

# Chapter 1

## Representing the Body

### The Visual Culture of Renaissance Anatomy

The production and proliferation of anatomical fugitive sheets went along with the rebirth of anatomy in the Renaissance—the period of radical renewal of the late-fifteenth and early-sixteenth centuries during which modern anatomy arose as a refounded science after centuries of slavish adherence to ancient authorities like Aristotle and Galen.

That the two should have thus developed simultaneously is, of course, no accident. Anatomical fugitive sheets belong to a singular, clearly defined printing genre; they differ significantly from anatomical work produced in the universities both in terms of rhetorical, textual and iconographical form, and in terms of scientific content—and hence of their social and professional use. But there were, nevertheless, many points of contact, convergences and exchanges between the anatomy of the fugitive sheets and that of the lecture hall. Both shared the same intellectual climate that assigned to the human body a central place within sixteenth-century culture, learned as well as popular. They shared, too, the elements that underpinned the development of this culture: the diffusion of public anatomies and the use of dissection as a means of research; the invention of printing, an extraordinary instrument for the multiplication and circulation of texts that also provided the opportunity to renew the composition of texts and images, ensuring the better communication of scientific information. Further, some of the protagonists were active in both fields. And finally, the modalities of communication were common to both, since they shared the way in which images were conceived and used for the transmission of knowledge.

This chapter will point out and analyse some of these convergences and present some elements concerning the cultural climate in which fugitive sheets were produced. Some key points in the history of Renaissance anatomy and of anatomical illustration will be enlisted to trace the evolution of the anatomical culture of the first half of the sixteenth century in terms of its foundation in the act of seeing, as borne out by individual research and observation, and didactic and published communication. The establishment of such a culture raises questions about the use and function of the printed image and about the modes of transmission of knowledge, anatomical and otherwise, that link the story of anatomical fugitive sheets in particular to the larger history of anatomy. If there is no doubt that fugitive sheets would be incomprehensible without Vesalius, I am convinced that some fundamental aspects of Vesalius' achievement would remain obscure without the fugitive sheets.

Insights

1543 is the date to which historians attribute the birth of modern anatomy. The publication of Andreas Vesalius's *De humani corporis fabrica* by the publisher Johannes Oporinus in Basel constitutes a radical break with the kind of anatomical treatises that had been produced until then. With this book, Vesalius proposed to revise and rewrite Galenic anatomy, which for over a millennium had dominated the teaching of the discipline in the Muslim East as much as in the Christian West.

Texts like the *De juvenentis membrorum*, the first Fen of Avicenna's *Canon* and, above all, the *Anatomia* of Mondino de' Liuzzi—all read, studied, memorised by innumerable generations of medical students and still a part of university curricula in the seventeenth century<sup>1</sup>—followed an anatomical model that descended more or less directly from the work of Galen as known and available at the time at which they were written.<sup>2</sup> The *De anatomicis administrationibus*—the work that Galen dedicated especially to anatomy—remained for the most part unknown in Europe until the publication in 1529 of Demetrios Chalcondylas' Latin translation, followed only two years later by the Paris edition of a new translation by Johann Winther (Johannes Guinterius Andernacus). From this date onwards, anatomical works showed an even more marked convergence with Galen's descriptions of the human body. One eloquent example can be found in the manuals by Jacques Dubois (Jacobus Sylvius) and the same Johann Winther, aimed at medical students, in which Galen's anatomy—too prolix and detailed for university teaching—is reduced, simplified and schematised into an easily digestible form.<sup>3</sup>

Alessandro Benedetti, Jacopo Berengario da Carpi, Alessandro Achillini, Niccolò Massa—amongst other anatomists active at the end of the fifteenth century and in the first decades of the sixteenth—had already, albeit timidly, begun to suggest corrections to the errors noted in Galen's anatomical descriptions, as a result of their own observations of the human body during autopsies and dissections. But it was Andreas Vesalius who questioned systematically the assumptions underlying Galen's anatomical descriptions, armed with the premise that Galen could never have dissected human bodies and that the anatomical model he put forth was the fruit of research performed on animals only, particularly on monkeys.<sup>4</sup> Vesalius's explicit objective in the *Fabrica* was to correct the mistakes that the Galenic anatomical tradition had been perpetuating for over a

<sup>1</sup> See, for example, the *Statuta almae universitatis DD. philosophorum et medicorum cognomento artistarum Patavini gymnasii* (Padua, 1607, I.2, ch. 28) written in 1465 and still valid in the seventeenth century, which attests the use of Mondino's anatomy as a canonical text.

<sup>2</sup> There is no room here to discuss the tradition of the Galenic anatomical paradigm. For some elements, see O. Temkin, *Galenism: rise and decline of a medical philosophy* (Ithaca and London, 1973), and A. Carlino, *La fabbrica del corpo* (Turin, 1994), pp. 158–79, and references quoted therein.

<sup>3</sup> J. Dubois, *In Hippocratis et Galeni physiologiae partem anatomicam isagoge* (Paris, 1555), and J. Winther, *Institutionum anatomicarum secundum Galeni sententiam ad candidatos medicinae libri quatuor . . .* (Basel, 1536). Both works went through a number of editions.

<sup>4</sup> "Quinetiam qui veteri medicinae nunc in plerisque gymnasiis pristino nitori propemodum restituae dedicantur, affatim intelligere incipiunt, quam parum frigideque hactenus à Galeni temporibus in Anatome sudatum fuerit: qui et si huius procerum facile sit primarius, humanum tamen corpus numquam aggressus est, et simiae potius quam hominis ab illius fabrica innumeris sedibus variantis partes descripsisse (ne dicam, nobis imposuisse) modo colligitur". A. Vesalius, *De humani corporis fabrica librorum epitome* (Basel, 1543): dedicatory letter to Prince Philip, dated 1542.

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millennium. The main tools for this revision were, as he commented, the reborn art of dissection and a meticulous reading of Galen's works.<sup>5</sup>

These, however, had commonly been used by anatomists at least from the early decades of the fourteenth century. If the study of classical authorities was what really established the legitimacy of all learning—and indeed, one could say that this legitimisation was forcibly imposed in medieval and Renaissance universities—the practice of dissection was nevertheless already documented in Mondino de' Liuzzi's *Anatomia*, written in 1316, in which the author claims to have opened up the corpses of two women, in January and in March 1315.<sup>6</sup> In the course of the first decades of the sixteenth century the possibility of observing human anatomy directly grew in measure with the increasingly common practice of dissection; but for the duration of the two centuries between Mondino and Vesalius, the force of authority, as embodied in the texts, acted as a constraint upon the observation of the material, visible, and tangible evidence allowed by this practice.

The achievement of Vesalius thus seems to be the culmination of a process whose methodological premises had been laid at least two centuries before, and which was founded upon an inversion of the order of priorities between text and dissection, reading and direct observation. A comparison between two iconographical representations of an anatomy lecture suffices to make this clear—that which precedes Mondino's *Anatomia* in the *Fasciculo di medicina* attributed to Johannes de Ketham (Fig. 1) and that of the title-page to Vesalius's *Fabrica* (Fig. 2). The image in the *Fasciculo* shows a *lector* reciting *ex cathedra* (or, in other versions of the illustration, reading) a text firmly in the Galenic tradition. The *demonstrator* on the right indicates with a stick—often also translating at the same time from the Latin into the vernacular—where the *sector* must cut open the cadaver. Thus the onlookers could be shown the areas of the dissected body that the *lector* was describing orally during the lesson. In the *Fabrica*, Vesalius openly criticises this way of conducting an anatomy lesson and in his preface he mocks his predecessors and fellow anatomists, comparing them to jackdaws given to repeating from memory what they have read in other people's books, without having any direct acquaintance with human anatomy.<sup>7</sup> He himself appears on the title-page, in the act of dissecting a body with his own hands—that is, without the mediation of either *sector* or *demonstrator*. One can make

<sup>5</sup> "Atque ita huic omnes fidem dedere, ut nullus repertus sit medicus, qui in Galeni anatomicis voluminibus, ne levissimum quidem lapsum unquam deprehensum esse, multoque minus deprehendi posse, censuerit; quum interim . . . nobis modo ex renata dissectionis arte, diligentique Galeni librorum praelectione, et in plerisque locis eorundem non poenitenda restitutione constet, nunquam ipsum resecurisse corpus humanum". A. Vesalius, *Fabrica*, 'Praefatio', fol. \*3v.

<sup>6</sup> See Mondino de' Liuzzi, *Anatomia*, in J. de Ketham, *Fasciculo di medicina* (Venice, 1493 i.e. 1494), fol. g5r: "quella donna dela qual feci anathomia l'anno MCCCXV del mese di gennaio havea la matrice al doppio magior modo che quella dela qual feci anathomia nel medesimo anno del mese di marzo".

<sup>7</sup> "Tantum abest, ut difficillimam abstrusissimamque artem manu ipsis traditam, id hominum genus [barbers] nobis asservaret, utque haec pestilens curativae partis dispersio detestabilem ritum in Gymnasiis non inveheret, quo alii humani corporis sectionem administrare, alii partium historiam enarrare consueverunt. His quidem graculorum modo, quae nunquam aggressi sunt, sed tantum ex aliorum libris memoriae commendant, descriptave ob oculos ponunt, alte in cathedra egregio fastu occinentibus: illis autem adeo linguarum imperitis, ut dissecta spectatoribus explicare nequeant, atque ex physici praescripto ostendenda lacerent. . . . Atque ut sic omnia perperam docentur in scholis, ac ridiculis quaestionibus dies aliquot abeunt, ita quoque spectatoribus in illo tumultu pauciora proponuntur, quam lanus in macello medicum docere posset". A. Vesalius, *Fabrica*, 'Praefatio', fol. \*3r. On the anatomy lesson, see A. Carlino, *Books of the body* (Chicago, 1999), pp. 8–68. A different account of the anatomy lesson in Ketham's *Fasciculo* is given by J. Bylebyl, 'Interpreting the *Fasciculo* anatomy scene', *Journal of the History of Medicine and Allied Sciences*, 1990, **45**: 285–316.

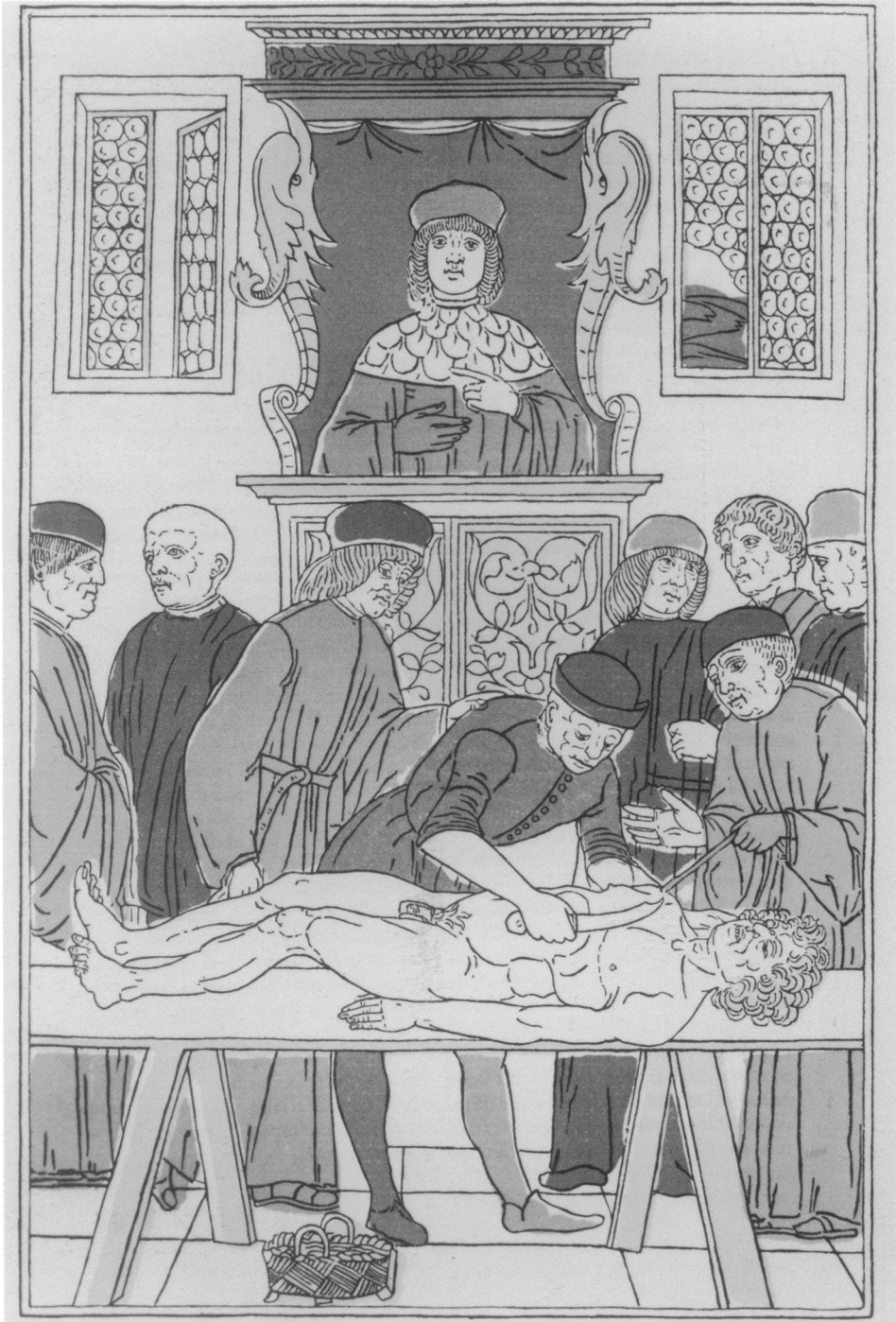


Figure 1: Johannes de Ketham, *Fasciculo di medicina*, Venice, J. & G. de Gregoriis, 1493 [i.e. 1494]. *Anatomy lesson* (fol. f2v), woodcut (from *Fasciculo di medicina*, repr. with intro. by C. Singer, Florence, 1925; photo: Wellcome Library, London).



Figure 2: Andreas Vesalius, *De humani corporis fabrica*, Basel, J. Oporinus, 1543. Title-page, woodcut (Wellcome Library, London).

out, lying on the table next to the dissected body, a sheet of paper, a pen and an ink-pot. The same objects appear again in the portrait of Vesalius (Fig. 3) printed in the *Fabrica*. Clearly they are meant to emphasize—and reiterate through iconography—the idea that the anatomical text is generated from the direct observation of a cadaver and from the practice of dissection. This implies a profound transformation of the value and goals of dissection. At first conceived and used as a tool with which to teach the authoritative texts and to demonstrate the truths they contain, with Vesalius dissection acquires an investigative dimension, while retaining its didactic function: it, and it alone, now makes possible the acquisition of new elements of knowledge about the body and its components, the rewriting of anatomy and the correction of the ancients' erroneous descriptions—a result of their inability to study anatomy directly, through observation.

