipes, and a glossary of herbs in Latin and German.

51 Cf. Duntze 2007, 117.

52 See Kruse 1999, 20–25, who studied nine manuscripts, most of them dated to the second half of the 16th century.

53 See Kruse 1999, 22.

54 The full title reads: *In disem buchlin find man gar ain schoene underweysung und leer wie sich cirurgici oder wundartzt gegen ainem yegklichen verwundten menschen, es sey mit schiessen, hawen, stechen oder ander zufelligen kranckheiten nach anzeigung der figur, halten soellen. Mit vil bewärten stucken* ('In this booklet one finds beautiful instructions on how surgeons or wound surgeons should treat wounded people, whether by shooting, cutting, stabbing, or other accidental diseases, as indicated by the figure. With many tried and tested texts').

55 Hartnell 2017, 26 notes that the image of the Wound Man is often used this way in surgical books from the late 15th and 16th centuries, without "numerated or alphabetical catchwords, nor thin lines

authorities like Aristotle and Avicenna. The first three chapters deal with injuries from head to toe, the beginning of each is signaled by a woodcut of the body zone in question (head, torso, legs)—a Wound Man in pieces, so to speak. The fourth chapter is a list of Latin remedies ordered under German labels. In addition to the chapters mentioned in the summary, texts on bloodletting follow, illustrated with the image of the Zodiac Man. The oldest known edition by Pamphilius Gengenbach presents a layout structured by indented chapter titles, incipits in larger type, pilcrows, and manicula. Its decorations are initials and thematically suitable small woodcuts.[56] The preface by an anonymous translator refers to Ketham, or precisely to Johannes Charetanus, 'the most famous master and physician born in German lands'. The narrator claims to translate Ketham's 'teachings' so that people unable to read Latin or without access to the old masters' wisdom would stop 'randomly sticking a plaster on any kind of wound'.[57] The booklet, however, bears only slight similarities with the Latin *Fasciculus medicinae*. The images of the Wound and Zodiac Man (and in the case of Buchlin Augsburg 1516 the Vein Man) catch the eye, of course, but one must keep in mind the rich manuscript tradition of these image types. The parts on surgical treatment of injuries and ailments share verbatim passages with the Ketham material but are combined with other texts and rearranged into chapters and paragraphs. Although the preface presents the *Buchlin* as the translation of Ketham's/Charetanus's 'teachings', in style, content, and arrangement of images and texts these booklets seem far more similar to other German prints on surgical treatment and bloodletting from the early 16th century.[58] This is also true for the second group of German surgical booklets referencing 'Ketham'.

This second group, called *Wundartznei*, appeared in print from the 1530s to 1550s.[59] Most editions are in quarto, some in octavo format. Although the first three chapters on the surgical treatment of wounds and ailments are very close to the older *Buchlin*,

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linking his body to partitioned paragraphs". It seems the image-text arrangement known from older *Fasciculus* editions gave way to more substantial and elaborated text designs.

56 Cf. Buchlin Bale 1513, the exemplar studied here is Munich, Bavarian State Library, Res/4 Chir. 110,7, online: https://www.digitale-sammlungen.de/de/view/bsb00002886 (accessed 17/03/2022). The other editions (Cologne 1515, Augsburg 1516) are very similar but partly use different woodcuts. In Buchlin Augsburg 1516, instead of the Zodiac Man, one finds a Vein Man with lines and dysfunctional Roman numbers that have no textual equivalent, see above n. 46.

57 Buchlin Bale 1513, [aiib–aiiia]: *Also mag man all wunden vnd schaden mit ainem pflaster haylen. Solichen irsal zuo vermiden hab ich auß bitt vnd bruederlicher lieb ain schoen kurtes vnd lieplichs auch bewaerts buechlin zuo handen genommen vnd zuo setzen ainen behenden vnd gemainen begryff aller wunden / stichen / schlegen / würffen etc. künstlich rot vnd hilff zuo tuon mit geringem lichten kosten nach der lere deß hoch beruembten maisters vnd doctors Johanni Karethani vß dütschen land pürtig / welche medicin er bewaert vnd vnß yn gedaechtnüß zuo letz gaeben.*

58 See Panse 2012b.

59 The full title reads: *Wundartznei: zu allen gebrechen des gantzen leibs und zu iedem glid besonder mit was zufaellen die entstehn Rath unnd meysterstuck. Rechte kunst und bericht der aderlaesz* ('Wound medicine: Advice and masterpieces for all infirmities of the whole body and for each individual limb,

Fig. 4: The Vein Man with indications in German (detail), *Wundartznei*, Strasbourg 1530, Munich, Bavarian State Library, Res/4 Chir. 110,1, Diia.

paratexts and image-text arrangements show differences. The oldest known *Wundartznei* edition presents the name of Johannes Charetanus on the title page together with an illustration of surgical instruments—there is no image of the Wound Man, though. The short preface, 'To the reader', reads like a rigorously abridged excerpt from the preface of the *Buchlin*, but every trace of the anonymous translator-narrator is gone. The fourth chapter is supplemented with German remedies and the texts on phlebotomy are replaced: Instead of the references to Avicenna and Rhazes readers find straightforward instructions on bloodletting and the best days to do it. Remarkably, the *Wundartznei* strengthens the relationship with the Ketham material referred to on the title page. Whereas the *Buchlin* editions contain textual descriptions of the human veins, the *Wundartznei* features a small woodcut of the Vein Man, labeled with small numbers that link to a list of brief indications (Fig. 4).[60]

especially how they arise. Report on the true art of bloodletting'). The first known edition is Wundartznei Strasbourg 1530.

60 Wundartznei Zwickau 1530, is in octavo format that features no woodcuts at all but preserves the numbered veins and indications, see Munich, Bavarian State Library, Res. Chir. 60, Diia, online: https://www.digitale-sammlungen.de/de/view/bsb10206026?page=64,65 (accessed 12/10/2022). Wundartznei Frankfurt 1531 in quarto again features the Zodiac Man and the Vein Man, similar to Wundartznei Strasbourg 1530.

Two later editions printed in Frankfurt by Hermann Gülfferich used a double-page woodcut of the Vein Man with open torso that is also featured in Hans von Gerdorff's *Feldbuch*.[61] Even more than the *Buchlin*, the *Wundartznei* editions seem adapted to the needs of any reader concerned with self-care and health, offering straightforward, useful information for interacting with physicians and apothecaries, practical advice, and concise instructions. Whereas the first three chapters remain virtually unchanged, the editions in fact differ considerably from each other. Apparently, publishers added or replaced texts at will, for example treatments for tooth aches[62] or recipes for *latwerge* and incense;[63] they also provided foliation and indices to enhance usability. Whether and how these surgical booklets left traces in later German manuscripts needs further investigation.[64]

As a concluding remark on the fate of the Ketham material in German printing houses, I would like at least to point out the existence of one Latin compendium. The *Astrologiae ad medicinam adplicatio brevis*, compiled by Jakob Scholl and published in Strasbourg in 1537 by Jakob Kammerlander, shows its relation to the *Fasciculus medicinae* in its subtitle: *Post hos fasciculus totius medicinae*.[65] This book of almost a hundred folios in quarto format evidently brings together quite a large number of different texts,[66] the first part focusing on astrological basics for health care. The second part's structure, as proposed by the title, is based on the older *Fasciculus medicinae*, which can be seen in the thematic range of uroscopy, phlebotomy, surgery, and women's health. The topics are arranged around the program of image types established by the first Latin edition of 1491.[67] Even though this Latin compendium offers a different

61 In this double-page woodcut small letters are used to label the veins. The older Wundartznei Frankfurt 1549 still offers the numbered list of veins and indications, therefore disconnecting text and image. The later Wundartznei Frankfurt 1552 fixes this issue by replacing the numbering of the list with the corresponding small letters of the woodcut, see Munich, Bavarian State Library, Res/4 Chir. 14, fol. XVIIv–XXIv, online: https://www.digitale-sammlungen.de/de/view/bsb10199591?page=36 (accessed 17/03/2022). See the Vein Man in Hans von Gerdorff, Feldbuch, eiia. The *Feldbuch*'s chapter on phlebotomy, on the other hand, is based on Ketham material according to Benati 2017, 504; and Frederiksen 1983, 628. Perhaps one of the older *Buchlin* editions was used for the *Feldbuch*.

62 Wundartznei Frankfurt 1549, fol. 17r–19r.

63 Wundartznei Frankfurt 1552, fol. 23r–35r.

64 The *Handschriftencensus*, the database of German medieval manuscripts, so far only records translations of the treatise on women's health and reproduction.

65 Scholl, *Astrologiae ad medicinam adplicatio brevis*, title page.

66 See for a list of contents the online catalogue of the U. S. National Library of Medicine: https://catalog.nlm.nih.gov/permalink/01NLM_INST/1o1phhn/alma992322713406676 (accessed 17/03/2022).

