Paper Cuts:
The Production of Knowledge in Early Modern
Anatomical Prints

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Thesis Submitted for the Degree of Doctor of Philosophy

March 2016

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Declaration

I, Rosemary Moore confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.
Abstract

This thesis examines how cutting altered and reshaped the relation between image and body in early modern anatomical print. At the beginning of the sixteenth century renewed interest in anatomy brought about new visual conventions for representing the human body, and crucially it was through the cut that knowledge was constructed, disseminated and challenged. The engraver’s burin could be seen to mimic the anatomist’s knife, revealing new knowledge as the exterior surface of the plate or body was gouged away.

The first chapter examines the anatomical fugitive sheets produced during the sixteenth and seventeenth centuries that utilise the cut, both conceptually and materially, in order to construct a body that is spatialized. Users of fugitive prints not only forge this internal space they also introduce animation and potentially threaten to destabilise the image in the process. Chapter Two investigates prints in Charles Estienne’s 1545 treatise, On the dissection of the parts of the human body, where the antique and mythological are employed to negotiate between the fixity that the print strives for and change, which is an integral aspect of the production of anatomical knowledge. Chapter Three focuses on two prints representing the eye in George Bartisch’s 1583, On the Service of the Eyes, and provides the opportunity to address the unstable status of vision and the observer’s shifting position in relation to the image. The final chapter concerns a triptych of early seventeenth century fugitive sheets, Johann Remmelin’s Mirrors of the microcosm. The intermingling of anatomy, allegory and ornament in Remmelin’s prints suggest that they offered an opportunity for viewers to reflect on spiritual as well as medical concerns, while the many novel adaptations of these prints are also a reminder of how the process of uncovering self-knowledge accumulates over time, and can have varied outcomes.
Acknowledgements

I am grateful for the funding that I received from the University College London Provost’s Research Studentship in the Humanities, without which this project would not have been possible. I would also like to thank all of the staff at the Wellcome Library London, particularly those working in Rare Books in the Medical Collection.

Above all I would like to thank my supervisor, Rose Marie San Juan, for all her support and guidance throughout this project. My thanks also go to all of the staff in the History of Art department at UCL, particularly Mechthild Fend, Maria Loh and Alison Wright for their engagement with my work. I would also like to thank all of my friends and colleagues, especially Carla Benzan, Sena Lee, Sophie Morris and Rebecca Whiteley with whom I have had many stimulating conversations about this project. Finally, my thanks go to my family, especially my mother, Carolyn Gough, and my partner Thomas Witchalls whose constant encouragement and support has been invaluable.
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Paper Cuts: The production of knowledge in early modern anatomical prints

Introduction

With the right hand the figure of a man holds out a portion of his flesh that has been cut and now hangs almost like a piece of clothing (Figure 1). With the left hand he gestures confidently towards a textual description running parallel to the image. The implication is that at any moment the man could cast off this fleshy outer garment and reveal his true form – the interior self now brought into full visibility. In this extraordinary full page woodcut, from Jacopo Berengario da Carpi’s *Short Introduction to the Anatomy of the Human Body* published in Bologna in 1523, surface and interior have become one. In other words, flesh serves both as the body’s matter and as its clothing. Berengario’s woodcuts are acknowledged to be the first images for an anatomical treatise derived from first-hand experience of human dissection, rather than copied from medieval manuscript illustrations. But what does the man’s gesture reveal about the interior of the body?

Geometric lines, pattern and symmetry are employed to represent the abdominal muscles, rather than striving for optical verisimilitude. Diagonal lines converge at the centre of the chest cavity, forming a chevron pattern. On the underside of the flaps of flesh that are drawn back from the chest there are more of the densely drawn diagonals, while the flesh that hangs down over the thighs is patterned with shorter, broken lines. These marks punctuate the flesh, suggesting a kind of porous texture, but they also convey a sense of uniformity and order. This is a result of the regularity of the lines that stand in the place of blood and muscle sinew. The patterning even continues in the background of the print where

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rays of light represented by lines that taper to a fine point emanate from the figure. If this body represents a source of knowledge, then the regularised print marks imply that anatomical knowledge is formed from the combination of dissection and the cuts through which the print is illuminated and the body is given visibility.