The way in which anatomical knowledge was gained and disseminated was thus transformed decisively as soon as the practice of dissection gained legitimacy and began to be seen not only as a teaching instrument but also as indispensable for research. It acquired this new role because it was a technique which relied on a visual experience whose assigned function varied according to context. The assumptions and descriptions contained in the texts could now be submitted to empirical, visual verification, which conferred the status of proof on the meticulous enquiries that anatomists such as Vesalius had to carry out, and helped to clarify aspects of anatomy (such as form, consistency, colour, position of areas of the body) not easily translatable into words, as well as constituting an indispensable support for the memorisation of knowledge.

The multivalence of visual experience, which the practice of dissection made apparent, provoked a surge of similar considerations on its possible uses in the pages of other Renaissance anatomists—both those who belonged to the rather complacent Galenic tradition and those who saw themselves as heralds of the revision and correction of the classical anatomical paradigm. Renaissance anatomists concurrently had been underlining the role of sense-perception in the production and communication of anatomical knowledge, as opposed to the conception of it as a process based exclusively on the written or spoken word. Those who are guided by the love of truth, exhorts Vesalius “should place more trust in their own eyes and in effective reasoning than in the writings of Galen”.<sup>8</sup> Niccolò Massa, in his *Liber introductorius anatomiae* published in Venice in 1536, quotes literally the *De usu partium corporis humani* in order to remind his readers that Galen had already suggested that “whoever wishes to see the works of nature should not put his faith in anatomical texts but in his own eyes”.<sup>9</sup> And in the introductory chapter of the *Liber*, Massa keeps returning to the need to approach anatomy through the senses (primarily those of sight and touch), sole guarantors of truth in this discipline. For his part, Jacopo Berengario da Carpi, in his commentary on Mondino's *Anatomia*, published in 1521, writes, paraphrasing Galen: “Let no one think that he can gain this discipline only through the living voice or the written text: for here are necessary sight and touch”.<sup>10</sup>

<sup>8</sup> “. . . suis oculis ac rationibus non inefficacibus plus fidei, quam Galeni scriptis adhibeat”. A. Vesalius, *Fabrica*, ‘Praefatio’, fol. 3v.

<sup>9</sup> “. . . non oportet cum quis vult operae naturae fieri inspector, libris anatomicis credere, sed propriis oculis”. N. Massa, *Liber introductorius anatomiae, sive dissectionis corporis humani* (Venice, 1536), fol. 10r.

<sup>10</sup> “Et non credat aliquis per solam vivam vocem aut per scripturam posse habere hanc disciplinam: quia hic requiritur *visus* et *tactus*”. Jacopo Berengario da Carpi, *Commentaria cum amplissimis additionibus super anatomia Mundini . . .* (Bologna, 1521), fol. vi<sup>v</sup>.

ANDREÆ VESALII.

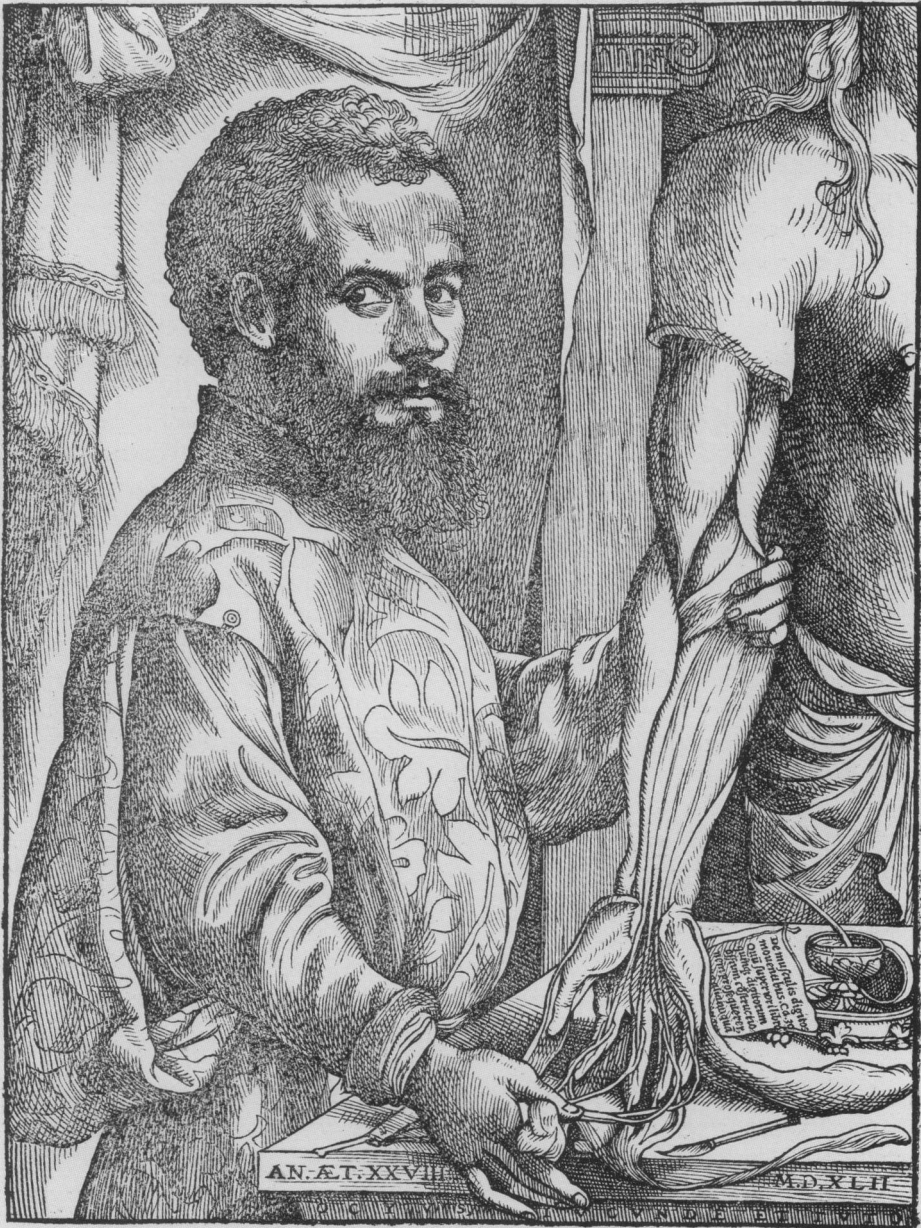


Figure 3: Andreas Vesalius, *De humani corporis fabrica*, Basel, J. Oporinus, 1543. Portrait of Vesalius (fol. \*6v), woodcut (Wellcome Library, London).

## Paper Bodies

This unanimous chorus was also joined by Jacques Dubois, a professor of medicine in Paris during the first half of the sixteenth century—and teacher of Vesalius during his years at the *Faculté de Médecine*—who perhaps more than any other stood for Galenic conservatism in his opposition to the “sacrilegious” and irreverent revision of anatomy put forth in the *Fabrica*.<sup>11</sup> In a text intended for teaching and which offers a synthesis of Hippocratic and Galenic anatomy, Dubois not only supports the notion that experience acquired by sight and touch (“*visu et tactu*”) is sharper than that gathered by listening and reading (“*auditu et lectione*”),<sup>12</sup> but he proclaims, in more general terms, his mistrust of words, which he considers little suited to account for natural facts. In a fascinating passage from the *Isagoge*—in which some questions about the ambiguous nature of language have a Wittgensteinian resonance—Dubois virtually poses the problem of the gap between signified and signifier, and of the confusion it inevitably generates, since “terms are but shadows of things, not their clear images”. He aspires to teach “without terms” (“*sine nominibus*”), assigning to the eyes, to “*visio*”, the role of reading directly the book of nature.<sup>13</sup>

In his preface to the *Commentarius in Claudii Galeni de ossibus ad tyrones libellum*, Dubois sets up a hierarchy of reliability and credibility of the senses involved in the learning of anatomy: “the reliability of eyes is better than ears, and human touch is the most reliable of all”.<sup>14</sup> But the opening up of cadavers, that is, physical contact with the dead body, generally remained the prerogative of the *sector* (usually a barber, who was in charge of performing the actual dissection) and of some lecturers on medicine: formally at least, dissection, for the whole of the sixteenth century, had questionable anthropological and religious connotations, and it was strictly regulated by university statutes that barred anyone else from direct access to cadavers. So, despite the declarations of principle voiced by sixteenth-century anatomists to the students, philosophers, surgeons, barbers and various onlookers who gathered in anatomy theatres, words and *visio* alone enabled them to acquire knowledge of the human body.

## Words and Images

The fact that words—read, spoken or printed—could not communicate everything about a field whose development was shaped primarily through the sense of sight (and through testing, recording, locating, teaching, learning) constituted the basis both for the practice of dissection and for the use of images in teaching and, with the advent of printing, in the realm of publishing. The regularisation of dissection in European universities and the parallel proliferation of images of the human body—in medical texts and fugitive sheets—witnessed during the sixteenth century were made possible by the appearance during that period of the cultural, institutional and technical conditions

<sup>11</sup> Jacques Dubois was the author, amongst other things, of a rabid pamphlet against Vesalius in which he depicted him as the impious desecrator of the authority of the classics: J. Dubois, *Vaesani cuiusdam calumniarum in Hippocratis Galenique rem anatomicam depulsio* (Paris, 1551).

<sup>12</sup> See J. Dubois, *In Hippocratis* . . . fol. 93v.

<sup>13</sup> “. . . nomina sunt velut umbrae quaedam rerum, non expressae imagines”. Ibid., fols. 96v–97r.

<sup>14</sup> “. . . cum certior sit oculorum quam aurium fides, et tactus homini sit certissimus”. J. Dubois, *Commentarius in Claudii Galeni de ossibus ad tyrones libellum* . . . (Paris, 1549), ‘Praefatio ad lectorem’. I consulted the edition in J. Dubois, *Opera medica* (Geneva, 1630), p. 54.



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necessary for the definitive establishment of a visual anatomical culture whose need had been felt before it had actually become possible to open up cadavers, and before the use of printed images had become widespread. Indeed, the fact that anatomy could be learned and communicated primarily through the use of images and diagrams was clear from very early on. If Galen insisted on the importance of the direct observation of bodies, Aristotle had pointed out before him, in his works on biology—in particular the *Historia animalium* and the *De partibus animalium*—the impossibility of describing aspects of human and animal anatomy with the sole help of reason and verbal description. He referred, for a synthetic, effective, more precise account, to the *Anatomical tables*—a collection of illustrations and diagrams, unfortunately lost, that may have accompanied the *Historia animalium* and which he most probably used in his lectures.<sup>15</sup> For Guido da Vigevano, physician to Philip VI of France, dissection and illustration were alternative ways of communicating anatomical knowledge—thus he turns to his Parisian colleagues when he writes, in his *Anatomia* of 1345: “Since it is forbidden by the Church to dissect a human body, I shall reveal the anatomy of the human body clearly and openly by figures correctly drawn”.<sup>16</sup> And a century later, Leonardo da Vinci would write in his notebooks about the capacity of images to explain and describe human anatomy, where words were often obscure and lacked the precision to convey its complexity: “If you want to show a human figure in all aspects of his parts by words, just forget it: since the more precisely you describe it, the more you confuse the reader’s mind and distance him from understanding the thing described”, and a few pages later he demands: “Oh writer, how can you depict in words the entire figuration of man as perfectly as a drawing?”.<sup>17</sup>

Some medieval manuscripts on anatomical and surgical themes already bore illuminations intended to facilitate the description of the human body and the understanding of its workings.<sup>18</sup> But it is with the advent of printing, and, at about the same time, the regularisation of the practice of dissection in the major European universities, that anatomical illustrations became more numerous and acquired their function as the indispensable complement of speech to which Aristotle, Guido da Vigevano and Leonardo had referred. Moreover, thanks to printing, with the proliferation

<sup>15</sup> See, for example, *De partibus animalium*, 650a31–32, 668b29–31, 680a1–4 and *Historia animalium*, 497a32, 509b22, 511a13, 525a9, 529b19, 530a31, 565a12, 566a15.

<sup>16</sup> “Quia prohibitum est ab Ecclesia facere anathomiam in corpore humano, . . . ego demonstrabo anathomiam corporis humani patenter et aperte, per figuras depictas recte”. See ‘L’anatomie de Guido de Vigevano’, ed. E. Wickersheimer, *Archiv für Geschichte der Medizin*, 1913, 7: 1.

<sup>17</sup> The quotation is from the manuscripts in the Royal Library at Windsor Castle: “E tu, che vogli con parole dimostrare la figura dell’omo con tutti li aspetti della sua membrificazione, removi da te tale oppenione, perchè, quanto più minutamente descriverai, tanto più confonderai la mente del lettore e più lo removerai dalla cognizione della cosa descritta” (fol. 19013v.); “O scrittore, con quali lettere scriverai tu con tal perfezione la intera figurazione, qual fa qui il disegno?” (fol. 19071r). See *Leonardo da Vinci. Quaderni d’Anatomia (I–IV)*, ed. O. Vangensten, A. Fonahn and H. Hopstock (Christiania, 1911–16) or, for a more accurate and recent transcription, K. D. Keele and C. Pedretti, *Corpus of the anatomical studies in the collection of Her Majesty the Queen at Windsor Castle*, London, 1978–80. See also, M. Kemp, *Leonardo da Vinci* (London, 1981).