67 Only the Urine Wheel and the Pregnant Woman, though, retain links to the text. The labelling of the latter now refers to anatomical notes. The Vein Man's numbered labels are dysfunctional and without a textual equivalent. The Disease Man is replaced by a third illustration on phlebotomy: A very similar depiction of a standing male nude, but instead of a list of diseases this *Tabula tertia de phlebotomiae cum Planetis* shows the relations of bloodletting and the planets, see Scholl, *Astrologiae ad medicinam adplicatio brevis*, fol. 40v. Here and throughout the book a code of symbols is used for the planets and the zodiac signs set up in the first part of the book. The symbols are worked into the small

textual compilation, it shows the ongoing appeal of the label and the thematic range of the *Fasciculus medicinae* as well as the iconography associated with it.[68]

4 Manifold Manuscript Traditions Before and After Print

It seems the *Fasciculus*, or better, the singular short image-text arrangements it was built on, did not fare significantly differently in print and the handwritten medium. In manuscripts of the 14th and 15th centuries, we find them alone and in combination; some of the images even go back to the 13th century.[69] Manuscripts that already contain large parts or all of the later Ketham material are less common, and the exact manuscript template used by the Venetian printers in 1491 is unknown. Tiziana Pesenti has studied a composite manuscript, Vatican Apostolic Library, Pal. lat. 1325, whose textual arrangement and pictorial program is similar to Latin Venice 1491. The part concerning the Ketham material is 24 folios long sized 29 × 20 cm and roughly dated to around 1500. The ordering of the textual content and some of the content itself clearly differs from Latin Venice 1491, however, and the manuscript cannot be dated precisely. Using this manuscript as a point of reference, Pesenti describes the older traditions of the images and above all the texts.[70]

Karl Sudhoff, on the other hand, who devoted several studies to the origins of the first print (but did not know the Vatican manuscript Pal. lat. 1325), considered two manuscripts as the nearest relatives to the printers' template, one of which is Paris, National Library of France, Ms. Lat. 11229. This beautifully produced and decorated manuscript written around 1400 probably in France already contains all six images of the later print, although the Zodiac Man follows a different iconography. The slim manuscript of 55 folios sized 20 × 14 cm is a carefully arranged collection of medical

woodcuts that introduce the paragraphs on the Zodiac and the planets, except for the depictions of the last two planets Venus and Mercury, Scholl, *Astrologiae ad medicinam adplicatio brevis*, fol. 3r–14r.

68 Coppens, Sudhoff, and Singer make no note of Scholl's work. The only passing reference I could find is Bolton 1898, 119 on the Zodiac Man.

69 See Sudhoff 1925, 43–57. According to Keil 1983, 1152 the single treatises go back to the end of the 14th century. See Auer/Schnell 1993, who list a number of manuscripts containing the Wound Man, sometimes combined with other medical images. According to them, the textual counterparts of the Wound Man, the *Wundarznei* and *Antidotar* (a collection of recipes), are largely based on the *Arzneibuch* by Ortolf von Baierland. See also Hartnell 2017; Sudhoff 1908a. On manuscripts containing the Urine Wheel see Zaun/Geisler 2011. On manuscripts containing the Pregnant Disease Woman see Green 2008, 153–157; Ferckel 1912/13.

70 Cf. Pesenti 2001, 8–28. Pesenti gives no reasons for dating the manuscript to the 1490s, ibid., 8. The Ketham material seems to be a production unit written in a gothic cursive, fol. 343–367, see online: https://doi.org/10.11588/diglit.11539#0689 (accessed 14/10/2022). The manuscript is bound together with a medical collection composed by Ambrosius Prechtl between 1556 and 1560 in Regensburg, Germany. See the description dating the older part of the manuscript around 1500 in Schuba 1981, 431–434.

and astronomical subjects: At the beginning one finds the French *Régime ordonné pour la santé du corps de créature humaine* ('diet regimen for the health of the human body'), followed by material close to the later *Fasciculus medicinae* and other short medical texts and tables. However, as Sudhoff notes, the textual arrangement of the Paris manuscript differs significantly from the later printed collection despite almost verbatim correspondences. Sudhoff's claim that the Paris manuscript must be a close relative of the manuscript template of the 1491 edition relies on the images that were recut for producing the *Fasciculus medicinae*.[71]

Sudhoff's second manuscript model, Heidelberg, University Library, Cod. Pal. germ. 644, is characterized by its textual proximity to Latin Venice 1491. It contains all of the Ketham material except for the image and texts on uroscopy and the image of the Pregnant Woman.[72] The material is spread throughout the codex but written by the same hand in a neat gothic cursive script and a consistent single-column layout with initials and rubrication in red and blue ink.[73] Surely, these parts of the codex were produced as a unit and only later separated due to a refashioning of the content and/or the binding. The images of the Vein Man and the Wound Man, painted on folded and pasted-in parchment sheets, are labeled with lines and numbers that link the body parts to the following explanatory texts (Fig. 2).[74] In Cod. Pal. germ. 644 we thus see a carefully written and visually organized medical handbook in a small and handy format of 10.2 × 7.5 cm, which later underwent restructuring, recombination, and continuous additions by several hands.

The difference in format is striking between the first print edition in extra-large folio reminiscent of a *Tafelwerk* and its supposedly close relative Cod. Pal. germ. 644, which is the size of a small pocketbook. However, there are traces of a manuscript tradition of large format medical images of the Ketham type. A collection of six large parchment leaves from the 15th and 16th centuries bound together in the 19th century survives in Copenhagen. They were drawn and written in Latin by various hands, probably in Germany.[75] The first three leaves show a Vein Man, a Pregnant Woman (Fig. 5)

71 See Sudhoff 1908b, 99f. Hartnell 2017, 9–10, however notes, that the images in the Paris manuscript 11229 present short paratexts, but are not linked to the text the way the Ketham images are and therefore function in a different way: "These cumulative images catalogued and performed the encyclopedic power of such a manuscript's medical contents."

72 Sudhoff 1911, 280–287 suggests that the image of the Pregnant Woman was lost or has been removed; Sudhoff 1925, 44. Heidelberg, University Library, Cod. Pal. germ. 644 contains excerpts of Bartholomäus's *Harnschau*, a German text on uroscopy, and a number of half-length depictions of physicians with *matulae* in their hands. See online: https://doi.org/10.11588/diglit.518 (accessed 14/10/2022).

73 See the description in Kalning et al. 2014, 398–405, for the hand and script 398.

74 See the Vein Man, Heidelberg, University Library, Cod. Pal. germ. 644, 63v, online: https://doi.org/10.11588/diglit.518#0132 (accessed 14/10/2022).

75 Copenhagen, Royal Danish Library, NKS 84 b folio. See the digital presentation online: http://www5.kb.dk/manus/vmanus/2011/dec/ha/object48029/da/ (accessed 15/05/2022). See for a detailed description and measurements Sudhoff 1911, 288–298; Sudhoff 1925, 43–44; Auer/Schnell 1993, 357–358.

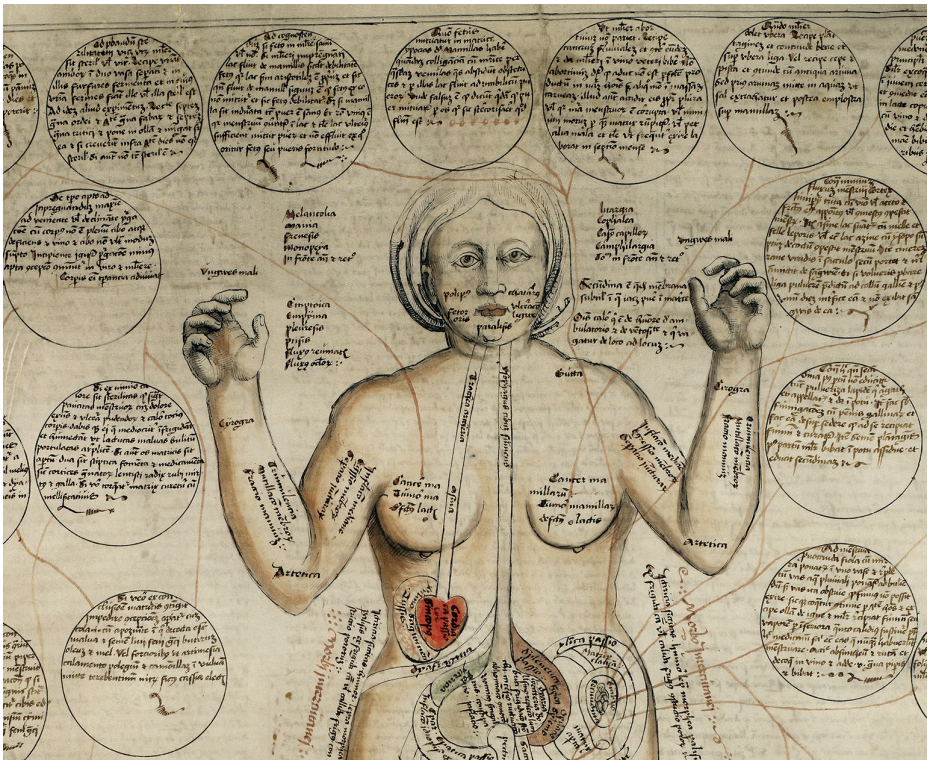

Fig. 5: The Pregnant Woman (detail), 16th century, Copenhagen, Royal Danish Library, NKS 84 b folio, fol. 2r.

and a Wound Man of similar design. The figures, on the recto side, are connected by thin lines to explanatory paratexts in circular medallions; each is followed by a related treatise written in three columns on the verso side.