This woodcut draws attention to the intersection of two key technologies that emerged during the early modern period, each of which had profound effects on visual culture – anatomy and print. Significantly both technologies are reliant on, and at a most fundamental level can be conceived as, the act of cutting. The solid lines and geometric forms of the woodcut evoke its materiality and remind viewers of the labour of the woodblock cutter, painstakingly working with chisels and gouges to cut the image into the woodblock. But the cut was also the means by which anatomists participated in the production of knowledge through the body. The woodcutter’s chisel or the engraver’s burin could be seen to mimic the anatomist’s knife, revealing new knowledge as the exterior surface of the plate or body was gouged away.

Berengario was a skilled anatomist who prided himself on having cut open several hundred bodies and explored their internal components first hand. Ludwig Choulant’s 1852 History and Bibliography of Anatomic Illustration, which remains an authoritative source of information on medical illustration, describes him as the founder of a new epoch of anatomical research and a ‘pioneer of independent research in the anatomy of separate parts of the body.’ Indeed, medical research in the sixteenth century increasingly focused

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4 Interestingly though, it is often claimed that the figures for many of Berengario’s prints were based on the works of contemporary artists including Leonardo da Vinci, Michelangelo and Raphael. See: Benvenuto Cellini, The life of Benvenuto Cellini written by himself, trans., John Addington Symonds with an introduction and notes by John Pope-Hennessy (London: Phaidon, 1995), 54.

5 In addition to the many important contributions Berengario made to sixteenth century medical knowledge, Choulant also describes his passion for the arts. See: Choulant, History and Bibliography, 136-7.
on the act of cutting the body open, and the way this could be transposed into print form. Of course it is now agreed that this was not a sudden turn away from the tradition established in the second century A.D. by the Greek physician Galen. Even Berengario, who insisted upon the philosophy of *anatomia sensibilis* or *anatomy of the perceptible* and the precedence of sensory perception for the advancement of anatomical knowledge, relied on Galen's treatise *On the Usefulness of the Parts of the Body.*

Nonetheless, anatomical illustration in the sixteenth century certainly represented a challenge to established ways of thinking about the body, bringing about a new emphasis on sensory experience and thus on seeing for oneself. Yet this was not simply an uncomplicated turn towards natural observation. Berengario's print clearly draws on the human form, but it also deploys a new level of abstraction necessary for the realisation of new forms of knowledge. The surgeon/anatomist is notably absent from the scene of dissection in Berengario's print. This seems curious, particularly considering how there was a new emphasis on physicians gaining hands on knowledge of the human anatomy, which was unsettling the rigid hierarchical practice shown in the well-known print for Johannes de Ketham's *Fasiculo de medicina* (Figure 2). Did such close physical proximity between the observer and the observed raise a point of tension in anatomical prints? As Elizabeth Harvey has described, for the anatomist direct contact with corpses was essential but it also 'dangerously allied the physician – both actually and symbolically – to the death and disease he studied.' Berengario's print offers me the opportunity to introduce how the strategies of anatomical images changed in response to increasing pressure to reveal a more 'life-like' body, while at the same time transforming that body into knowledge that reached beyond physical matter. In addressing a new set of challenges, the process of cutting – which both

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6 The main example is Andreas Vesalius's influential *De humani corporis fabrica libri septem* (On the Fabric of the Human Body), which was published in 1543 in Basel by Ioannis Oporini. Vesalius (1514-64) was made Professor of Surgery and Anatomy at the University of Padua in 1537.


opened the actual body and formed concrete, theoretical and speculative knowledge – became crucial.