<sup>18</sup> See, for example, the manuscript at the Musée Condé (ms. 334) of the *Anathomia* of Guido da Vigevano with its sixteen illustrations (1345), or that at the Bibliothèque nationale in Paris (ms. fr. 2030) with thirteen images from the *Cyurgie* of Henri de Mondeville, reproductions of the ones he used in his anatomy lectures. On medieval anatomical illustration, see K. Sudhoff, *Ein Beitrag zur Geschichte der Anatomie im Mittelalter speziell der anatomischen Graphik nach Handschriften des 9. Bis 15. Jahrhunderts* (Leipzig, 1908), and the section on the period in R. Herrlinger, *History of medical illustration* (London, 1970; originally published in German: Munich, 1967).

and wider circulation of books, it became much easier than in the case of manuscripts to compare, correct and refine the texts, as well as the graphic styles used for the representations of the human body, and the cross-referencing and the integration of text and image.<sup>19</sup>

The *Fasciculus medicinae*—a collection of medical texts which circulated first in manuscript form, attributed by the printers to its former owner “Johannes de Ketham” (identified as Johann von Kircheim, professor of medicine in Vienna about 1460) and published for the first time in Venice in 1491<sup>20</sup>—contains a number of illustrations, of which only a few are of a didactic, informational nature: one shows the female reproductive organs (Fig. 4), another an astrological man (Fig. 5), another a full human figure depicting the wounds that weapons can inflict (Fig. 6), and another shows on the body the veins habitually used for bloodletting (Fig. 7). These images, however, are completely separate from the text. Image and text only began to be integrated with the long, detailed commentary to Mondino’s *Anatomia* published by Berengario da Carpi in Bologna in 1521, and especially with his *Isagoge breves*, published a year later—a short anatomy manual which he intended should replace Mondino’s as the university textbook.<sup>21</sup> In neither of his books are the images referred to within the textual descriptions, and neither has any cross-referencing system that would connect text and image, though some chapters do conclude with a few words referring to the illustration for an easier comprehension of what has been covered in the course of the chapter (Figs. 8 and 9).<sup>22</sup> Next to some of the figures, however, a brief text describes the subject-matter and makes a few general observations about it (Fig. 10). These illustrations are scientifically rather

<sup>19</sup> Discussing the power of images in another field of natural philosophy—botany—Leonhart Fuchs stated: “quis quaeso sanae mentis picturam contemneret, quam constat res multo clarius exprimere, quam verbis ullis, etiam eloquentissimorum, deliniari queant. Et quidem natura sic comparatum est, ut pictura omnes capiamur: adeoque altius animo insident quae in tabulis aut charta oculis exposita sunt et depicta, quam quae nudis verbis describuntur. Hinc multas esse stirpes constat, quae cum nullis verbis ita describi possint ut cognoscantur, pictura tamen sic ob oculos ponuntur, ut primo statim aspectu deprehendantur” (“Who, I ask, in their right mind would condemn a picture which, it is agreed, expresses things much more clearly than can be described with any words of the most eloquent men? Indeed nature was fashioned in such a way that everything may be grasped by us in a picture: in fact, those which are explained and depicted to the eyes on panels or paper adhere to the mind more deeply than those described by bare words. It is certain that there are many plants which cannot be described by any words so as to be recognised, but which, being placed before the eyes in a picture, can be recognised immediately at first sight”). Leonhart Fuchs, *Historia stirpium commentarii insignes . . .* (Basel, 1542), fol. β1r. This passage is quoted and discussed in S. Kusukawa, ‘Leonhart Fuchs on the importance of pictures’, *Journal of the History of Ideas*, 1997, 58: 403–27.

<sup>20</sup> On the question of the *Fasciculus medicinae* and its attribution see *Morton’s medical bibliography: an annotated check-list of texts illustrating the history of medicine* (Garrison and Morton), ed. J. M. Norman, 5th ed. (Aldershot, 1991), no. 363.

<sup>21</sup> Berengario taught surgery and anatomy in Bologna from 1502 to 1527. The *Commentaria . . . super anatomia Mundini* (Bologna, 1521) consists of 528 leaves and contains 21 illustrations. The *Isagoge breves per lucide ac uberime in anatomiam humani corporis . . .* (Bologna, 1522) was intended as a brief compendium for the teaching of anatomy that might supplant Mondino’s text. It has 72 leaves and contains 19 illustrations, all printed from the same blocks used in the *Commentaria*, except for a new figure in which two uteri are represented and, for Fig. 13, modified in part. On Berengario’s anatomical works and illustrations, see V. Putti, *Berengario da Carpi: saggio biografico e bibliografico seguito dalla traduzione del ‘De fractura calvae sive cranei’* (Bologna, 1937), esp. pp. 165–99, and L. R. Lind (trans. and introd.), *A short introduction to anatomy: ‘Isagogae Breves’ of Jacopo Berengario da Carpi* (Chicago, 1959), esp. pp. 23–7.

<sup>22</sup> For example: “et haec sufficiant de anatomia matricis ad quam melius intelligendam sunt positae infrascriptae figurae quas quilibet potest videri . . .” J. Berengario da Carpi, *Commentaria*, fol. ccxxv<sup>r</sup>. Three illustrations of the matrix follow.



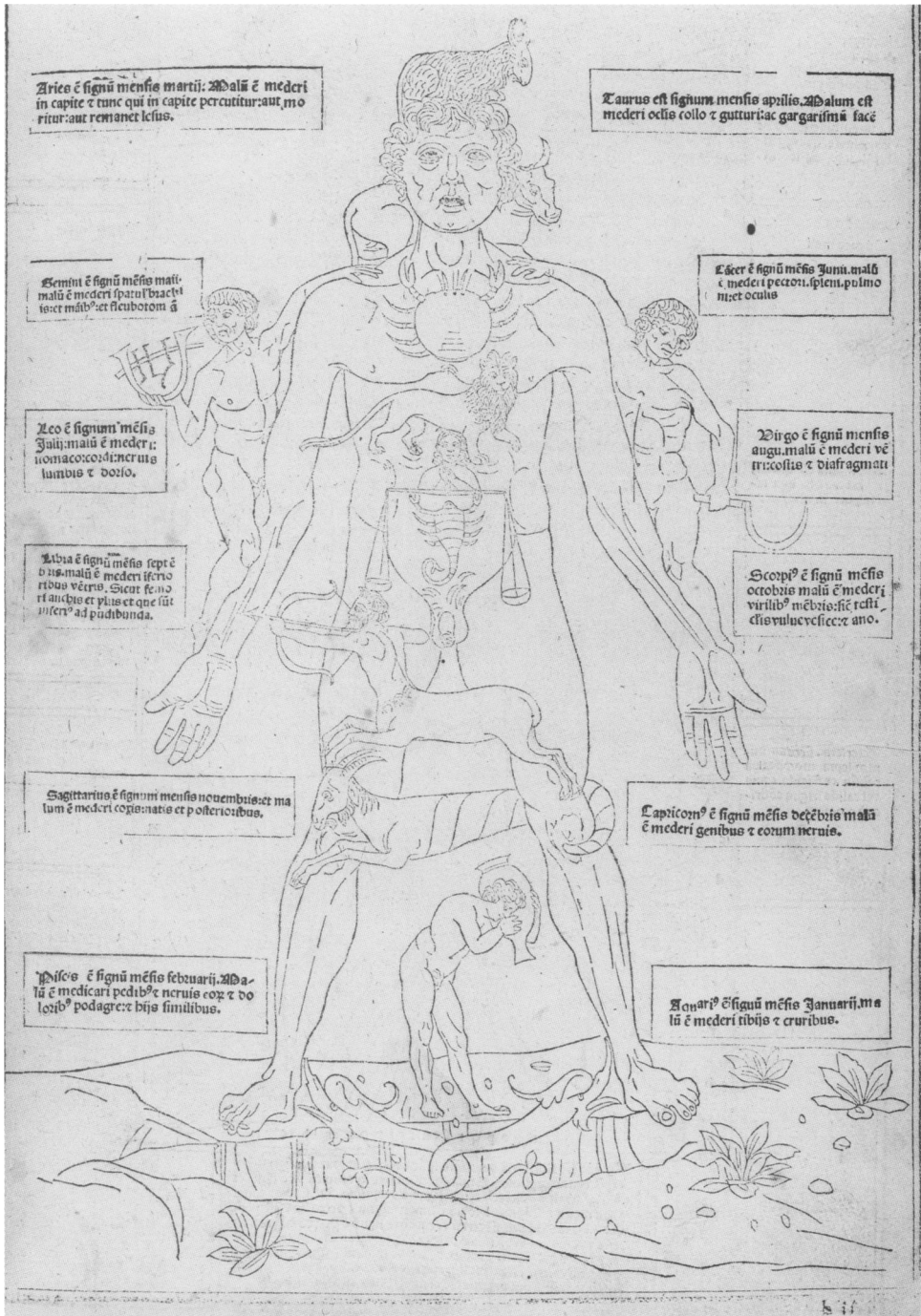


Figure 5: Johannes de Ketham, *Fasciculus medicinae*, Venice, J. and G. de Gregoriis, 1495. *Zodiac man* (fol. b2r), woodcut (Wellcome Library, London).

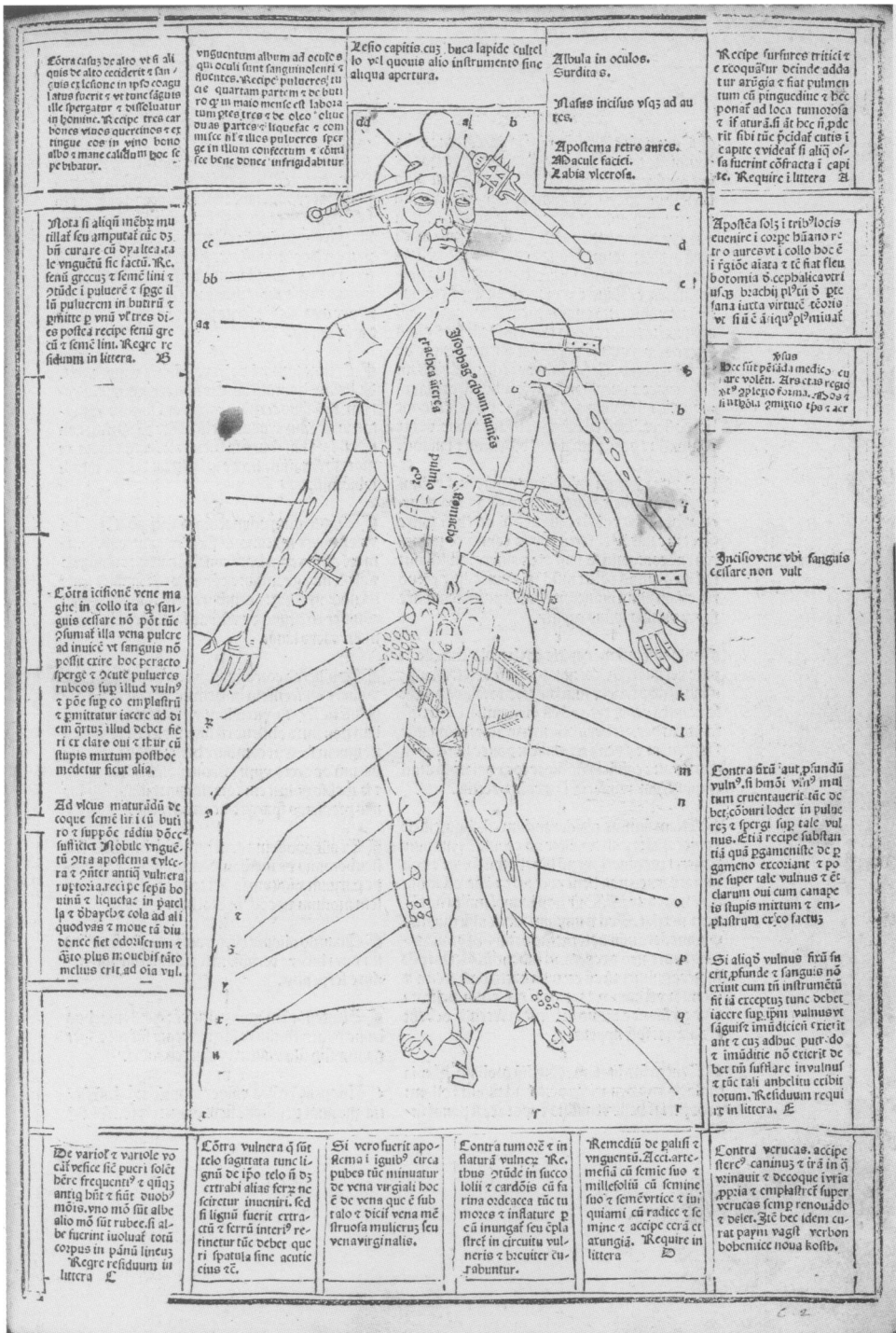


Figure 6: Johannes de Ketham, *Fasciculus medicinae*, Venice, J. and G. de Gregoriis, 1495. Wound man (fol. c2r), woodcut (Wellcome Library, London).

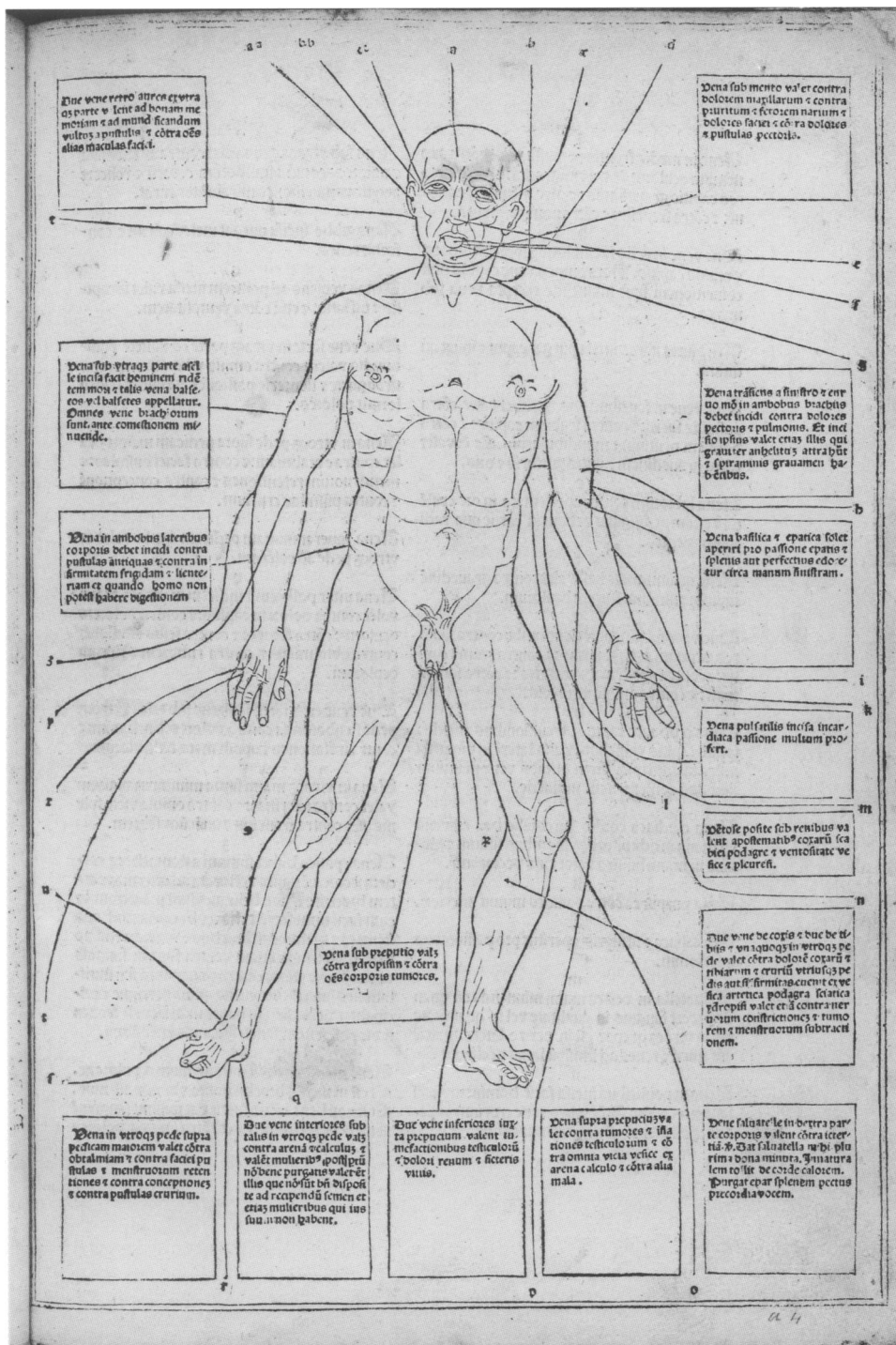


Figure 7: Johannes de Ketham, *Fasciculus medicinae*, Venice, J. and G. de Gregoriis, 1495. *Bloodletting man* (fol. a4r), woodcut (Wellcome Library, London).

coarse—they give a schematic picture of the disposition of some of the body's organs, and certainly not a detailed and realistic account of anatomy. They remain at the margins of the text, and are not meant to transmit information so much as to give a rough account, through a sort of representational diagram, of the main features of some anatomical elements (muscles, skeleton, female genital organs, heart); they act as printed ornament rather than as explanation or clarification of the text. Their presence in the book gives an indication of the need to “represent” anatomy, but they are of no use for teaching purposes.