The next two leaves present another Pregnant Woman and a Urine Wheel both with inscriptions (recto) and another Wound Man with circular medallions (verso) as well as a smaller Disease Man (recto) and Urine Wheel (verso), framed by their treatises. The sixth leaf, which is apparently the oldest, shows yet a different visual organization with a Vein Man smiling and holding up his hands, his body parts connected by thin lines to the text that clings to his silhouette.[76] As we have seen, all print editions (apart from some of the German booklets) are in folio format, but most of them shift the focus away from the images by adding more and new texts. The picture book type in comparison seems to have been less appealing in print but was carried on in manuscripts up to the 16th century. The Copenhagen fascicle probably represents

76 Copenhagen, Royal Danish Library, NKS 84 b folio, f. 6r. http://www5.kb.dk/manus/vmanus/2011/dec/ha/object48029/da/#kbOSD-0=page:11 (accessed 15/05/2022).

three different fragmented manuscripts of this type. Another example may be found in Vienna, National Library of Austria, Cod. 14034. This codex has been recognized as a copy made from print, which is especially noticeable in the images.[77] Although this slim booklet of 13 folios is not as generously dimensioned (32.8 × 21.8 cm) as the Copenhagen sheets, its interesting codicological structure indicates that it was probably not intended as a codex but rather as a collection of unbound and showable *tabulae*. The image-text arrangement of the Urine Wheel (Fig. 6a–b), the Vein Man, the Disease Man, a second Vein Man, the Zodiac Man, and the Pregnant Woman are organized in such a way that the image is always presented on the left (on the verso of a blank recto) with the text on the right (followed by a blank verso). Whereas the style of the drawings clearly shows their dependence on the woodcuts used in the Latin Venice 1495 edition, the texts have been abridged and partly rearranged to fit into these synoptic arrangements of image and treatise.[78]

The Copenhagen and Vienna examples show that early modern manuscripts of the *Fasciculus medicinae* relied on print and manuscript traditions. Copying from print is especially noticeable when the printed template—textual and pictorial in the case of the *Fasciculus* —is transcribed from one medium to the other.[79] One example of such an almost exact *Druckabschrift* is found in Leiden, University Library, BLP 1905. The slim booklet of only 15 fairly large folios (29 × 17 cm) is a faithful transcription of the Latin Venice 1491 edition, complete with the verbatim explicit at the end.[80] Especially the finely executed drawings show a striking resemblance to the woodcuts, with only minor details like slight hatchings added. However, there are two considerable changes on the textual level. After the Latin tract on uroscopy, the same hand added two short texts on the same topic in Middle Dutch: *Een tractaet in duus van de Urynen* and *Van die coloren der Urynen*. Both texts take up just one page. On the verso, the transcription of Latin Venice 1491 resumes with the drawing of the Vein Man.[81] The second change regards the material on women's health. The image of the Pregnant Woman as well as the copious text of the *Probleumata* were omitted. Only excerpts of the explanatory texts, which in the printed template accompanied the *tabula*, were copied. The small letters that in the printed text refer to the woodcut were omitted

77 Sudhoff 1925, 43; Zaun/Geisler 2011, 973, n. 18. See the online catalogue which links to digital images: http://data.onb.ac.at/rec/AC13949169 (accessed 17/10/2022).

78 Zaun/Geisler 2011, 973, n. 18 mistakenly call the manuscript an exact copy of the Latin Venice 1495 edition. Sudhoff 1925, 43 complains about the superfluous duplication of the Vein Man and the mechanical shortening of the texts without taking the synoptic image-text arrangement into account.

79 The German term *Druckabschrift* refers to the phenomenon of manuscripts copied form entire printed books. See Wolf 2011, esp. 9–15. See also Nafde 2020.

80 Leiden, University Library, BLP 1905, fol. 15r. The imprint, however, is omitted. In the beginning the manuscript shows a one-column layout decorated with simple initials and pilcrows in red ink and further rubrication. With the explanatory texts of the Vein Man, the layout changes to two-column, reproducing the print template. Maybe the copyist found it easier to adhere to the lines that way.

81 Leiden, University Library, BLP 1905, fol. 3r–v.

together with the picture.[82] Although copied faithfully from print, the Leiden manuscript shows adaptations on the textual level.

There are also manuscripts that were clearly copied from print editions but at the same time enhanced or corrected on the basis of manuscript material. In the early 16th century, an anonymous scribe copied the uroscopy and phlebotomy material from a Latin print edition of the *Fasciculus* into a medical codex, today found in Trinity College.[83] This is especially evident in the careful drawing of the Vein Man after the Venetian woodcut model and in large passages of verbatim text.[84] These parts, though, underwent major transformation, probably on the basis of an unknown manuscript. Whereas the drawing of the Vein Man is evidently a copy from the woodblock used in the Latin Venice 1495, 1500, and 1501 editions, there are significant changes: Image inscriptions about the influences of the zodiac signs are written on the limbs of the Vein Man, similar but not identical to those of the Latin Venice 1491 edition (the inscriptions were omitted in the later Latin editions). Furthermore, the labelling of the veins and the short paratexts are completely different from both the first and the later Latin editions, and, consequently, the ordering of the explanatory tract follows the logic of this labelling, even though on the textual level there is no significant change. The following treatise on phlebotomy is close to the Latin editions, but some changes are still noticeable. For example, there is no drawing of the Zodiac Man, but the printed image's inscriptions turn up in the textual description of the Zodiac signs and their influence on the human body and bloodletting.[85]

As indicated by the alterations of the Vein Man, the manuscript is also an interesting example of how the images fared during copying processes.[86] In the case of the Vein Man, the visual style of the drawing imitated that of the print, but the schematic and paratextual elements were adapted to serve the new text-image arrangement. The diagrammatic *tabula* of the Urine Wheel, on the other hand, was not copied but

82 Leiden, University Library, BLP 1905, fol. 7v–8v.

83 Cambridge, Trinity College, O.9.31. In this medical miscellany the Latin and Flemish manuscript parts, among them the Ketham material on uroscopy and phlebotomy with a depiction of the Vein Man, are bound together with two Latin incunabula, see The James Catalogue of Western Manuscripts online: https://mss-cat.trin.cam.ac.uk/Manuscript/O.9.31 (accessed 29/09/2021).

84 For the Vein Man see Cambridge, Trinity College, O.9.31, fol. 29v. The printed template was not Latin Venice 1491, due to the deviating information given in the Urine Wheel tabula (see below and n. 88). The scribe dated the pages copied from the Fasciculus to 1505 and 1507, which means the Latin Venice editions of 1495, 1500 or 1501, which all present the same texts and images, could have been used as template. See for the dates The James Catalogue of Western Manuscripts online: https://mss-cat.trin.cam.ac.uk/Manuscript/O.9.31 (accessed 29/09/2021).

85 Each Zodiac sign is assigned to a month (i. e., *Aries est signum mensis Martii*), information that could be taken from the inscriptions of the printed Latin Zodiac Man, see Cambridge, Trinity College, O.9.31, fol. 32r–v.

86 Images could also be copied individually: The Wound Man and the Pregnant Disease Woman in London, Welcome Library, MS 290, fol. 53v and 52v respectively, are probably copied from the Latin Venice 1491 edition without the related texts as suggested by Hartnell 2017, 22–24.