The central premise of my thesis is that early modern anatomical prints offer a highly self-aware approach to the act of cutting, both the body and the printing plate. Cutting, an act of violence, is now implicated in the production of knowledge. As Michael Gaudio argues, the material processes of print were fundamental to the production of images and texts that would come to define the ‘New World’: ⁹

I would like to make a case for the importance of not overlooking those lines, of coming to terms with their materiality. The engraver’s lines were implicated in the most basic processes of producing meaning within the illustrated press of the late nineteenth century. In the busy, tedious lines of the reproductive wood engravers of the 1880s, as we shall see, the labor of making civilization out of a savage past—the labor of evolving—is made visible. ¹⁰

Gaudio’s notion of the relation of body and print will be central to the arguments of this dissertation. I will endeavour to look at rather than through the image and to consider its own materiality. It is after all through the cut that knowledge is constructed, disseminated and challenged. In Gaudio’s argument, technologies of cutting intersect on the surface of the body – for instance the designs scratched onto the native Algonquian people’s bodies by the tattooist’s needle and reiterated with the printmaker’s burin. ¹¹ This idea takes on further implications when applied to images of dissection, which are literally about cutting into bodies and separating parts from whole. And though one did not have to traverse oceans to

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⁹ Michael Gaudio, Engraving the Savage: The New World and Techniques of Civilisation (Minneapolis: University of Minnesota Press, 2008).
¹⁰ Gaudio, Engraving the Savage, 132.
¹¹ The first chapter of Engraving the Savage concerns the ‘savage marks’ (tattoos) represented as marking the Algonquian people’s bodies and the ‘indexical letters’ (the European alphabetical letters) used to try and ‘decode’ them. Gaudio argues that rather than asserting the authority of the European letter system, the adjacency of the two marks actually brings into question ‘oppositions like visual/verbal, savage/civilized’. See: Gaudio, Engraving the Savage, 5.
find it, the body’s interior was as unfamiliar to European eyes as the inhabitants of the ‘New World’. My goal then is to consider how the process of cutting impacts on the construction of the body’s interior (as well as its relation to exterior appearance) in the European imagination.

The images that I will address represent a broad spectrum of anatomical prints produced during the sixteenth and seventeenth centuries, primarily in northern Europe. These include relief printing in the form of woodcuts as well as intaglio prints such as engravings and etchings. Typically woodcuts have tended to be classed as a more ‘popular’ art form used within the more practical domestic sphere, whereas engraving has been associated with ‘high’ art forms. This assumption is borne out of attempts to categorise the two types of printing in opposition to each other. In fact this dichotomy is unnecessarily reductive. For example, Johann Remmelin’s 1619 trio of engravings The Mirrors of the microcosm, which I will address in the fourth chapter, adopts many of the strategies also found in the woodcuts that I investigate elsewhere in the dissertation.

In addition to contributing to medical research and the production of prints, the new emphasis on the cut also held implications for political and social attitudes towards the practice of dissection and the formation of medical knowledge. One aspect of early modern medical research was to explore the soul – which is to say, to shape behaviour by reinforcing assumptions about religious, political, cultural and gender identities. The body itself became the tool through which to impose social norms and, as Michel Foucault has argued the imposition of norms is always implicated in knowledge and power. In Discipline and Punish (1975), Foucault was the first to draw attention to the body’s shifting position in early modern societies, though it continues to be a subject of considerable scholarly debate. Central to Foucault’s argument is the criminal body’s changing visibility, which points to its potential in the production of knowledge. The spectacle of public torture was replaced by the discipline of the penitentiary, and instead of marking the body, punishment regulated the
body with the goals of control, reformation, and normalisation. The body would become literally where power relations between people could be read.