Jacques Dubois criticised the images in Berengario's books because they were ornamental rather than didactic, and he saw them as “a splendid hotchpotch, but totally useless”.<sup>23</sup> Dubois, moreover, regularly made use of figures and illustrations in his lectures “to make them more accurate”,<sup>24</sup> though he certainly did not take aesthetics into consideration, and had some reservations about the educational value of images, which, he thought, could not teach as much as dissection did. It is indeed because of this that none of his books contain any illustrations: “I did not want to print a picture of the bones along with their names, because I preferred real bones to be viewed in the history of nature that is everywhere at hand, to be weighed, judged and tested, rather than to be learned stupidly and laboriously from some drawing, out of proportion and obscured by massive shading (as they call it)”, he wrote in his commentary to Galen's *De ossibus*.<sup>25</sup>

Dubois's attitude towards the use of images for the transmission of anatomical knowledge was, however, an isolated and marginal one. In the age of printing and dissection, illustration was regarded as necessary by all authors and editors of anatomical texts, who were aware of the ability of illustrations to explain and communicate facts in a discipline that advertised its own reliance on the visual sense. A pupil of Dubois, Charles Estienne—author of *De dissectione partium corporis humani*, published in Paris in 1545, though written and illustrated by 1539—enquired rhetorically about the appropriateness of the use and the function of illustrations in anatomy books, thus outlining his conception of the relation between text and image: “In fact, if these words appeal enough to intelligent minds, these pictures show to the eyes the appearance and shape of what we have described: words speak; but images, though dumb, bring things before our eyes in such a way that they need no other words”.<sup>26</sup> The two modes of communication are thus

<sup>23</sup> “farrago . . . sumptuosa quidem sed nullam in rem utilem”. Dubois's comment is quoted—without any precise bibliographical reference—in C. E. Kellett, ‘Perino del Vaga et les illustrations pour l'anatomie d'Estienne’, *Aesculape*, 1955, 37: 76.

<sup>24</sup> Noël Du Fail has this account: “Me souvient avoir ouy ce bien parlant Latin Jacques Sylvius lire *De Vsu Partium* de Gallien, au College de Treguier a Paris . . . : mais lors qu'il deschiffroit les parties que nous appellons honteuses, il n'y avoit coin ny endroit qu'il ne nommast en beau Francois par nom et surnom, y adjoignant les figures et pourtraits, pour plus ample declaration de sa leçon, qui eust esté illusoire, sans goust ne saveur, s'il eust passé par auprès, et fait autrement”. N. Du Fail, *Les contes et discours d'Eutrapel* (Rennes, 1597), p. 144, quoted in C. E. Kellett, ‘Perino del Vaga’, pp. 74–5.

<sup>25</sup> “Ossium vero picturam cum suis nominibus hic appressam nolui, quod maluerim ossa ipsa in naturae historia omnibus hodie promptissima spectari, expendi, iudicari, probari: quam ex lineis nescio quibus, nulla proportione legitima fictis, et umbra quoque (quam vocant) plurima obscuratis, ineptissime et laboriosissime condisci”. J. Dubois, *Commentarius*, p. 54.

<sup>26</sup> “Nam si illa [scripta] animis et ingeniis faciunt satis, hae [icones] vero, etiam oculis speciem figuramque rerum quas describimus ostendunt. Scripta quidem loquuntur: icones, quamvis mutae, res singulas ita ferunt ob oculos, ut nullum praetera sermonem desyderent”. C. Estienne, *De dissectione partium corporis humani libri tres* (Paris, 1545), p. 8.

**C**Habes in  
 hac figura  
 matricē cū  
 suis cornib<sup>9</sup>  
 ad latera ista  
 q̄ cornua sūt  
 testiculi in  
 suo loco na/  
 turali alliga/  
 ti uasis semi/  
 nariis/ q̄ ua/  
 sa terminat̄  
 ad corp<sup>9</sup> ma/  
 tricis ut ui/  
 des: & oriūt̄  
 supra circa  
 regionē re/  
 nū ab emul/  
 gēte & a ue/  
 na chili ut su/  
 pra dictū est  
 & hæc ma/  
 matrix est fi/  
 gurata ma/  
 gna ac si eēt  
 pgnās: i pte  
 cuius ante/  
 riori ē uesica  
 cū suis poris  
 uritidib<sup>9</sup>: &  
 collū uesicæ  
 terminat̄ in  
 collo mati/  
 cis parū su/  
 pra fixurā q̄  
 dī uulua: &  
 testiculi in  
 hac figura



sunt in loco suo debito: hæc tamen melius uidentur anatomizando semi  
 nam prægnantem & etiam non prægnantem.

Figure 8: Jacopo Berengario da Carpi, *Commentaria, cum amplissimis additionibus super anatomia Mundini* . . . , Bologna, H. de Benedictis, 1521. *Figura matricis* (fol. ccxxv<sup>v</sup>), woodcut (Wellcome Library, London).







In hac figura hēs duos musculos obliq̄s ascēdētes q̄ se in cruciātū duob⁹ descēdētib⁹ i alia figura positus: q̄ qdē descēdētes sūt i supra istos ascēdētes / & totus un⁹ ex p̄dcis musculis descēdētib⁹ sup̄ positus i alia figura cū corda sua supeq̄tat obliq̄ musculū unū ex istis ascēdētib⁹ obliq̄: & faciūt simul figurā .X. line gr̄ce: & istorū musculo rū ēt ps carnea ē a lateribus. Corda uero eorū sūt in medio uētris / q̄ sūt ēt duarū pellicularū: & habēt unā pelliculā tñ supeq̄tantē muscu-

los lūgos: alia v̄o pellicula ē ista musculos lūgos: q̄ adheret cordis latitudinaliū musculorū: & ista corda ēt terminant̄ i linea / q̄ ē i medio uētris / ut uids.

X x ii

Figure 10: Jacopo Berengario da Carpi, *Commentaria, cum amplissimis additionibus super anatomia Mundini . . .*, Bologna, H. de Benedictis, 1521. *Muscle man* (fol. lxxxii), woodcut (Wellcome Library, London).

## Representing the Body

complementary—words address the intellect, explain and describe, while images show the eyes what words cannot say. The illustrated book becomes a handbook one can use to refresh the memory when in doubt, or, when no cadavers are available, where the written word is insufficient, the image is a quick, accessible, and effective means of transmission of knowledge.

Estienne's book—if one is to believe what he writes in his introduction—is not specifically addressed to medical students and is not intended as an “academic” book. He rejects the prolixity and ponderous (“gravissimus”) character of such books, preferring brief accounts so that “you [readers] can easily understand”.<sup>27</sup> Readers are like friends with whom he shares the same cultural interests, to whom he wants to offer the kind of work through which they can appreciate “the beauty of what divine providence has created”, inviting them to admire “nature's incredible accuracy” and especially to praise God “who has created in the body nothing in vain, nothing without a reason, nothing superfluous”.<sup>28</sup> These themes are a part of anatomical discourse and one finds them echoed in the anatomical fugitive sheets. The association of text and image promotes this emphasis on the spiritual and religious aspects of anatomy, and puts to one side, formally at least, more narrowly didactic concerns, setting as it does knowledge of the human body within an intellectual discourse whose boundaries extend beyond those of medicine and of what we call today “science”. In the introduction to the *De dissectione partium corporis humani*, Estienne in fact insists on the pleasure derived from a knowledge of anatomy which he sees as an aesthetic and ecstatic experience: written and drawn anatomy are both aimed at gratifying and delighting (*pascere* and *oblectere* are the verbs he uses) the soul as much as the eye. The purpose of juxtaposing images with the text is thus not only to transmit knowledge untranslatable into words, nor does it have a merely mnemonic or synthesising function, as would a didactic or academic book. Such a function was, to be sure, quite new at the time, but it was an obvious one, and the images in Estienne's book go further than that: they are the means by which the reader can bring together the intellectual pleasure of knowledge and aesthetic enjoyment. Ornamental and landscape elements, architectural structures and classical remains, the attributes and gestures of figures, inscriptions and cartouches—all already there, though to a much smaller extent, in the iconography of Berengario's treatises—frame the anatomical iconography in such a way that each figure can in itself tell a story which is no longer merely scientific or purely descriptive (Figs. 11 and 12).<sup>29</sup> These are not only decorative or appended elements, as

<sup>27</sup> “facile a vobis intelligi posset”, *ibid.*, p. 1.

<sup>28</sup> *Ibid.*, p. 2.

<sup>29</sup> The illustrations to *De dissectione partium corporis humani* are the work of a number of draughtsmen and blockcutters. The surgeon Étienne de la Rivière—whose name appears on the title page—performed many dissections and prepared the anatomical drawings. In the introduction, Charles Estienne writes about Riverius Chirurgus: “. . . cuius labor, et in pingendis iis quae necessaria videbantur, ossibus, ligamentis, nervis, arteriis, venis, musculis, ac plerisque aliis, assiduus: et in dissectionum rationibus (quibus plurimum exercitatus esset) demonstrandis frequentissimus fuit” (fol. \*2r). Many of the woodcuts bear the monogram, in various versions, of Jollat, and of the studio of the printmaker Geoffroy Tory—the so-called cross of Lorraine. An hypothesis has been advanced that these authors, especially Jollat, actually made the illustrations and that Rivière was responsible for the inserted woodcuts of anatomical details, quite obviously added to the human figures, which one could say were executed with an artistically conceived pose and composition rather than an emphasis on anatomy. On the iconography of *De dissectione*, see the article by C. E. Kellett, ‘Perino del Vaga’, and R. Herlinger, *History of anatomical illustration*, pp. 91–101.

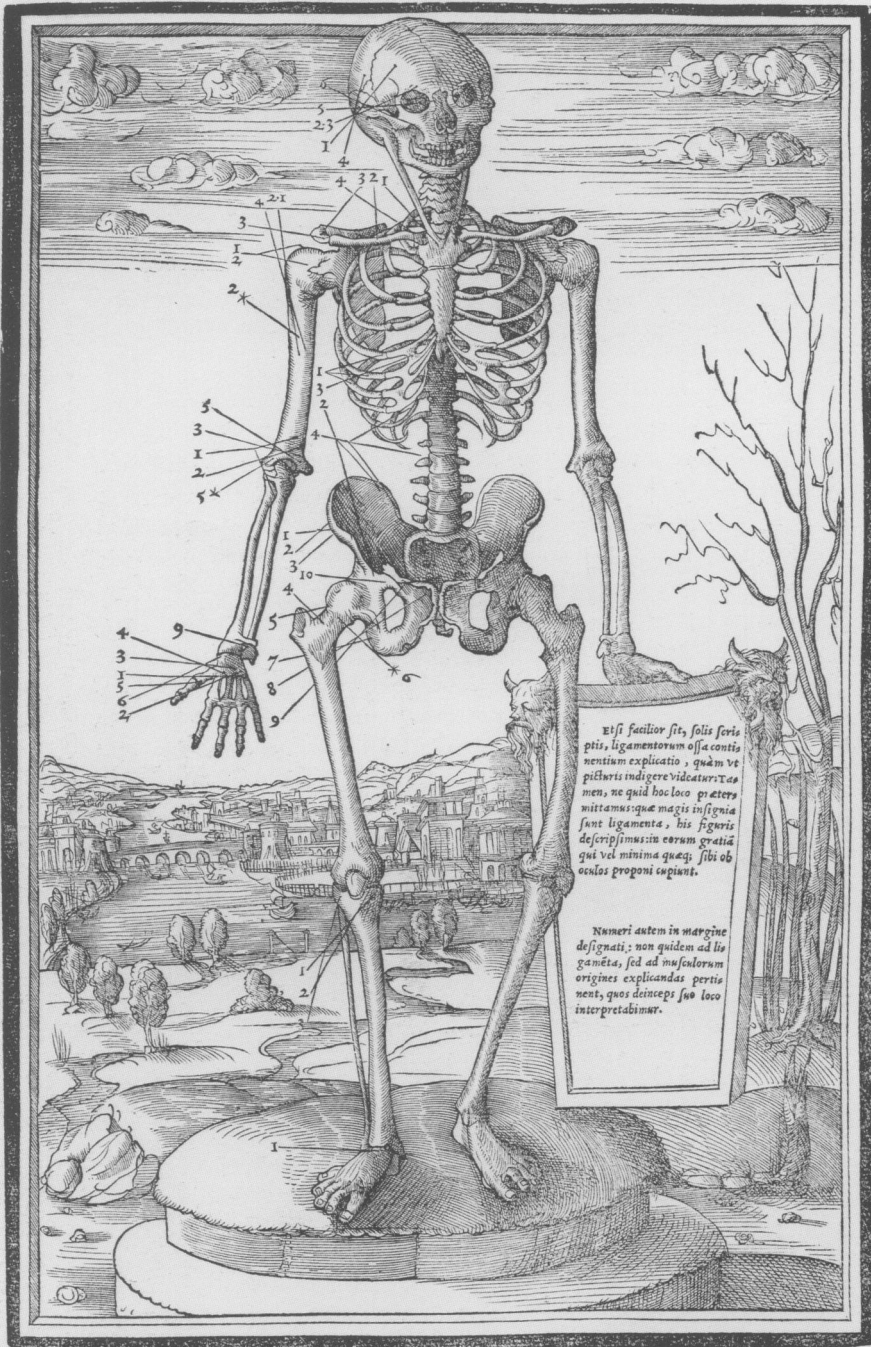


Figure 11: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines, 1545. Skeleton (p. 43), woodcut (Wellcome Library, London).