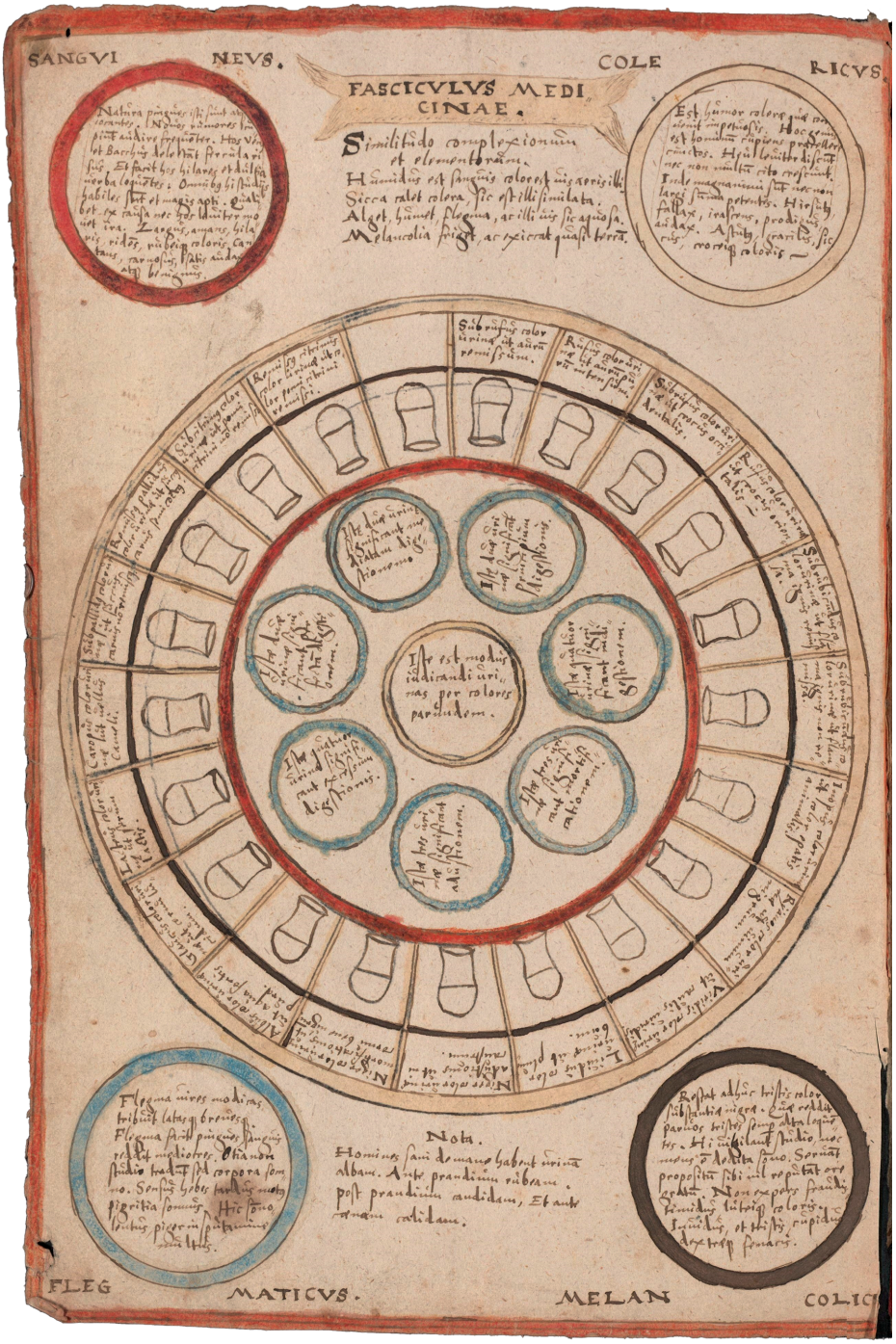

Fig. 6a: The Urine Wheel and treatise arranged synoptically, Vienna, National Library of Austria, Cod. 14034, fol. 2v.

Fig. 6b: The Urine Wheel and treatise arranged synoptically, Vienna, National Library of Austria, Cod. 14034, fol. 3r.

rather transformed into a table.[87] The 16th century copyist first visualized the relations between urine colors and stages of digestion using two columns, curly braces, pilcrows, and rubrication. Later on, the same hand corrected the table because the relations were misrepresented in the Latin Venice editions. This can be traced back to the print history of the Ketham Urine Wheel and specifically one significant transformation the woodcut underwent. Beginning with the Italian Venice 1494 edition, the sequence of states of digestion in the medallions of the inner circle of the wheel was arranged counter clockwise (instead of clockwise), thus disturbing the relationship between urine color (on the two outer circles) and progress of digestion or *coctio*.[88] After realizing the mistake, the copyist corrected the stages of digestion in order to allocate the intensity of color to increasing processes of digestion in the traditional way, probably making use of another (print or manuscript) template.

Although they reduce the diagnostic value of the Urine Wheel, such erroneous features help to identify print editions and templates. Manuscripts that depended only on the textual and not the visual printed Ketham material are harder to identify. One is Leiden, University Library, ms. VCO 6. This codex probably consists of individually produced booklets or gatherings that were bound together later, and it therefore shows different sequences of foliation.[89] The Latin Ketham material together with other short texts in German and Dutch is part of one of these individually foliated booklets at the end of the codex.[90] It is almost exclusively textual and visually indistinguishable from other entries in this booklet, apart from the fact that the labels of small letters or numbers used in the print editions to reference the images were copied in the margins.[91] It is unclear exactly which edition served as the template. The copyist apparently did not care much about the ordering of the content or elaborate visual organization; the Ketham material is only identifiable as having been copied from print because of some short but telling paratexts and titles that were taken verbatim from one of the Latin editions.[92] It should be briefly mentioned that the Ketham material is also part of a

87 See Cambridge, Trinity College, O.9.31, fol. 28r.

88 This has been shown by Zaun/Geisler 2011, 975–976. Traditionally light urine colors signaled a lack of or inadequate digestion due to excessive coldness in the body, darker shades indicated progressive digestion, while overheating and black urine meant imminent death.

89 As far as I am aware a detailed description of this manuscript is missing, but see the entry in the Leiden University Library Online Catalogue: https://catalogue.leidenuniv.nl/permalink/f/6jdn1r/UBL_ALMA21221792960002711 (accessed 29/09/2021).

90 The foliation of this part runs from fol. 1r (= 101r) to 38v (=138v).

91 Leiden, University Library, ms. VCO 6, fol. 119r–125r contains the explanatory text of the Wound Man and the following tract on *ungenta* and recipes, into which a unassociated diagrammatic drawing is inserted (fol. 120r) and other Latin and Dutch recipes are seamlessly added. On fol. 127v–129r there is the explanatory text on the Pregnant Woman with the labelling, followed by the four temperaments in medallions that belong to the printed Urine Wheel *tabula* (fol. 129r), and an unfinished drawing of a urine color diagram (129v), as well as the Ketham tract on uroscopy (fol. 130r–131r) followed immediately by other entries in Dutch.

92 I based my comparison on Latin Venice 1491. Leiden, University Library, ms. VCO 6, fol. 121v: *Ista*

copious collection of medical texts in a Spanish manuscript from the middle of the 16th century, Madrid, National Library of Spain, 2.328. María Teresa Herrera has identified the Spanish Pamplona 1495 edition as the printed template.[93] It is the only vernacular manuscript I know of that was copied from print.

Even though a number of print editions of the *Fasciculus* were available in the 16th century, people still wrote and copied it by hand. Whether copying from print or manuscript, there are different levels of dynamics involved in the writing process. These levels move between transcribing, i. e., actually reproducing the template and thereby stabilizing text and/or visual organization, and more or less transformative copying, which entails recombination and/or reorganizing on a textual and/or visual level. These manuscripts demonstrate the interrelations of handwritten and printed books and pose the question of what they could offer to their producers, owners, and users. Scholars often distinguish early modern manuscripts from medieval ones by their high level of individualization.[94] But the examples from Copenhagen, Vienna, and Leiden at least invite us to question these generalizations.

5 Shifting Meanings in (Un)Learned Medical Practice and Book Consumption

The core of the Ketham material survives either as large but slim *Tafelwerke* with a strong focus on the images or as compendia combined with further textual material, as well as in excerpts in thematically specialized booklets and collections. Since we find all three types printed and handwritten, does it make sense to draw a dividing line between print and manuscript? Perhaps these differing types can tell more about potential shifts in meaning attributed to the books labeled 'Fasciculus medicinae' than the choice of medium alone. What was the point of the various transformations observed here—such as medial and linguistic translations, material changes regarding format and volume, textual and pictorial rearrangements, organizational restructuring through the arrangement of script/type and space on the page as well as changing paratexts and so forth—in terms of conveying content and value as well as influencing usability or actual usage? Or to put it differently: Are there shifting meanings associated with these transformations? As stated earlier, it is worthwhile to refer to recent approaches to medieval and early modern cultures of healing which understand learned medicine and lay self-care in their interrelatedness. Michael Stolberg

residua deficiunt in aliquibus marginibus figure precedentis ubi consimilies littere alpha beti comprehenduntur is verbatim a short explanation of the labels on the tabula of the Wound Man in Latin Venice 1491, biia. See also Leiden, University Library, ms. VCO 6, fol. 130r: *Sequuntur expositions tabule prime fasciculi medicine*; Latin Venice 1491, aiia.