Foucault’s work, which will be discussed in greater detail in the first chapter, has implications for my project as a whole. The spectacle of punishment was closely associated with medical projects, although anatomical dissection cannot simply be considered as an extension of penal authority after death. Anatomy’s emphasis on observing, measuring and judging the body also resembles the mechanisms of discipline that Foucault identifies as the means by which individuals are remade both as objects and instruments of power. I will complicate Foucault’s notion of a shift, from public to private, spectacle to concealment, by factoring in another relationship that is integral to the re-conceptualisation of the body during the early modern period: the relationship between the internal and external. My project will take up how the cut, as practice and gesture, can be conceived as productive in bringing the body into new forms of visibility while producing new forms of invisibility. One relation that is brought into visibility is between interiority and exteriority. The prints I will examine all adopt very different strategies in their attempts to represent this relation. Some employ moving parts pasted over the surface of the print in order to visualise the spatial relation between inside/outside, some strive to maintain a stable boundary between the two, others represent dissected figures actively transgressing the boundary entirely. However, the relation between inside/outside is not the only issue at stake. Relations between male/female, good/evil, contained/unruly also prove contentious in terms of what is visible and what remains invisible in the prints.

While the move away from the spectacle of the scaffold contributed to the body being replaced by a body of knowledge, for the anatomical image this shift in visibility proved problematic. After all, the anatomical image was expected to display the body in the

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13 Ibid., 24.
formation of knowledge. How to reveal the body in life while seeking to turn it into an instrument of knowledge remained a challenge for anatomical prints. These contradictory goals are located within print itself, which, like the reconceptualization of the body, was from the outset conceived as a medium both to define information and to question received knowledge.

The question of how print produces knowledge is contested. Does the medium of print work to stabilise and fix meaning above all? This line of argument was proposed by early scholars of print such as William J. Ivins Jr. In his influential essay *Prints and Visual Communication* (1953) Ivins claims that the exact reproducibility of prints and photography (which he does not distinguish from other types of print) has great significance for science, technology and the dissemination of information in general. It is certainly true that print found many useful applications as recorder, standardizer, and conveyer of facts and information about the world that would have been beyond the reach of most ordinary men and women living in Europe. It is also significant how memory and print were closely intertwined in early modern thought. The mind was conceived of as an impressionable surface, like a wax tablet or the printer’s wooden block or copper plate, ready to receive the image of a memory. But prints did not merely represent the world *contrafactum*. They also played a crucial role in constructing knowledge. Moreover, there were plenty of opportunities for viewers to manipulate printed matter for their own ends. Viewers found occasions to read between the lines, to (mis)interpret, to invest prints with new meanings and to find different – sometimes even illicit – uses.

Assertions regarding print’s authority tend to close down its very possibilities. Even so, claims about fixity, standardization and repeatability still exert considerable influence over the field of ‘print culture’. The term ‘print culture’ was first coined in the 1960s as part of

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the field’s substantial reconceptualization. Among the most important contributions is

Elizabeth Eisenstein’s 1979 *The Printing Press as an Agent of Change*. Eisenstein’s radical proposal is that print brought about a profound change in the way knowledge was transmitted, and that the communications revolution brought with it massive social changes.\(^{18}\) Her assertion is about a process of ‘standardization’ of texts over their diversity, not that absolutely identical copies were produced using the printing presses available during the early modern period.\(^{19}\) Yet, Eisenstein’s formative contribution to the literature on print culture has allowed others to follow and build on arguments about reproducibility.\(^{20}\) At the same time, print as a medium characterised by traits of regularity and stability has been challenged. More recently, scholars have become increasingly aware of the problems of arguments that take the fixity of print for granted, and have taken up concepts of repetition in relation to difference.\(^{21}\)

Peter Parshall’s contribution to the study of early modern prints is partly guided by Eisenstein’s work, stressing how printing conveys permanence and authority through its repeatability.\(^{22}\) Parshall uses the term *contrafactum* to explain how images had long claimed to bear witness to actual persons, events or specimens.\(^{23}\) In effect, ‘a replicated image could have the authority that comes with being widely familiar.’\(^{24}\) However, while prints were intended to be identical, the assumption that all copies printed from the same matrix are indistinguishable from one another and that they convey the same information in the same way is increasingly questioned. It is this tension between the fixity that the print strives for

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\(^{19}\) Eisenstein acknowledges that early modern printing presses could not produce exactly ‘standard’ editions but stresses that the ‘standardization’ they did accomplish represent a ‘great leap forward nevertheless.’ Ibid., 80.