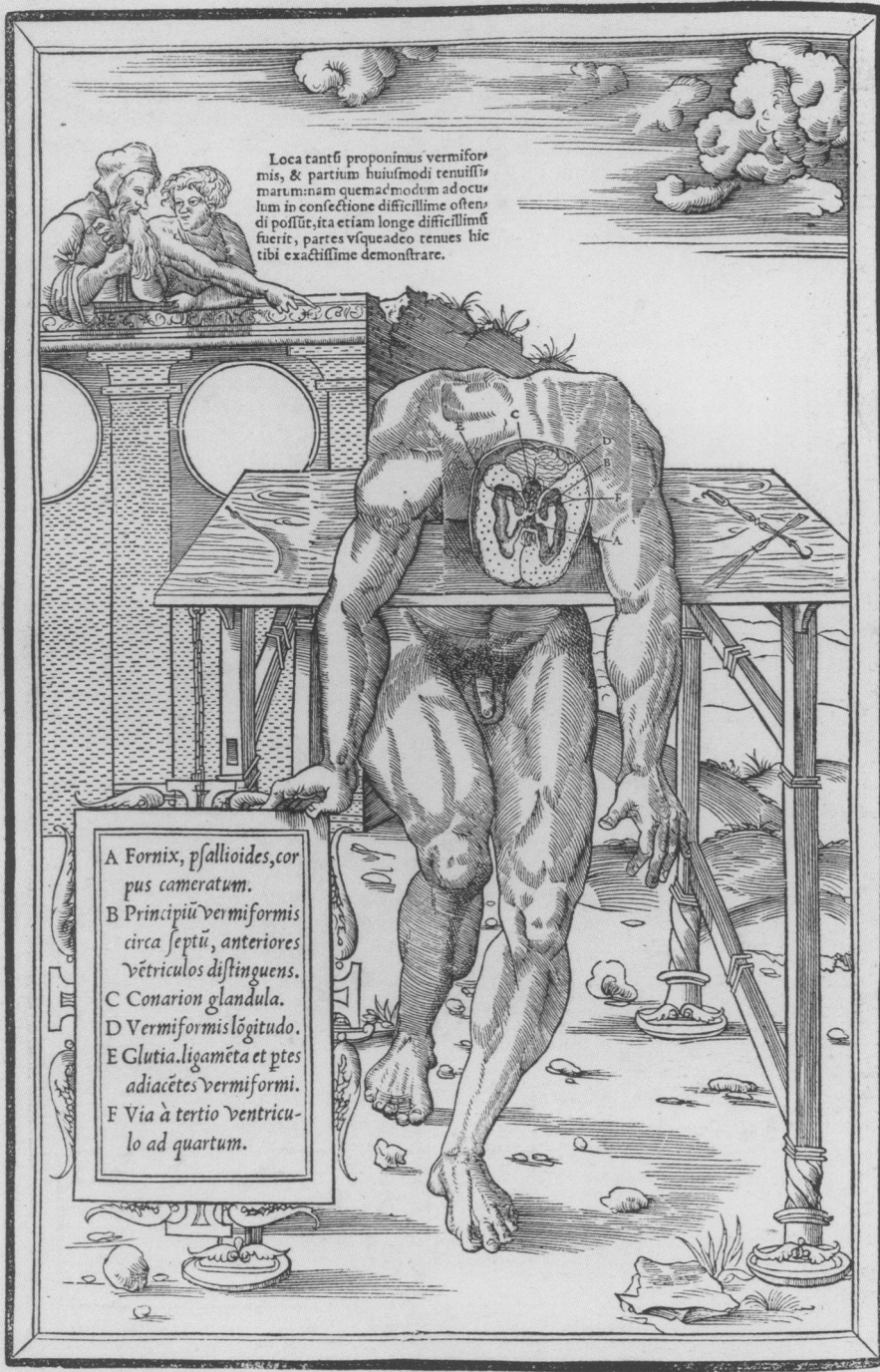


Figure 12: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines, 1545. Figure with a section of the head (p. 242), woodcut (Wellcome Library, London).

has been suggested elsewhere,<sup>30</sup> but iconographical devices used to bolster an enjoyment of the anatomy, a mode of transmission of knowledge and meaning.

The illustrations of the womb and of the female reproductive organs are, in this respect, of particular interest. They were probably executed by François Jollat, while the woodcut inserts which represent the internal anatomy are certainly the work of the surgeon Étienne de la Rivière (Figs. 13, 14 and 15). Eight of these images—as Kellett has shown<sup>31</sup>—are simply adaptations of some of the figures in *Gli amori degli dei*, a series of eighteen erotic prints commissioned by Baviera, drawn by Perino del Vaga and Rosso Fiorentino, and engraved by Giovanni Jacopo Caraglio a short while before the sack of Rome (1527)—a series that enjoyed a relative success during the course of the sixteenth century (Figs. 16 and 17).<sup>32</sup> Jollat's choice of these as the models for the female figures, evidently one which Estienne accepted or suggested, is not accidental, and it seems to me to point to a conception of the transmission of learning which promoted images as the source of its "aesthetic" enjoyment. That such a conception existed is explicitly borne out by the recourse to iconographical models from contemporary artistic production, which Berengario had in part already begun—with subsequent repercussions, as we have seen, in anatomical iconography. This strategy of communication, moreover, was reinforced in its goals by the specific choice of the prints by Giovanni Jacopo Caraglio as the iconographical structure within which to represent the female reproductive organs, and by the obviously erotic character of Jollat's images, which remained in spite of their having been adapted to suit anatomical instruction. These eight illustrations—together with a few others showing female genitals—in which women in manifestly lascivious and ecstatic positions (Figs. 18 and 19) were used for the purpose of anatomical representation are an explicit expression of the latent association between eroticism and anatomy, which can often be traced in anatomical iconography as much as in the voyeuristic curiosity that generally stimulates research into the human body. It is an association that Estienne made clear and which would be emphasised in some anatomical fugitive sheets.

<sup>30</sup> Thomas Laqueur, for example, comments on the last in a series of female figures in which the genitals are represented: "Venus seems to be writhing with ecstasy on her plush cushions. . . . We need to remember that this is only the background for an anatomical drawing". T. Laqueur, *Making sex: body and gender from the Greeks to Freud* (Cambridge, MA, and London, 1990).

<sup>31</sup> C. E. Kellett, 'Perino del Vaga'.

<sup>32</sup> The series *Gli amori degli dei* was inspired by *I Modi*, the series of erotic engravings by Marcantonio Raimondi after Giulio Romano. The Caraglio series appears in A. Bartsch, *Le Peintre-graveur* (Vienna, 1803–21), vol. 15, pp. 72–6, nos. 9–23. See, on these themes, H. Zerner, 'L'estampe érotique au temps de Titien', in *Tiziano e Venezia. Convegno Internazionale di Studi* (Venice, 1976/Vicenza, 1980), pp. 85–90; G. Lise, *L'incisione erotica del Rinascimento* (Milan, 1975); L. Dunand and P. Lemarchand, *Les Amours des dieux* (Lausanne, 1977). See also, more specifically, M. Kornell, 'Rosso Fiorentino and the anatomical text', *Burlington Magazine*, 1989, **131**: 843–7, who shows that a male figure from the same series (*Mars and Venus*) was also used for one of the figures illustrating the anatomy of the brain (C. Estienne, *De dissectione*, p. 250).



Figure 13: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines, 1545. Female anatomical figure (p. 260), woodcut (Wellcome Library, London).

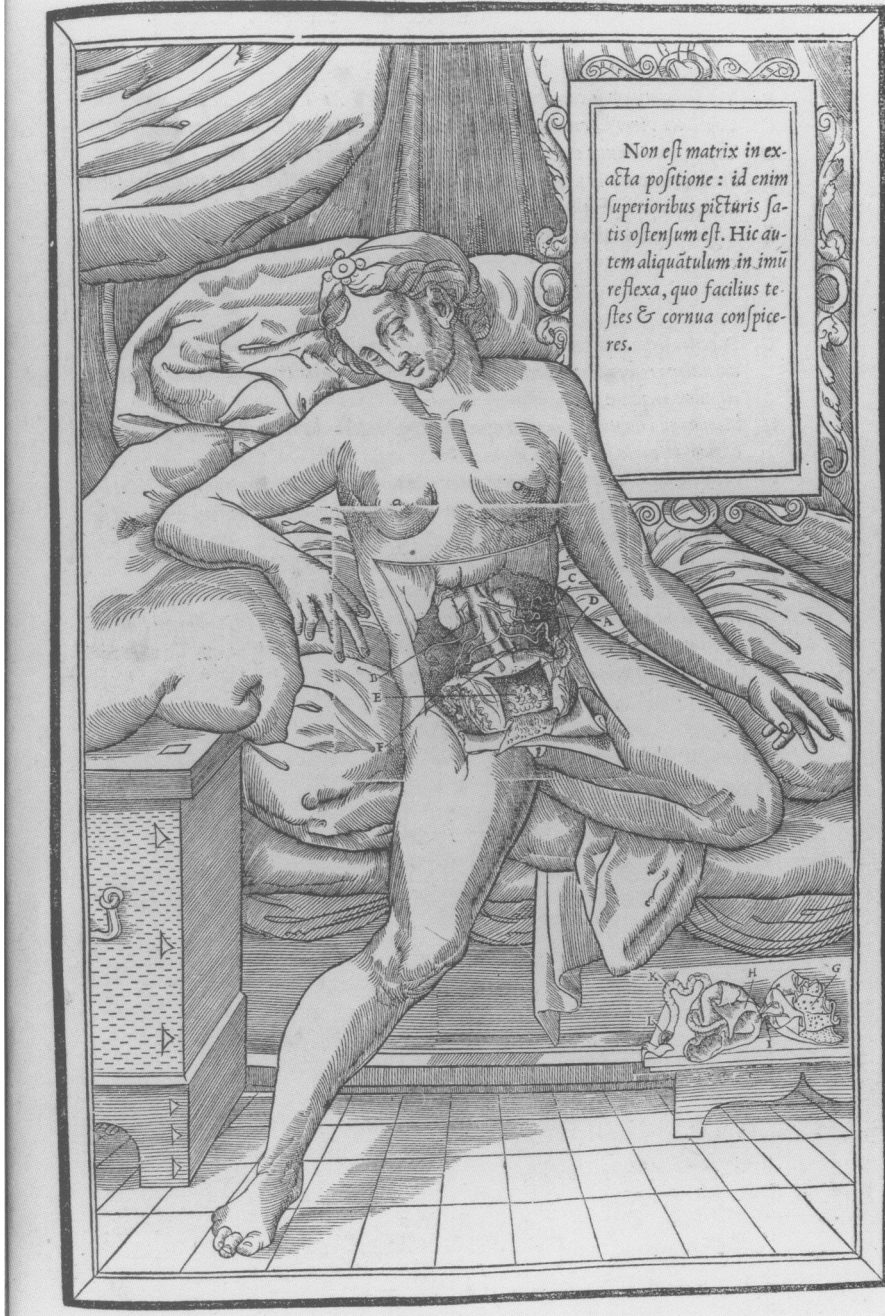


Figure 14: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines, 1545. *Female anatomical figure* (p. 279), woodcut (Wellcome Library, London).





Figure 15: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines, 1545. *Female anatomical figure* (p. 281), woodcut (Wellcome Library, London).

### Vesalius and the Power of Images

Like Berengario, and like Estienne, Vesalius took on board the new visual culture: he proclaimed the need to depict anatomy by using images designed to encourage an aesthetic response to data about the human body, which he conceived as an instrument that could disseminate anatomical knowledge beyond medical and academic circles.

In the preface to the *Fabrica* he claims that his treatise is intended as a commentary for those who have witnessed a dissection, while those who have not could use it as a simple and accurate instrument to learn anatomy. The minute textual descriptions help to give an idea of the morphology and function of the body's components and of their relationship to one another, while the illustrations show researchers "the whole of nature's creations as if one were dealing with a dissected body".<sup>33</sup> But, he emphasises, it is quite obvious that the recourse to the anatomical image as a means of explanation and description does not necessarily entail the abandonment of dissection and direct observation, as contemporary critics of anatomical iconography seem to believe. Indeed Vesalius is convinced that images can actually provide a further exhortation to doctors and students to execute dissections "with their own hands".<sup>34</sup> Taking up a point that Leonardo had once made, he insists on the explanatory and descriptive power of images and on their capacity to express with greater clarity and precision what a discourse—even a detailed one—would never be able to communicate.

The illustrations to the *Fabrica* constitute some of the greatest examples of sixteenth-century woodcuts, artistically as well as scientifically. This is not the place to discuss the quality of wood-block cutting, or the radical break with the contemporary style of anatomical representation evident in the figures in the *Fabrica*; nor is it appropriate either to enter the debate about attribution of the prints, still open despite an agreement amongst scholars that they should in general be ascribed to artists in Venice associated with Titian's workshop, between the 1530s and 1540s. What I would prefer to stress is the extent to which a deliberate and conscious choice was made to use an artist of undeniable merit for the illustrations to the *Fabrica*. Vesalius refers explicitly to a wish to produce images of high aesthetic value that would be not only useful but also give pleasure to the user (Fig. 20). These images would permit the rendering of the "wisdom of the Great Creator" through the pictorially evoked exaltation of the beauty of the human body. Their quality

<sup>33</sup> The text reads thus: "... iam de integro humani corporis partium cognitionem eo ordine in septem libros redegi . . . Hac siquidem ratione, qui secanti adfuere, demonstratorum habebunt commentarios, caeterisque leviori negotio anatomen ostendent. Quamquam alioquin et his quibus inspectio denegatur, minime futuri sint inutiles, quum cuiusque humani corporis particulae numerum, situm, formam, magnitudinem, substantiam, ad alias partes connexum, usum, munus, ac eiusmodi permulta, quae in partium natura dissecantes rimari consuevimus, una cum mortuorum vivorumque resectionis artificio, satis diffuse persequantur, et partium omnium imagines sermonis contextui insertas ita contineant, ut veluti dissectum corpus operum naturae studiosis ob oculos collocent". A. Vesalius, *Fabrica*, fol. \*3v.