93 See Herrera 1990, 11–12.

94 See Wolf 2011, 14.

points out that learned physicians were for the most part socialized with non-professional medical notions and practices while growing up. Dismissing and deprecating those notions, observations and practices in their published works was more part of their professional self-fashioning as medical authorities than the expression of an actual delimitation.[95] However, it could also be a textual strategy to demarcate common medicine from learned knowledge in order to address an audience of 'common men', i. e., readers of middling income and education. According to Tillmann Taape, the Strasbourg surgeon apothecary Hieronymus Brunschwig used a number of criteria in his vernacular works to differentiate between what was appropriate for learned and common audiences respectively. These criteria were the level of Latin literacy, the level of understanding of Galenic theory, and the level of access (through financial means and/or spatial proximity) to resources and treatment from apothecaries and professional physicians. In addition, the following binaries were crucial markers of learned and unlearned health care: diagnosis of complexion and disease versus self-treatment, inner medicine versus prevention, and assessment of astrologically propitious times for certain treatments versus straightforward instructions.[96]

The observation of diverse discursive claims on the hierarchical order of learned and common medicine and the impossibility of drawing a clear line between them in practice go side by side. Against this background, the various manifestations of the *Fasciculus medicinae* and their potential offerings to a lay audience should be considered, which is indicated, of course, by its medial and linguistic translations. Translations of Latin texts into the vernacular have long been understood as a top-down dissemination of learned or academic knowledge. The 'vernacularization' or 'popularization' of medicine, however, is too simple a concept. Thus, the exchange between professionals and non-professionals is now seen as a two-way street.[97] It is useful to first take a closer look at the features of some of the print editions discussed here, which could appeal to both learned and non-learned audiences.

Translation into the vernacular is usually equated with catering to a broader readership. It has been shown, though, that readers who knew Latin would also read the vernacular translation without distinction.[98] The vernacular may be a prerequisite, but not a sufficient reason to assume that a book would appeal to medical non-practitioners and lay people interested in maintaining their own health. The first Spanish

95 See Stolberg 2014, esp. 666: "They grew up with the same images, shared the same notions, took the same practices for granted. The critical attitude towards medical lay culture that they expressed in their learned publications reflected new notions and outlooks they had acquired during their studies. It was part of their professional self-fashioning. It is hard to imagine, however, that their studies and professional aspirations could entirely erase the beliefs and images that had previously been deeply engrained in their minds and possibly even in their bodily habitus."

96 See Taape 2021, 6–16.

97 See Stolberg 2014, esp. 650–651, with further research on the popularization of medicine in the early modern age; Greyerz 2013, esp. 12–13.

98 Cf. Green 2006.

and Italian editions, for example, offer little evidence to suggest they were intended for lay readers.[99] They do not explicitly address any potential audience in their paratexts and feature no prefaces. In terms of textual arrangement, there is little to suggest that they appealed more to a lay audience than learned medical professionals.[100] It is noteworthy though, as Peter Murray Jones observes, that especially the newly added genre scenes "address contemporary medical concerns particular to Venice in the 1490s" and their style seems orientated to the time and place of contemporary readers rather than tradition (Fig. 7).[101] In the case of the Italian Venice 1523 edition, the title page claims the book to be indispensable for any *professor si dellarte della physica, chomo della cyrurgia* ('any teacher whether of physiology or surgery'). Practitioners of learned medicine seem to be the intended audience here, especially those who try to keep up with their colleagues: The very short preface praises the additions to the *Fasciculus*, that is the many newly added *experimenti, da moderni doctori excerpti et extracti, iquali nelle altre impressione non se troua* ('experiments taken from current doctors that are not found in other editions').[102] In fact, recipes and these hands-on experiences take up much more space than other additions. Recipes are an integral part of non-professional medical records; however, physicians collected them as well.[103] It remains questionable whether this Italian edition was aimed at professionals and non-professionals alike. In comparison, the Dutch edition published in Antwerp in 1512 shows a much more direct approach. Its title page addresses surgeons and *andere menschen* ('other people') and proclaims the contents of the book to be beneficial and necessary.[104] Chris Coppens has pointed out how the translator Petrus

99 See, however, Coppens 2009a, 20 on the Italian Venice 1494 edition: "Dit is een praktisch handboek, dat zich door de volkstaal niet alleen tot universitair gevormden wendt, maar ook tot de chirurgijnen, en dat bovendien door de geïnformeerde leek kan worden gebruikt, bijvoorbeeld voor de pestvoorschriften met profylactische richtlijnen." ('This is a practical handbook, which, because it is written in the vernacular, turns not only to university graduates, but also to surgeons, and which, moreover, can be used by the informed layman, for example, for plague prescriptions with prophylactic guidelines.').

100 There are two short lists of herbal recipes added to the Italian Venice 1494 edition, which has been particularly praised for the quality of the illustrations. Opinions differ, however, whether the added scenes of teaching, diagnosis, and dissection targeted an audience of medical professionals (see Singer 1925), or "addressed 'men of honor' and 'honest citizens'" (Jones 2020, 348–349). Herrera notes textual omissions by the Spanish translation and judges the Italian edition of 1494 a more accurate translation of Latin Venice 1491, see Herrera 1990, 12–16, esp. note 7. See on Spanish and Italian translations of the specific terms of uroscopy and the colors of urine Zaun/Geisler 2011.

101 Jones 2020, 350.

102 Italian Venice 1523, fol. 3r.

103 The Latin Venice 1522 edition, also published by Cesare Arrivabene, contains many recipes as well, see Singer 1925, 40f. According to Solomon 2010, 71–91 recipes appealed to non-professionals and patients, because they "tended to address the patient's symptoms of illness", especially pain, "rather than the abstract concepts of disease held by learned physicians", Solomon 2010, 77.

104 The full title reads: *Fasciculus medicine houdende in hem dese navolghende tractaten die allen cyrurginen ende andere menschen te wetene seere profitelije ende nootsakelijc zin* ('Fasciculus medicine with the following treatises which are very profitable and necessary to know for all surgeons and other people').

Antonianus declared in the prologue that he translated the *Fasciculus* for the benefit of the common people. He also explains that this was necessary because of unreliable and lazy masters and surgeons who did not invest themselves properly in their tasks.[105] Furthermore, the preface, while acknowledging God's ultimate authority over the human body, also calls on Christians to not tempt the Lord and take responsibility for their health: *Desgelijcke en sullen alle kerstene menschen god niet temptere. Maer sullen haer seluen helpen*. According to Antonianus *vele schone enn experten hulpen enn remedien* ('many beautiful and masterful counsels and remedies') will aid people in helping themselves, which also applied to the other treatises he translated and added to the *Fasciculus*.[106] The Dutch translation therefore attacks professional practitioners of medicine and denotes as its own raison d'être the responsibility of every Christian for one's body. But this, of course, works also as an incentive for non-professionals to buy and/or read the Dutch *Fasciculus*. A similar critique of ignorant surgeons is also made in the (long and short version of the) prefaces to the German surgical booklets. As mentioned above, especially the younger editions of the *Wundartznei* actually seem to cater to a non-professional readership through the choice of instructional texts on bloodletting from the patients' point of view and German recipes with fairly simple ingredients.

There seems to be a wide spectrum of potentially shifting meanings attributed to the diverse manifestations of the *Fasciculus* ranging from a vademecum for professionals to a practical or instructional work for lay people. Although a thorough examination of each individual manifestation, the manuscripts especially, is certainly still necessary, I would like to put forth some preliminary considerations as to why the *Fasciculus* may have prospered over a long time and materialized in such varying shapes. Against the background of recent research on the culture and social practices of healing, at least part of the *Fasciculus*'s appeal is explained by its potential to serve as a communicative bridge between learned physicians and sufficiently educated and affluent patients. A multifaceted phenomenon like the *Fasciculus medicinae* is better understood if we take into consideration the patients' agency.

If learned physicians and lay people shared fundamental medical notions based on scholastic medicine and if, as Peregrine Horden points out, much of learned medicine focused on preservation and prevention, then communication was crucial to a satisfactory therapy, as a good regimen relied on the patient's conviction and active performance. Rhetoric was part of the academic training and the medical practice. According to Horden, learned physicians probably talked more than they acted: "They made sense of patients' woes [...]. They interpreted signs and symptoms and enfolded them into a narrative that the patient could grasp and accept."[107] It seems clear then

105 Cf. Coppens 2009a, 174–176. The failings of medical practitioners are a common theme. These complaints, however, are often directed against 'bad' physicians and unlearned practitioners, see Solomon 2010, 65–66.