<sup>34</sup> "Verum hic quorundam iudicium mihi succurrit, qui non duntaxat herbarum, sed et humani corporis partium quantumvis etiam exquisitissimas delineationes, rerum naturalium studiosis proponi, acriter damnant: quod has non picturis, verum sedula resectione, rerumque ipsarum intuitu disci oporteat. Perinde sane ac si hoc nomine verissimas, ac utinam a typographis nunquam depravandas partium icones sermonis contextui adhibuissem, ut studiosi illis freti, a cadaverum sectione temperarent: et non iis potius, quibus possem modis medicinae candidatos ad consectiones propriis manibus obeundas, cum Galeno hortarer". A. Vesalius, *Fabrica*, fol. \*4r.



S.ii.

Figure 16: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines 1545. *Female anatomical figure* (p. 271), woodcut (Wellcome Library, London).

would also help to ensure that his work would reach a wide public and thus be useful to the largest possible number of people.<sup>35</sup>

This notion that the communication of knowledge was founded upon the sense of sight, and mediated through the aesthetic enjoyment of images, was a feature of Renaissance anatomical culture which found its most mature expression in the work of Vesalius. The intuitions, suggestions, and intimations relating to the use of images in anatomy and first formulated in the earlier literature, from Aristotle to Estienne, are coherently re-elaborated in the *Fabrica*, where they are carefully applied to the realisation of the figures and to the typographical design of the book. This is why the *Fabrica* marks a point of no return in the history of epistemology, education and anatomical publishing: after 1543 it was no longer possible to conceive of an anatomical treatise that did not use iconography as an indispensable tool for the demonstration, explanation and memorisation of the components of the human body and their relation to one another.

The *Fabrica*, however, is a complex book, decidedly prolix and too expensive to play the role Vesalius wished for it, that of an instrument for the wide diffusion of knowledge of the human body. It did have a modicum of commercial success—enough for Oporinus to print a second edition in 1555—but this remained confined to a small public. Certainly, few doctors or medical students could afford to buy it. Moreover, Vesalius's work was not always readily accepted by the academic world, proposing as it did a new reading of the human body which often stood in marked opposition to the dogmas of the Galenic tradition, and indeed in open dispute with them.<sup>36</sup>

Aware of the commercial limitations of a work so expensive to produce and to buy, and of the restricted access it was bound to have, Vesalius and Oporinus prepared and published two editions of the *Epitome*—one Latin, one German—at the same time as they issued the *Fabrica*. It is a twelve-page synthesis of the anatomy of the *Fabrica*, in which the illustrations play a greater role than the text.<sup>37</sup> In his dedication to Prince Philip of Spain, Vesalius defines the *Epitome* as a compendium, an appendix or index, where the seven books of the *Fabrica* are summarised for quick consultation, and made into an efficient tool for the memorisation of anatomy. The anatomical descriptions, now assigned a synthesising and mnemonic function, are abbreviated and made clear and easy to

<sup>35</sup> “Quantum vero picturae illis intelligendis opitulentur, ipsoque etiam vel explicatissimo sermone rem exactius ob oculos collocent, nemo est qui non in geometria, aliisque mathematicis disciplinis experiatur: praeterquam quod nostrae partium imagines illos impense oblectabunt, quibus non semper humani corporis reserandi datur copia: aut si datur, tam delicata et in medico parum probanda praediti sunt natura, ut etsi iucundissima hominis cognitione, immensi rerum Conditoris sapientiam (si quid aliud) attestante, insigniter capiantur, eo tamen animum inducere nequeunt, ut vel sectioni aliquando intersint. Utcunque vero sit, toto opere id unice studui, ut in negotio longe reconditissimo, neque minus arduo, quamplurimis prodessem, humanique corporis fabricae non decem, aut duodecim (uti obiter spectanti apparet) sed aliquot mille diversis partibus extractae historiam, quam verissime et absolutissime pertractarem . . .”. A. Vesalius, *Fabrica*, fol. \*4r. Vesalius also insists on the need to make images that are “agreeable to the eye” in a letter to Oporinus in which he makes suggestions for the typography of the book.

<sup>36</sup> Some angry and violent pamphlets against Vesalius and in defence of the Galenic tradition were written during the sixteenth century. See, for example, J. Dubois, *Vaesani*, as well as F. Pozzi (Franciscus Puteus), *Apologia in anatome pro Galeno, contra Andream Vesalium Bruxellensem* (Venice, 1562), and G. Cuneo, *Apologiae Francisci Putei pro Galeno in anatome examen* (Venice, 1564).

<sup>37</sup> The two editions printed by Johannes Oporinus in 1543 in Basel respectively bear the following titles: *Suorum de humani corporis fabrica librorum Epitome* and *Von des menschen Cörpers Anatomey, ein kurtzer aber vast nützer Ausszug auss D. Andree Vesalii . . . Bücheren*.

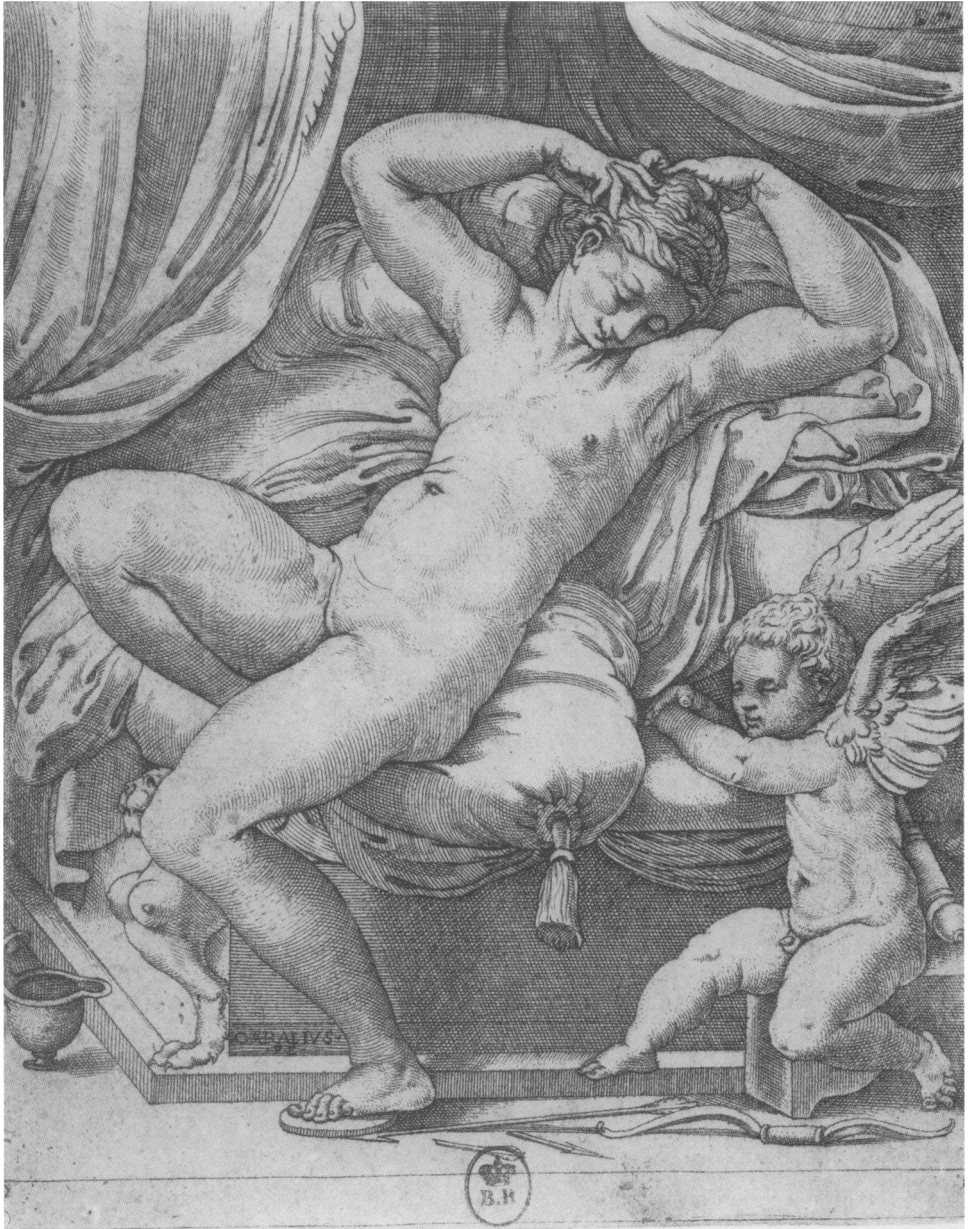


Figure 17: Giovanni Jacopo Caraglio after Perino del Vaga, *Venere e Amore*, part of the series, *Gli amori degli dei*, engraving (cliché Bibliothèque nationale de France, Paris).



Figure 18: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines, 1545. Female anatomical figure (p. 267), woodcut (Wellcome Library, London).

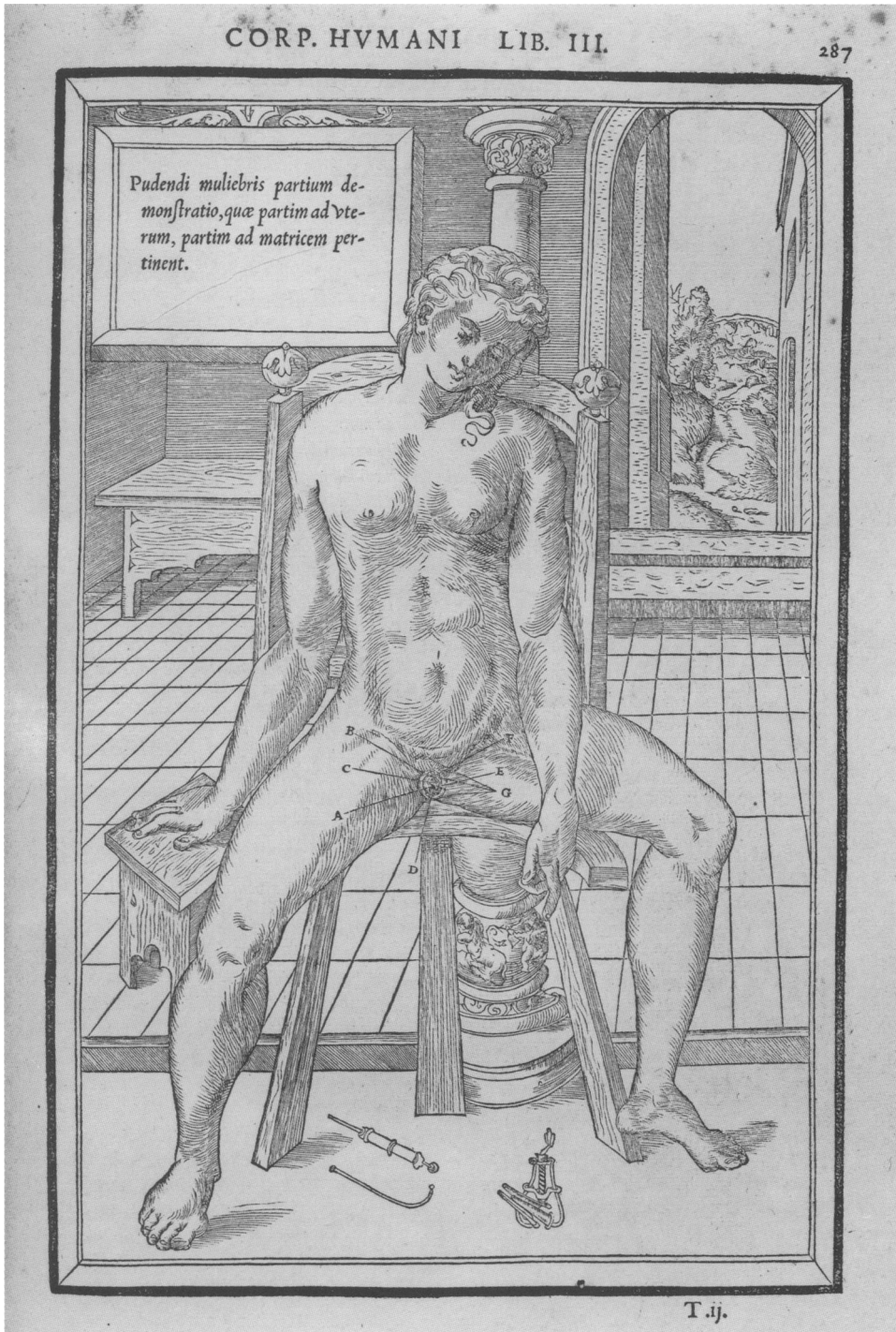


Figure 19: Charles Estienne, *De dissectione partium corporis humani libri tres*, Paris, S. de Colines, 1545. Female figure (p. 287), woodcut (Wellcome Library, London).