106 Dutch Antwerp 1512, [fol. 1v].

107 Horden 2013, 42–43.

that in order to be successful healers, professionals relied on a common ground of shared notions with their patients because these notions fostered the patients' acceptance of learned knowledge. 'Vernacularization' and 'popularization' therefore were more than the vague dissemination of high-level learning, often associated with simplification and quality loss. As Michael Stolberg emphasizes, in spite of their explicit claims of authority and expertise, physicians were forced by social reality to interest themselves in what was expected and relied upon by their patients.[108] Because of tough competition and the concurrence of learned, empiric, magic, and religious healing practices, it was the patient who ultimately validated medical knowledge by accepting it.[109] The incentive to 'vulgarize' and share basics of learned medicine, such as offered by the *Fasciculus*, with lay audiences might have been to foster understanding and therefore acceptance for learned attribution of meaning.[110] In order to be successful, physicians relied on their learned knowledge but also depended on acceptance and cooperation; therefore, "their explanations of the nature and the causes of the disease in question had to be meaningful in the eyes of laypersons and their prescriptions had to make sense."[111] In light of the extent to which oral communication was required as part of a successful treatment, vernacular translations may also have aroused the interest of university-trained physicians because they helped them to convey Latin concepts and terms to the non-learned.[112]

Of course, the point of view of lay people and potential patients must also be taken into account, at least those who had sufficient financial means, education, and free time to consume medical literature such as the *Fasciculus medicinae*. Certainly, because of the significant and important role healthcare played in the family and household circle and because of the responsibility adult women and men felt towards their close relations, a widespread and active interest in medical knowledge can be assumed. They were not only listening but also apparently bringing their own

108 Cf. Stolberg 2014, 665.

109 Horden 2013, 54: "The resulting 'free market' in ideas about healing was by no means always dominated by the medical elite, despite the widespread appeal of university-type medicine." Solomon 2010, 69 stresses this competition as well as the constant need of physicians to bolster their fragile reputations through successful treatments and points to the high levels of mobility and migration connected to this. Solomon acknowledges the mechanisms of self-promoting in vernacular treatises as well as their potential to induce the readers' faith in the physician's competence but does not consider the patients' agency.

110 Another motive could be the actual education and emancipation of non-professional, self-treating people as Taape 2021, 53 argues in the case of Brunschwig: "Besides much practical advice, Brunschwig hands to the common man the key to understanding learned concepts and jargon. Controversially, the layman is thus enabled to assess and judge the services of better-educated experts, as well as seeking health independently of their authority."

111 Stolberg 2014, 665.

112 Stolberg 2014, 665, notes that the Bohemian physician Georg Handsch (1529–c. 1578) copied down hundreds of vernacular expressions he could use when talking to patients and sometimes even highlighted those that had been particularly well received.

thoughts and convictions to the physician-patient communication.[113] Understanding key learned concepts and the complex relations between the human body and natural and unnatural influences in order to facilitate this communication must have been of vital interest to both sides. Understanding the causes of suffering might have eased managing its effects because integrating disease into a broader conception of natural order at least gave meaning to the state of one's body.

Furthermore, a grasp of learned medicine could help patients assessing and evaluating their physician's performance and reasoning.

There is a puzzling passage in the Latin Venice 1522 edition that seems to cynically evoke just how much could go wrong in physician-patient interaction.[114] It begins, 'When you first come to a patient feel the pulse, talk to him and note the urine. If the patient is in danger, don't go there, but send a messenger.' The pressure a physician could face while performing in front of relatives, friends and members of the household is hinted at: 'If you visit a patient, always do something new, so that those attending don't think you ignorant.'[115] We see such a scene in one of the woodcuts (Fig. 7). The patients' perception of the physician obviously played a huge role in successful treatment. Patients were faced with the task of distinguishing good from bad treatment. If we recall the complaints about lazy, uninterested, or unknowing medical professionals in some of the vernacular prefaces, these probably alluded to negative experiences made by reading patients. To be able to read up on the connection between, for example, urine of a certain color and the internal (dis)functions of digestion in books like the *Fasciculus medicinae* or to check on the veins in particular body parts and the benefits of bleeding them for specific ailments fostered confidence in dealings with professionals as well as trust on the part of the informed patient.[116]

The role of the Ketham images in these communication and validation processes should be equally considered. From a bibliophilic point of view, the various series of illustrations (sometimes colored by hand) must have enhanced the appeal of the prints and manuscripts they adorned. The images of the printed *Fasciculus* have accordingly oftentimes been commented on for their beauty and (lack of) scientific innovation.[117] Printing is usually seen as a means of producing large quantities of uniform images that

113 With a focus on the 16th century Stolberg 2021, esp. 469–474 and 477–482.

114 *Capitulum de regulis obseruandis in ingressu domus infirmis* ('Chapter on the rules that should be followed when entering a patient's house'), Latin Venice 1522, fol. 5v. Singer 1925, 40 provides a partial translation of this passage.

115 Latin Venice 1522, fol. 5v.

116 Taape 2021, 47 notes that Brunschwig aimed to educate his readers on the Latinate jargon of physicians and apothecaries. The same motive might be behind the list of Latin medications with German indications in the editions of the *Buchlin*, see for example Buchlin Augsburg 1516, [eivb–db].

117 Cf. Gurunluoglu et al 2013, esp. 223; Singer 1925, gives judgements of this kind on all the images of the Italian Venice 1494 edition. On the images and all their alterations throughout the various print editions in general see Coppens 2009a.

Fig. 7: A visitation at the sick bed, Latin Venice 1522, Munich, Bavarian State Library, 2 Med.g. 85, fol. 22v.

support advances in science and medicine.[118] The potential of printed images in particular is often measured by their ability to disseminate scientific information, although lately their argumentative features have been emphasized. Accuracy as a measure of the images' quality has been called into question. When images were used to display processes of inquiry in order to affirm the reliability of these methods, or to familiarize the early modern public with new procedures or theories, verisimilitude was not the ultimate aim.[119] This perspective on scientific images points to the readers' role in the dynamics of the production, evaluation, and social acceptance of knowledge.

A new perspective on images could also prove fruitful in the context of understanding the various manifestations of the *Fasciculus* as facilitating physician-patient communication. First, it must be noted that there is no consensus on the status of the images: Do the images accompany or illustrate the texts? Are the texts secondary to the images?[120] I would emphasize that the Ketham images (opposed to the later scenic pictures of academic teaching and patient-physician interaction) function in close relation to their texts, as image-text arrangements, and can be read as diagrams expressing relations instead of 'accurate' or naturalistic depictions.[121] Diagrammatic images are characterized by their potential to visualize relations and convey simplification, order, and authority.[122] They visualize relations between entities, for example body parts and diseases, as well as conceptions of natural order and therefore create meaning also for the non-learned. They can provide visual confirmation of the underlying shared concepts and notions on which physician-patient communication was based. The Zodiac Man, for example, visualized cosmic relations of the human

118 Dackerman 2011, 26 refers to William Ivine's claim that printed images were crucial for the development of modern science and points out how privileging 'accuracy' projected modern standards onto the 16th century. It should be noted that images valued for accuracy of information often are not faithful records of observation but augmented and elaborated representations of ideal types. See ibid., 25 with further literature; Margóscy 2011, 142.

119 Dackerman 2011, 32: "parts of the knowledge being shared in these works is that of research methods: the prints were to be used as tools or guides rather than to be consulted exclusively for predetermined facts. They were tools of persuasion—not accurate representations of the natural world, but demonstrations and legitimations of the processes of inquiry that allowed the early modern public to know and comprehend it." One interesting example is the reevaluation of anatomical flap prints, see below n. 124.

120 See for example Pantin 2013, 26: "its images [...] had nothing more than a passing relationship with the text. They were self-sufficient." Jones 2020, 348: "The short texts were in many cases secondary to the images, working as captions or explanations." Keil 1990, 145 understands the Ketham images as "textunterstützt[e] Demonstrationstafeln" ('text-supported demonstration drawings'), intended for teaching aspiring physicians. The image is the basis and the text only optional, ibid., 138. Coppens 2009a, 10 however, sees the illustrations as explanations of the text.

121 In his upcoming study on the Wound Man as a diagrammatic image, Jack Hartnell emphasizes the communicative features of diagrams and the special position of medical images of the human body. Pantin 2013, 20–21, on the other hand, understands these types of images-with-text, like the Vein Man, as an "aid to memorization" and "visual complements", apparently distinguishing them from diagrams.

122 See the concise introduction by Haug/Lechtermann/Rathmann-Lutz 2017.

body, underpinning professional reasoning without the need for in-depth astrological understanding on the patient's side.[123] The spatial arrangement of an alphabetical list of diseases along the human body, as in the image of the Disease Man, conveyed a sense of completeness and natural order and promoted trust and acceptance in learned diagnosis.[124] The longevity and continuous reuse of the image types connected to the *Fasciculus medicinae* from medieval to early modern times can partly be explained by this diagrammatic visualization of relations and notions of order that appealed to learned and unlearned readers.[125]

Since naturalistic precision is not absolutely required to correctly convey the relations essential to these types of images in the case of the *Fasciculus medicinae*, the impact of the printing press and mass production on 'accurate scientific' representation need not be overemphasized. These images in particular already were steadily produced and reproduced in manuscripts long before their appearance in print editions. Diagrammatic images did not rely on pictorial precision but meaningful reproduction of the relations of elements, which was independent of style or skill and could also be easily simplified with a quill, for example translating the diagrammatic Urine Wheel into a table. In fact, because of the reuse and copying of valuable woodblocks, print editions tend to reproduce errors that sometimes are corrected by hand later on. One such fairly substantial error, as we have seen, concerned the diagram of the Urine Wheel in a number of printed *Fasciculus* editions. Explicitly referencing Johannis Ketham at the beginning of the 16th century, an observant reader-scribe corrected these erroneous relations between urine colors and stages of digestion. Readers were also aware of changes and deviations between the images of individual print editions: In the exemplar of the Latin Venice 1495 edition today in Washington, someone inserted the titles of the tabulae as well as missing inscriptions from the older Latin Venice 1491 edition. The names of diseases were inscribed by hand to the limbs of the Vein Man, the Pregnant Woman, and the Wound Man.[126] The interweaving of print and handwriting is also evident in the images.

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123 See Hartnell 2017, 5, on the conceptual proprieties of the Zodiac Man, who nevertheless points out: "This is an image comfortably caught between two depictive approaches that we too often frame as oppositional: the diagrammatic and the naturalistic."

124 How images could promote social acceptance in medical knowledge production and validation is also apparent in the example of anatomical flap prints Dackerman 2011, 26–33 refers to: Instead of being outdated and inaccurate anatomical illustrations, these paper models should be understood as "tools of persuasion" that invited surgical interaction on paper and visibly and experientially presented anatomical examinations as viable practices. In this way, they contributed to the reassessment of surgery as part of academic medical training as well as to their appreciation by potential patient.

125 One should bear in mind, though, that each placement of an image like the Wound Man in a specific material and textual context produced different effects and affordances. See Panse 2012a, who compares text-image relations of Wound Men woodcuts in two vernacular medical books, Hieronymus Brunschwig's *Buch der Cirurgia* (1497) and Hans von Gerdorff's *Feldbuch der Wundarznei* (1517).

126 Washington, Dibner Library of the History of Science and Technology, R128.6 K43 1495 quarto, fol. 4r (Vein Man), 8r (Zodiac Man, the short introduction from Latin Venice 1491 is added), 8v (Pregnant

6 Conclusion

The first print, Latin Venice 1491, helped establish the notion of a virtual work, labeled 'Fasciculus medicinae', which was made up of short image-text arrangements on relevant medical topics (uroscopy, phlebotomy, women's health and reproduction, surgery, and anatomy). These had previously been passed on partly together, partly individually in late medieval manuscripts, and they continued to be written by hand, while simultaneously various Latin and vernacular prints were produced. The transition of the late medieval Ketham material into print also entailed a stabilizing effect on the link between the images and the specific explanatory texts chosen for the first print (or rather its manuscript template).[127] The stylistic impact of the woodcuts of the Italian Venice 1494 edition on all dependent editions is also noticeable; however, other aesthetics remained in place regarding both hand drawn and printed images.[128]

The *Fasciculus medicinae* as a virtual work materialized in highly diverse forms and sizes. These have been roughly divided here into three types: the image-centered *Tafelwerk*, the text-centered compendium, and the thematically focused booklet or collection. All types are represented in print and manuscript, but as far as the material studied here goes, all picture books are in Latin, whereas compendia are found in Latin, the vernacular, or both. The printed thematic booklets and larger manuscript collections (on women's health) appear to be a German phenomenon, at least until new evidence can be brought forward.

The *Fasciculus* is an example of the simultaneity of diverse medialities, materialities, and set-ups of short image-text arrangements that were conceived by contemporaries at least partly as belonging together while at the same time being produced and reproduced in highly flexible ways. There does not seem to be a decisive dividing line between the printed and handwritten medium. The multifaceted nature of what could be referred to as 'Fasciculus medicinae', however, called for a revaluation of the potentially shifting meanings printers, translators, scribes, copyists, and readers attributed to its various manifestations in the context of health care and medical learning. To socially differentiate the audiences of the Latin and vernacular manifestations also seems unsatisfactory since medical practice was based on communicative interaction as well as the social acceptance of medical knowledge and treatment methods. Also, the diagrammatic visualizations of bodily order or fundamental relations, such as those between bodily functions and cosmic influences and the quality

Woman), 14r (Wound Man), 18r (Disease Man, some introductory lines are added at the bottom of the page). At the end of the list of diseases the scribe even reproduced the colophon of Latin Venice 1491 edition verbatim, ibid., fol. 20v.

127 See on the independent transmission and reconfiguration of images and texts in medieval medical manuscripts Jones 2006, 2–3.

128 In the Dutch Antwerp 1512 edition, for example, the human physiques are depicted with different aesthetics ("Renaissance" and "German") see Coppens 2009b, 178–183.

of bodily discharge and diagnosis, should not be measured primarily by their level of scientific accuracy or innovation, but rather by how they helped both learned physicians and literate patients make sense of disease conditions. This way, both the ongoing appeal of the *Fasciculus medicinae* and the high level of transformative interaction with its core material in prints and manuscripts can be understood.

The manuscripts presented here are certainly not a representative sample of all the surviving material, which only further research would reveal. Moreover, only certain key aspects of these manuscripts have been addressed here. The examination of the *Fasciculus*'s print history, too, was necessarily confined to the level of differing editions. There is much to be done though regarding the surviving exemplars and the traces of their physical transformations by different users, which have only been touched on here. Nevertheless, I hope to have shown that future in-depth analysis could further expose in which ways individual material manifestations of the *Fasciculus* precisely catered to varying needs, how they could provide practical advice or argumentative devices as well as facilitate physician-patient interaction. The various manifestations of the *Fasciculus medicinae* thus contributed to a common understanding of bodily balance and medical treatment, on which the learned and professionals as well as literate common people and their communities relied while coping with daily issues of medical treatment and health care.

Appendix: Cited print editions of the *Fasciculus medicinae*

Publication Year	Place	Language	Title	Num. fol.	USTC	Format	Printer	Exemplars
1491	Venice	Latin	Fasciculus medicinae. Daran: Consilium pro peste evitanda	16	993715	folio	de Gregoriis, Johannes and Gregorius	Munich, Bavarian State Library, Rar. 749; Boston, Countway Library of Medicine, Rare Books f Ballard 408
1494	Venice	Italian	Fascicolo di medicina	52	993716	folio	de Gregoriis, Johannes and Gregorius	Paris, National Library of France, département Réserve des livre rares, RES FOL-T22-4
1494	Zaragoza	Spanish	Compendio de la salud humana	67	766608	folio	Hurus, Paul	Madrid, National Library of Spain, INC/51
1495	Burgos	Spanish	Epilogo en medicina y cirurgia co[n]venie[n]te ala salud. Fasciculus medicinae	68	766818	folio	Juan de Burgos	San Marino CA, Huntington Library, Call Nr. 86926
1495	Venice	Latin	Fasciculus medicinae. Consilium pro peste evitanda; Mundinus: Anatomia	40	993714	folio	de Gregoriis, Johannes and Gregorius	Washington, Dibner Library, R128.6 .K43 1495 quarto
1495	Pamplona	Spanish	Epilogo en medicina, o Compendio de la salud humana. Fasciculus medicinae	71	766819	folio	Brocar, Arnaldo Guillen de	Madrid, National Library of Spain, INC/1335