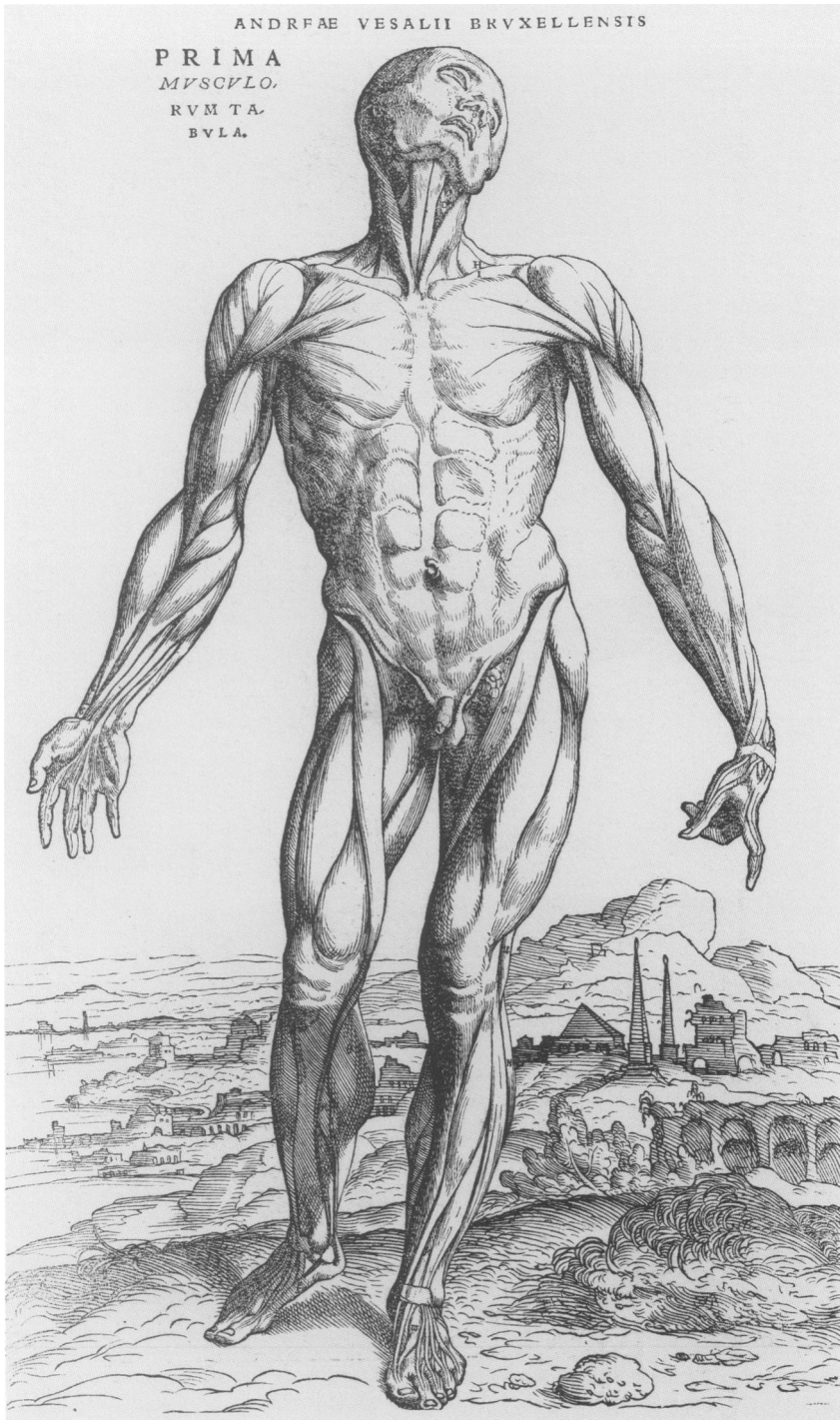


Figure 20: Andreas Vesalius, *De humani corporis fabrica*, Basel, J. Oporinus, 1543. *Prima musculorum tabula* (p. 170), woodcut (Wellcome Library, London).





remember through a combination of illustrations and a brief explanatory note (Fig. 21). The *Epitome* was conceived in such a way, with its emphasis on the image, that it could and indeed was bound to reach a far wider public than did the *Fabrica* itself.

The two books were preceded by another important work by Vesalius which was conceived, and printed, according to a similar principle. In 1538, Bernardo Vitalis, in Venice, had published his *Tabulae anatomicae sex*, born of the same requirement to represent anatomy, to devise a “topography” of the human body and to provide—thanks to the use of images—a didactic tool that could be consulted quickly and easily. The *Tabulae*, as the title suggests, consist of six loose sheets, each of which bears a woodcut and an accompanying text printed at the top and around the sides of the illustration.<sup>38</sup> The first three figures, drawn by Vesalius himself, are anatomical-physiological diagrams rather than anatomical drawings in the strict sense. They show: the liver with the portal vein, and separately the male and female reproductive system (*Tabula* 1, Fig. 22); the entire circuit of the cava vein (*Tabula* 2, Fig. 23); the heart with the *arteria magna* (aorta) and its ramifications (*Tabula* 3). The other three tables were drawn by Jan Stephan van Calcar,<sup>39</sup> from a skeleton that Vesalius reconstructed in January 1537 and which he used for teaching. Calcar depicts the skeleton canonically, in the three positions in which it was traditionally represented: from the front (Fig. 24), from the side (Fig. 25) and from the back (Fig. 26).

Although the woodcuts—whose author remains unknown—are very clear and allow one to decipher the image with ease, the *Tabulae* have no aesthetic value whatsoever. Both the figures drawn by Vesalius and the skeletons by Calcar represent the body’s components in a schematic way, so that they differ little from typical contemporary iconography. We are far indeed from the extraordinary balance between artistic invention, crude realism and communication of scientific content so characteristic of the illustrations to the *De humani corporis fabrica*, published just five years later. It is difficult to believe—as many scholars do, following an inference from a clue in Vasari’s *Vite*<sup>40</sup>—that

<sup>38</sup> On Vesalius’s *Tabulae*, see in particular C. Singer and C. Rabin, *A prelude to modern science: being a discussion of the history, sources and circumstances of the ‘Tabulae anatomicae sex’ of Vesalius* (Cambridge, 1946). See also C. Singer, ‘Some Vesalian problems’, *Bulletin of the History of Medicine*, 1945, 17 (5): 425–38, and the pages dedicated to the *Tabulae* in M. Roth, *Andreas Vesalius Bruxellensis* (Berlin, 1892), pp. 89–94, and in C. D. O’Malley, *Andreas Vesalius of Brussels* (Berkeley and Los Angeles, 1964), pp. 82–90.

<sup>39</sup> Jan Stephan van Calcar (1499–1547) was a Flemish artist who, after a brief stay in France, settled in Venice in 1536, where he worked in Titian’s workshop—see G. Vasari, *Le vite de’ più eccellenti pittori, scultori ed architettori*, ed. G. Milanesi (Florence, 1981, first edition 1878–85), vol. 7, pp. 460–1. Vasari, in the second edition of the *Vite* published in 1568, but not in the first, of 1550, attributes the illustrations to Vesalius’s *Fabrica* to him. Legitimate doubts about the attribution have been advanced by C. Singer, ‘Some Vesalian . . .’, esp. pp. 429–31, C. M. Bernstein, ‘Titian and the anatomy of Vesalius’, *Bollettino dei Musei Civici Veneziani*, 1977, 22: 39–50, E. Tietze-Conrat, ‘Neglected contemporary sources related to Michelangelo and Titian’, *Art Bulletin*, 1943, 25: 156, and M. Muraro and D. Rosand, *Tiziano e la silografia veneziana del cinquecento* (Vicenza, 1976), pp. 123–6. Other discussions on the attribution, leaning towards Calcar, are in J. B. de C. M. Saunders and C. D. O’Malley, *The illustrations from the works of Andreas Vesalius of Brussels*, (Cleveland, 1950; repr. New York, 1973), pp. 25–9; M. Kemp, ‘A drawing for the *Fabrica*: and some thoughts upon the Vesalian muscle-men’, *Medical History*, 1970, 14: 277–88; R. J. Petrucci, ‘Giorgio Vasari’s attribution of the Vesalian illustrations to Jan Stephan of Calcar: a further examination’, *Bulletin of the History of Medicine*, 1971, 45: 29–37.

<sup>40</sup> G. Vasari, *Vite*, p. 461: “Furono di man di costui (il che gli doverà in tutti i tempi essere d’onore) i disegni dell’anatomie, che fece intagliare e mandar fuori con la sua opera l’eccellentissimo Andrea Vesalio”. On this problem see J. B. de C. M. Saunders and C. D. O’Malley, *The illustrations from the works of Andreas Vesalius*, esp. pp. 25–9; M. Kemp, ‘A drawing for the *Fabrica*’; R. J. Petrucci, ‘Giorgio Vasari’s attribution of the Vesalian illustrations to Jan Stephan of Calcar’.

TABULA I

PRÆSTANTISSIMO CLARISSIMOQVE VIRO DOMINO  
D. NARCISSO PARTHENOPEO, CAESARIAE MAIESTATIS MEDICO PRIMARIO.

Domino suo et patri, Andreae VV. Julius Brunzelus S. D.

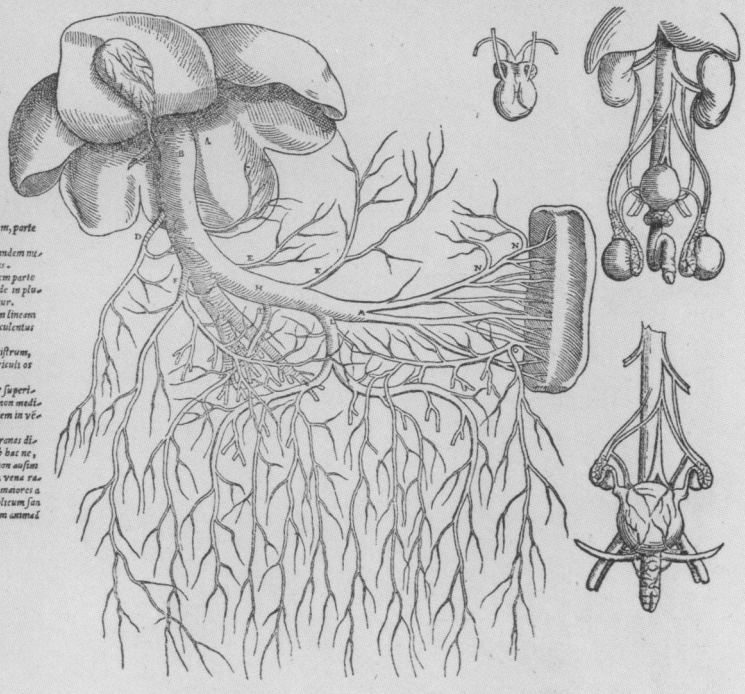


ON ita pridem, Narcisse doctissime, quem Patavii ad medicinae chirurgicae lectionem electus, iustissimè delectus, etiam pariter, divi Hippocratis & Galeni de repletione ac derivatione sententiam explicaturus, versò obiter in charta delineata, àtatus quid per se vis Hippocratis insinuasisset facile posse demonstrari. Nosti namque quantum hac tempore, ea dictio dilentationem atque contentum, etiam inter eruditiss. de una secunda conciderit, dum alii fibrarum contentum ac repletionem, alii aliud nefcio quid, indicasse Hippocratem affirmant. Verum illa utrarum delictio tanquam medicis professoribus studioque omnibus artille, ut arteriarum quoque & nervorum descriptionem, à me omnibz contenderent. Quia verò ad meam pertinere profectioem Anatomies ad ministratio, ipis desit non debui, potissimum quum scirem eiusmodi lineamenta, his qui secantur adfuisse, non mediocre commodum allaturis. Aliis siquidem ad partem corporis, aut simplicium pharmacorum cognitionem ex solis picturis, seu formulis esse affeque, ut arduum fit quoque unum ac impossibile omnino arborificed ad memoriam rerum confirmandam apprimè conducere, nemo negaverit. Ceterum cum plurimi hęc frustra imitari conentur, rem prælo commisit, atque illis tabellis alias adiunximus, quibus meum exaltans nuper in studioforum gratiam constructum, Ioannes Stephanus, insignis nostri seculi pictor, tribus partibus appositissime expressit, magno sane usu totum, qui non modo honestum, aut pulchrum, sed etiam vtilè ac necessarium indicant summi officis scientiam artificiosque contemplari, & domicilium floidi animiq. (us Placò ai) proficere. Et ipse in singulis partibus, quæquid id in presentis negotio non admodum ex sententia consilii possit, sua nomina affecipimus, tabulis, que etiam anteriores in plantis motum libris faldinde remorari solent, minime prætermissis. Quòd autem ad te venientes attine, nullam hic apicem ductum pura, quem Patavini studiofi in bulis anni confectioe, à me demonstratum non atelabatur, ut interim filiam de Parisiis præceptoribus meis longe doctissimis & Louanensibus medicis, apud quos non fensel Anatomem publicè admittit, Paulò ut nouus hic nosse contatus, alicuius patrocinio commendator in locum auspicio prodet & acceptem sudicorum aleam securus experiat, celebratis illum nominis tui nuncupa re usum elpatur quòd pter incomparabilem uariatum linguarum cognitionem, eximiam quandam singularitè que Anatomies, sicut etiam medicinq. & philosophiq. scientiam adeptus fit: adò ut merito apud nationes omnes, tanquam præcipuum peritissimum medicorum & iteratorum hominum, deus ac ornamentum ab' vruditissimis quibz que etiam anteriores in plantis quòd inter clarissimos viros ea polleat animi prudentia, integritat, mira erga omnes naturæ mansuetudine & gratia: ut CAROLVS QVINTVS Inuictissimus Romanorum Imperator semper Augustus, acerrimus ingeniorum estimator, non suez duntaxat sanitatis tuend, aut amulq. recuperandè præcipuum tibi locum concederit: etiam te unicus Regni Hispaniq. ac Neopolitani medicis pharmacopolarumq. officinis, in florente etià uisitate tua, ceu fidissimum celsorem præfecit, compluribusq. honoribus & muneribus, inter tot præclaros aliquos viros, amplissimè illustravit. Suffage itaque Viri omnia sine hoc chartarum munusculum, ea humanitate, qua me quondam ex copilli, dum non exiguis beneuolentiè signis, animum erga me tuum peculiarem declarasti: quod si gratum tibi ac studiosis fore intelicero, aliquando maiora adiciam. Vale Patavii Calè. A. p. An. salutis. M. D. LXXX. VIII.

IECVR SANGVIFICATIONIS  
OFFICINA, PERVENAM PORTAM, QVAE GRAECIS  
οὐλοχαια, ΑΙΛΙΔΙΟΝ VERO ὑποχοννιον variatè fecer appellatur, ex ventriculo ex intestini chyli tunc  
Junii, et in lieren melancholicum succum expurgat.

GENERATIONIS ORGA  
NA, SUPERVIS VIRI, INFERVIS MULIERIS.  
Tertus figura semen de ferreum in vesum implantationem fect.

- A. Cavaum seu sinum iecoris.
- B. Vena porta, iecori manus.
- C. Remittit in sinu hile vesiculae.
- D. Ad pancreas ex copisim, seu duodenum intestinum.
- E. Ad dextrum gibbi ventriculi.
- F. Ad dextrum fundi ventriculi ex superiorem omenti membrana nam.
- G. Porte biforcatio maxima.
- H. Per omenti inferiorem membranam ex pancreas delata, venæ diffunditur.
- I. In omenti membranam inferiorem, parte dextra.
- K. Per ventriculi cavum etiam os tandem me, microsi propagibus amplectens.
- L. In membranam omenti inferiorem parte media, quæ primum in duas, deinde in plures ramos, venulas diversicator.
- M. Moleculam ductu, per rectum lumen hanc sino implantatur: hoc foetalis sanguis in lumen transmittitur.
- N. Viraque ad ventriculi gibbi sanguinem, ex fundi sicuti ad ventriculi os procedit.
- O. In sanguinem fundi ventriculi, ex superiorem sinuati membranam: hac non mediocrem excrementi laci portionem in ventriculum excreta potestatem.
- P. Numerose inter miserae membranae distributa in intestino excurrunt: ob hac ne, an i cura, huiusmodi budes sint: non aofus certo affirmari. Nam ex vitæ, vena ramus in eam parte gignit, ex etia ovario a parte, nec per portam melancholicam, seu quicquam expurgari, ore alicuius canalis uertit, apparet.