Publication Year	Place	Language	Title	Num. fol.	USTC	Format	Printer	Exemplars
1500	Venice	Latin	Fasciculus medicinae. Daran: Petrus de Tussignano: Consilium pro peste evitanda. Mundinus: Anatomia. – Rhazes, Muhammad: De aegritudinibus puerorum	34	993713	folio	de Gregoriis, Johannes and Gregorius	Bethesda MD, National Library of Science, WZ 230 K43f 1500 OV1
1501	Venice	Latin	Fasciculus medicinae. Daran: Petrus de Tussignano: Consilium pro peste evitanda. Mundinus: Anatomia. - Rhazes, Muhammad: De aegritudinibus puerorum	32	993712	folio	de Gregoriis, Johannes and Gregorius	Bethesda MD, National Library of Medicine, WZ 230 K43f 1501 OV1
1510	Strasbourg	German	Ein gut artznei die hie nach steet, das Frawen unnd mann an geet, findest du vil sachen mit wenig worten ertzalt	5	643715	folio	Hupfuff, Matthias	Zurich, Central Library, Ink K 355 2
1510	Augsburg	German	Ain gut artznei die hie nach stet das Frawen und mann an geet. Findest du vil sachen mit wenig worten antzal. auch wie ain kind in muter leyb sey gestalt. auch wie du solt probieren an dir ob die schuld der unfruchtbarkait sey dein oder ir	6	609878	quarto	Oeglin, Erhart	Munich, Bavarian State Library, Res/4 a.obst. 1 f
1512	Antwerp	Dutch	Fasciculus medicine houdende in hem dese navolghende tractaten	101	400312	folio	Grave, Claes de	The Hague, Royal Library, KW 227 A 9
1513	Bale	German	In disem Biechlin find man gar ain schöne underwysung un leer wie sich die Cyrurgici oder wundartz gegen ainen yeglichen verwundten menschen halten söllen, mit vyl bewrarte stücke	19	601245	quarto	Gengenbach, Pamphilius	Munich, Bavarian State Library, Res/4 Chir. 110,7
1515	Cologne	German	In disem büchlin find man ain schöne underwysung, wie sich die chyrurgici gegen ainen jeglichen verwundeten menschen halden sollen.	20	665461	quarto	Aich, Arnd von	Munich, Bavarian State Library, Res/4 Chir. 102b

Publication Year	Place	Language	Title	Num. fol.	USTC	Format	Printer	Exemplars
1515	Cologne	German	In disem biechlin find man gar ein schoene underwysung und leer wie sich die cyrurgici oder wundartz gegen ainen yeglichen verwundten menschen es sey mit schiessen, howen, stichen oder ander zufelligen kranckheiten nach anzeigung der figur halten soellen mit vyl bewaerten stucken	20	665462	quarto	Aich, Arnd von	Munich, Bavarian State Library, 999/Med.536
1515	[Mainz]	German	Eyn gut artzney die hie nach steet: dz Frawen und man an geet, findest du vill sachen mitt wenig worten ertzalt. Auch wie ein kindt in mutterlyb sey gestalt.	24	656039	quarto	Schöffer, Johann	Frankfurt, University Library, Biblioth. Hirzel 15
1516	Augsburg	German	In disem buchlin find man gar ein schoene underweysung und ler wie sich die cirurgici oder wundartzt gegen ainem yeglichen verwundten menschen halten soellen. Mit vil bewärten stucken.	19	668950	quarto	Froschauer, Hans	Munich, Bavarian State Library, Res/4 Chir. 102
1517	Sevilla	Spanish	Libro de medicina llamado conpendia [sic] de la salud humana	67	339382	folio	Cromberger, Jacobo	—
1522	Venice	Latin	Fasciculus medicie [!] praxis tam chirurgis quam etiam physicis maxime necessaria, consummatissimi artium & medicine doctoris Ioannis de Ketam Alemani, Fasciculus medicine nuncupata De peste communiter evitanda	58	837020	folio	Arrivabene, Cesare	Munich, Bavarian State Library, 2 Med.g. 86

Publication Year	Place	Language	Title	Num. fol.	USTC	Format	Printer	Exemplars
1523	Venice	Italian	Fasciculo de medicina. Collectorio universalissimo chiamado fasciculo de medicina	65	837019	folio	Arrivabene, Cesare	Bethesda MD, National Library of Science, WZ 240 K43fl 1522
1530	Strasbourg	German	Wundartznei: zu allen gebrechen des gantzen leibs und zu iedem glid besonder mit was zufaellen die entstehn Rath unnd meysterstuck. Daran: Rechte kunst und bericht der aderlaesz	16	707342	quarto	Egenolff, Christian	Munich, Bavarian State Library, Res/4 Chir. 110,1
1530	Zwickau	German	Wundartzney. Zu allen gebrechen des gantzen leibs und zu iedem glied besonder mit was zufellen die entstehn viel edler bewerter artzneien Rath und Meisterstueck. Daran: Rechte kunst und bericht der Aderlas	31	707345	octavo	Meyerpeck, Wolfgang d. Ä.	Munich, Bavarian State Library, Res/Chir. 60
1531	Frankfurt a. M.	German	Wundartznei: zu allen gebrechen des gantzen leibs und zu iedem glid besonder mit was zufaellen die entstehn und einem wundartzt zukommen moegen vil edler bewaerter artzneien Rath und meysterstuck. Rechte kunst und bericht der aderlaesz. Für die aderlaesser und scherer.	16	707341	quarto	Egenolff, Christian d. Ä.	Vienna, National Library of Austria, 68.G.38.(3)
1549	Frankfurt a. M.	German	Wundartzney zu allen gebrechen des gantzen leibs und zu jedem glied besonder mit was zufellen die entstehn unnd einem wnndtartz zukommen moegen. Viel edler bewerter artzneyen Rath und Meisterstueck. Rechte kunst unnd bericht der aderlas. Fur die aderlasser unnd scherer.	20	707343	quarto	Gülfferich, Hermann	Halle, University Library, an Ung V 122 (1)

Publication Year	Place	Language	Title	Num. fol.	USTC	Format	Printer	Exemplars
1552	Frankfurt a. M.		Wundartzney zu allen gebrechen des gantzen leibs unnd zu jedem glied besonder mit was zufellen die entstehn des viel erfarnen chirurgen Johannis Charethani. Rechte kunst und bericht der aderlaß	36	707344	quarto	Gülfferich, Hermann	Munich, Bavarian State Library, Res/4 Chir. 14
no date	no place	German	[Rezeptbüchlein für Gebärende]	24	—	quarto	no printer	Zurich, Central Library, Alte Drucke und Rara 3.143,2

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Heidelberg, University Library, Cod. Pal. germ. 644.
Leiden, University Library, BLP 1905.
Leiden, University Library, ms. VCO 6.
London, Wellcome Library, MS 290.
Madrid, National Library of Spain, 2.328.
Paris, National Library of France, Ms. Lat. 11229.
Prague, National Library of the Czech Republic, XVII.H. 26.
San Marino CA, Huntington Library, hssHM 64.
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Tallat, Johannes, *Ein gut Ertzney buchlin,* Augsburg: Froschauer, Hans, 1502, USTC 643716.
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Figure Credits

Fig. 1a–b: *De Flobotomia.* The Vein Man with explanations, Latin Venice 1491, Munich, Bavarian State Library, Rar. 749, fol. [2v–3r], https://www.digitale-sammlungen.de/de/view/bsb00052856?page=8,9 (CC BY-NC-SA 4.0, https://creativecommons.org/licenses/by-nc-sa/4.0/).

Fig. 2: The Wound Man on a fold-out parchment leave, ca. 1450–1470, Heidelberg, University Library, Cod. Pal. germ. 644, fol. 80r., https://doi.org/10.11588/diglit.518#0162 (Public Domain Mark 1.0, creativecommons.org/publicdomain/mark/1.0/deed.de).

Fig. 3 *Tabula tertia de muliere.* The Pregnant Disease Woman, Latin Venice 1491, Munich, Bavarian State Library, Rar. 749, fol. [5v], https://www.digitale-sammlungen.de/de/view/bsb00052856?page=14, (CC BY-NC-SA 4.0, https://creativecommons.org/licenses/by-nc-sa/4.0/).

Fig. 4: The Vein Man with indications in German (detail), *Wundartznei*, Strasbourg 1530, Munich, Bavarian State Library, Res/4 Chir. 110,1, Diia, https://digitale-sammlungen.de/de/view/bsb10199618?page=29 (https://rightsstatements.org/page/NoC-NC/1.0/).

Fig. 5: The Pregnant Woman (detail), 16th century, Copenhagen, Royal Danish Library, NKS 84 b folio, fol. 2r., http://www5.kb.dk/manus/vmanus/2011/dec/ha/object48029/da#kbOSD-0=page:3 (Public Domain, https://www.kb.dk/en/copyright-and-use-our-materials).

Fig. 6a–b: The Urine Wheel and treatise arranged synoptically, Vienna, National Library of Austria, Cod. 14034, fol. 2v–3r., http://data.onb.ac.at/rec/AC13949169; (no copyright, https://www.onb.ac.at/nutzung).

Fig. 7: A visitation at the sick bed, Latin Venice 1522, Munich, Bavarian State Library, 2 Med.g. 85, fol. 22v., https://www.digitale-sammlungen.de/de/view/bsb10147971?page=62 (NoC-NC 1.0, https://rightsstatements.org/page/NoC-NC/1.0/).