GALENVS VENAE PORTAE RAMOS PRÆCIPVOS SEPTEM ENVMERAT.

Figure 22: Andreas Vesalius, *Tabulae anatomicae sex*. Venice, B. Vitalis, 1538. *Tabula I. Jecur. . . Generationis organa*, woodcut (from Sir W. Stirling-Maxwell (ed.), *Tabulae anatomicae sex*, London, 1874; photo: Wellcome Library, London).

VENÆ CAVÆ, IECORARIÆ, KOIΛHΣ, דֹּאֲרֵי הָאֵם  
 NABVE DESCRIPTIO, QVA SANGVIS OMNIUM PARTIVM NVTRIMENTVM PER  
 VNIVERSVM CORPVS DIFFVNDI TVR.

- A Venæ post aures, et ad tempora.
- B Ad aures, frontem et superiorem maxillam.
- C Ad linguam, laryngem, faucis et palatum.
- D Internæ, iugulares, Apophiticae, et Profundæ.
- E Iugulares externæ, Glandæ, quas etiam Apophiticae vocant.
- F Ad collis musculi posteriores.
- G Per transfusos vertebrae cervicis processus, in spinalem medullam et cerebrum exterrantur.
- K Ad squilarem gibbum et loca contorniosa.
- L Hameraria, cubiti exterior, Cephelica, Capiti.
- M Ad anteriora pectoris et mamillas.
- N Ad musculos thoraci superiores.

Quemadmodum iugularis internæ, sic et ea quæ per transfusos vertebrae cervicis processus propagatur, in cerebrum eiusque membranas et ventriculos exterrant, sic delimitari sequitur.

Hæc venæ in glandis bifurcatio, nonnisi a paulo inferiori apparet, sic ut ab altero ramo exillari, quem admodum modis hamerariae deduci videntur. Præterea pectoris venæ quæ ad mamillas quoque diffunduntur ab axillaribus interdum propagatae apparent. Adde externas etiâ iugulares habuisse genus vitæ quæ in collo conficit.

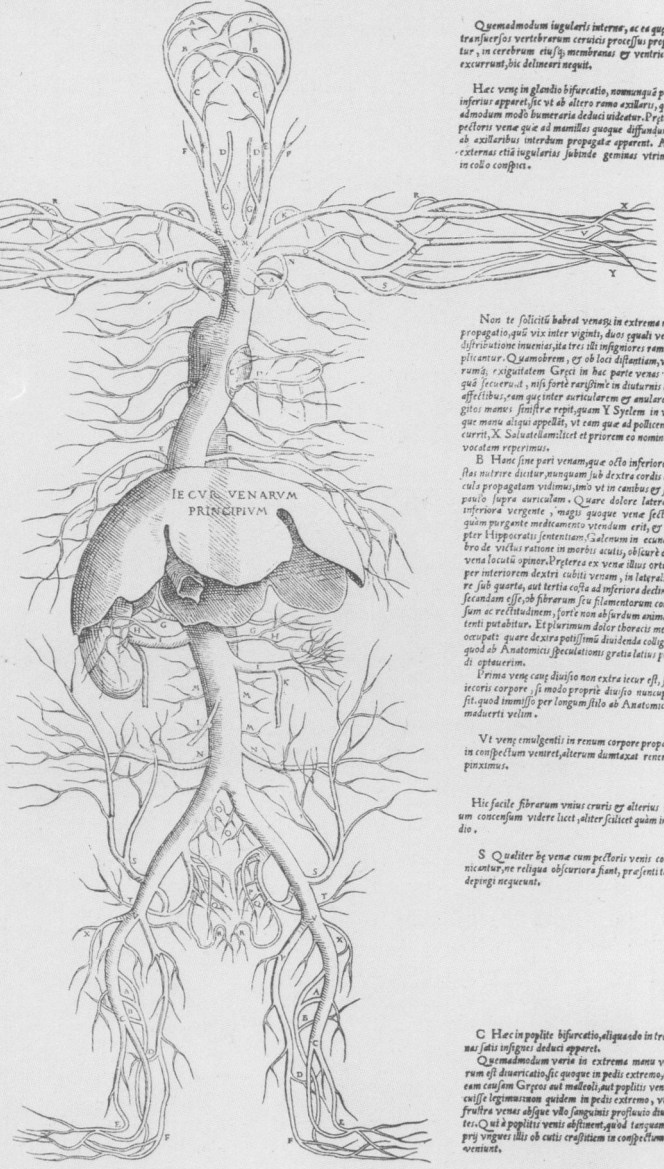
- O Axillaris, cubiti interior: dextra iecori, sinistra hepatis dextra, Bifurcata.
- P Ramus ab humero ad medium.
- Q Ramus ab axilla ad medium.
- R Ad cubiti articulum ab hameraria.
- S Ad cubiti articulum ab cutibus.
- T Medis, communis, Mediana, Nigra, Fanti brachii, Mater. Hæc interdum ad cubiti articulum accipiunt, et aliquando paulo inferius.
- V Vasa in extrema manu venarum propagatio.
- A Ad frontem, quatuor collis, nonnisi a quatuor.
- B Ad infra inferiorem colli, Græci ad apophis hæc est perii capiti dista. Cuiusdam ex dextra parte venæ eue hinc producti.
- C Portio eue in dextrum cordis sinum producta.
- D Coronata venæ quæ vocatur vasa, quæ interdum gremio, quemadmodum coronatae arteriæ apparet. Supertransfusæ venæ, quæ aliquando tres videntur.

- G Ad fistula musculor et loca lienis vicina.
- H Ad renem adiposam membranam.
- I Sanguinem ierosum in renem deferentes: Emalgentes appellatæ.
- K Seminali sinistra, quæ interdum seminali à eadem assumi, qui vasa cum spio cuti.
- L Seminali vena dextra.
- M Ad singulas lumborum vertebrae.

- N Ad lumborum musculos, et transfusos oblique quoque abdominis.
- O Ad ossi sacri foramina.
- P Ad rectum intestinum et loca circumiacentia.
- Q Ad vesicam et uterum.
- R Ad penem, seu vulva collum et fundum.
- S Ad pubem, et transfusos abdominis musculos, et magna vasa per ad rectos musculos productis cum pectoris venis cuti.
- T Ad coxendicis exteriores musculos.
- V Per jamam in extremum vique pedem.
- X Ad coxendicis articulum et exteriora femoris.
- Y Per interiora femoris sub cute in extremum vique pedem exterrant.

- A Hinc ducuntur à maiori vena ad femoris mediam cuti popliti venam consistunt.
- B A popliti unaque et exteriora femoris cutem.
- C In poplite laterali diffusio.
- D Ad iuræ cutem, in qua vena et in popliti venis vasa rices obstrui solent.

- E Exteriorum malleolum perreptant, et in exteriorum pedis partem diffundit. Sciaticis, quod coxendicis dicitur appellatæ.
- F Interiorum malleolum perreptant, et deinde pedis interiori, Martialis vena quod videri vultu dignum ad squilam dista, Septena.



Non te sollicitu habet venas, in extrema manu propagatæ, quæ vix inter viginti, duos equali distributione inveniunt, ita tres aut insigniores remissius replicantur. Quamvis, ex ob loci distantiam, venarum exiguitatem Græci in hac parte venas, quæ secures dicitur, nisi forte exiguam in diastasi lenis effectibus, cumque inter arterialem et analem digito mensi sinistre reperiuntur Y Syalem in vitæ, que mensi aliqui appellat, vi eam que ad pollicem exterrant. X Saluat lamellicet et priorem eo nomine etiâ vocatam exprimitur.

Hæc sine parti venam, que octo inferioris collis matres dicitur, nungam sub dextra cordis auricula propagatum vidimus, imo vi in canibus et similibus paulo supra auriculam. Quare dolore laterali ad inferiora vergente, magis quoque venæ scilicet, quæ per gurgente medicamento vitædam erit, et præter Hippocratis sententiam Galenon in eadem libro de vitæ ratione in morbis acutis, obturari de hac vena locutio quædam dicitur, ex vena illius ortu semper interiorum dextræ cubiti venam, in laterali dextra sub quarta, aut tertio costæ ad inferiora declinante, secundum esse, ob fibrarum seu filamentorum consensum ac rectitudinem, forte non absurdum animadverterent potest. Et præterea dicitur thoracis mediam occupat, quare dextra poplitis dista lena colligitur, quod ad Anatomiam speculatiom gratia latius præter di optuerim.

Utrumque vena quæ diuisio non extra iecur est, sed in iecoris corpore, si modo propugnatio diuisio nungamunda fit, quod immisso per longum filio ad Anatomiam am maderet vitæ.

Vi vena, emulgent in recum corpore propagatio in consensum venæ, alteram duntaxat venam deprimuntur.

Hic facile fibrarum vasis cruris et alterius muta cum consensum videtur licet, aliter sollicit quæ in glandis.

S Quæ vena cum pectoris venis communitur, ne reliqua obstruatur fiant, præsentibus depugnare sequuntur.

Hæc in poplite bifurcatio, aliquando in tres vasa iatis insignes deduci apparet.

Quemadmodum vena in extrema manu venarum est diuisivata, sic quoque in pedis extremo, et ob eam causam Græci aut malleoli, aut popliti venas, si cuius legitimum quidem in pedis extremo, vi aliis frustra venas abscise vilo languente profusio dicitur. Quæ in popliti venis abscissæ, quod tanquam pro priis vena illis ob cutis crassitiam in consensum, non occurrunt.

ALIQVI VENAE CAVAE RAMOS INSIGNIORES CENTVM ET SEXAGINTA OCTO POSVERVNT.

Figure 23: Andreas Vesalius, *Tabulae anatomicae sex*, Venice, B. Vitalis, 1538. *Tabula II. Venae cavae . . . descriptio*, woodcut (from Sir W. Stirling-Maxwell (ed.), *Tabulae anatomicae sex*, London, 1874; photo: Wellcome Library, London).

## Representing the Body

the hand responsible for the skeletons of the *Tabulae*, namely Calcar's, should also have executed the images of the *Fabrica*.

As for their scientific content, the *Tabulae* are better and more detailed in their anatomy than any of the illustrations produced up until then, but they are still solidly anchored in the Galenic tradition: the first three indeed constitute a synthesis of Galenic anatomy and physiology. It is easy to trace in them innumerable errors or interpretations typical of descriptions of the human body given by Galen and by his Renaissance followers. The hypothesis has been advanced<sup>41</sup>—plausibly, I believe—that these might well have been used by Vesalius as a pictorial support for the anatomy manual of Johann Winther, *Institutionum anatomicarum secundum Galeni sententiam ad candidatos medicinae libri quatuor*, a strictly Galenic text which was widely circulated in the first half of the sixteenth century, particularly in France, and of which Vesalius had prepared a Venetian edition in 1538 (note that this was the year of the publication of the *Tabulae*).<sup>42</sup>

All the figures in the sheets bear letters that refer to the text printed in a column beside each one. The text is succinct: it is generally limited to the name, given in Latin, Greek, Hebrew and Arabic, of the part of body designated in the figure by the corresponding letter. It is only in the second and third tables that Vesalius adds, on the right of the figure, a brief note in Latin, in which he gives some information about the visual representation and the intended omissions, or describes the physiological connections between the various areas of the body.

The dedicatory epistle in the upper section of the first sheet provides some highly interesting information about the preparation, realisation and function of the *Tabulae*.<sup>43</sup> Vesalius recounts how, during a surgery lecture he was giving in Padua on the treatment to adopt against inflammations, he made a drawing of one of the veins in such a way as to render simple and accessible what Hippocrates designated as  $\kappa\alpha\tau' \ \Upsilon\xi\iota\nu$  (*kat'ixin*). He adds: “The depiction of the veins so pleased all the teachers and students of medicine that they competed to get from me a drawing of the arteries and nerves as well”.<sup>44</sup> In order to meet this request, Vesalius therefore decided to draw figures that he considered might be useful, especially to those who had followed the anatomical demonstration on the cadaver. The students would be able to verify against the dissected body the extent to which the figures in the *Tabulae* corresponded exactly with the real thing. Obviously these were no substitute for the direct observation of practical anatomy, and in no way could one acquire a real knowledge of the parts of the body through figures, schemes and diagrams of this kind. Their function, says Vesalius, was above all “ad memoriam rerum confirmandam apprime”: to support memory.<sup>45</sup>

<sup>41</sup> C. Singer and C. Rabin, *A prelude*, pp. viii and xxi.

<sup>42</sup> The first edition of this text appeared in Paris, printed by Simon de Colines, in 1536. It was reprinted that year in Basel. There followed the Venetian edition of 1538 mentioned above, another Basel edition in 1539 (reprinted in 1541), and a Lyons edition in 1541. Johann Winther was one of Vesalius's teachers in Paris and, as already mentioned, the author of the first important Latin translation of Galen's *De anatomicis administrationibus* (Paris, 1531). His text was a widely read compendium of Galenic anatomy in the first half of the sixteenth century.

<sup>43</sup> The *Tabulae* were dedicated to the Protomedico of Charles V, Narciso Vertunno of Naples.

<sup>44</sup> “Verum illa venarum delineatio tantopere medicinae professoribus studiosisque omnibus arrisit, ut arteriarum quoque et nervorum descriptionem, a me obnixae contenderent”. The operation mentioned by Vesalius entails opening a vein on the side of the body where there is an inflammation.

<sup>45</sup> A. Vesalius, *Tabulae anatomicae sex*, Tabula I.









### *Representing the Body*

Although the *Tabulae* were not innovative from a strictly anatomical point of view, they did mark an important point in the history of the communication of science, realising as they did the didactic and synthetic potential of images. The long tradition of the notion that anatomy was essentially founded upon the act of seeing was made a reality during the course of the Renaissance because the conditions existed that allowed anatomy to flower: a greater access to the direct observation of dissected bodies; the redefinition, through the new medium of print, of the modalities of transmission of knowledge; the establishment of a new visual culture in which images linked the communication of knowledge to aesthetics.