\(^{20}\) In 2007 a reappraisal of Eisenstein’s work and its legacy to the field of print culture was published: Sabrina Alcorn Baron, Eric N. Lindquist and Eleanor F. Shevlin, eds., *Agent of Change: Print Culture Studies After Elizabeth L. Eisenstein* (Amherst: University of Massachusetts Press, 2007).


\(^{23}\) Parshall, “Imago contrafacta,” 554-79.

\(^{24}\) Landau and Parshall, *The Renaissance Print*, 239.
and difference, that emerges during the print’s production and use, which now seems most important.

No one has done more to contribute to the crucial role of readers in the interpretation of print than Roger Chartier. His important work on print culture has served to open up discussions about the uses of prints and to emphasise the role of user interaction in producing and shaping interpretation, rather than presuming a passive receiver of knowledge from printed matter. In his 1994 work, *The Order of Books*, Chartier argues that to try to classify a work of literature or culture according to the social divisions of its time is futile.\(^ {25} \) Instead one must turn this perspective around and begin with the work itself, and not a presumed built-in audience. This enables the work itself to delimit the boundaries of its reach. As Chartier explains, ‘printed matter penetrated to the very heart of the humble home, where it imbued modest objects that were by no means always books, with traces of an important moment in private life, a memory of an emotion, or a sign of identity.’\(^ {26} \) In other words, individuals, not homogenous ‘peoples’ or social groups, used and engaged with printed matter in very personal, often divergent ways.

My research is also indebted to recent studies attentive to the uses, appropriation and misappropriation of visual images. Susan Dackerman’s 2011 *Prints and the Pursuit of Knowledge in Early Modern Europe*, and Suzanne Karr Schmidt’s 2011 *Altered and Adorned. Using Renaissance Prints in Daily Life* bring insights into how prints were handled by their users.\(^ {27} \) The authors discuss the modifications, adaptations and additions users made to prints, from intentional modification such as hand colouring of images and assemblage of three dimensional models (with divergent results), to accidental changes to a print’s appearance, such as tears and fingerprint stains. What becomes clear from this kind


\(^ {26} \) Ibid., 22.

of work is that prints, whether intended or not, were used in many different ways and that the medium was frequently utilised for ingenious, experimental projects.

While prints do produce and circulate knowledge, this does not mean that their uses are necessarily confined to that purpose. In the case of prints produced in the context of medical research, the interests these generate are by no means limited to this field. After all images of the body – and especially of bodies revealed in terms of both surface and interior – were open to socially illicit possibilities. Certainly anatomical prints frequently seek to police the boundary between acceptable and unacceptable interests, but they remain open to the possibilities of curiosity, pleasure, distraction, or any number of interests not necessarily defined through a specific field of ‘knowledge’.

In negotiating the relation between fixity and the production of new possibilities, the act of cutting – both physical and metaphorical – is crucial. On the one hand, the use of cutting is a means of inscribing information so that multiple copies can be made from the same matrix, thus producing (near) identical images capable, in theory, of conveying knowledge that is stable. On the other hand, the cut, as I will show, is a primary strategy to activate and challenge the user of the print. But how can knowledge be asserted through the cut if there is always the expectation that prints will need to be updated or that users will find new (even unpredictable) ways of engaging with it? Even attempts at defining or stabilizing order through the cut can reveal subconscious anxieties about exactly what kind of knowledge they are meant to produce.

Berengario’s woodcut, briefly discussed above, exemplifies these sometimes conflicting processes of the cut (Figure 1). It could be argued that the medium of print is utilised to contain and rationalise the naturally unruly interior spaces of the human anatomy and to translate it into a more legible form. The surgical precision of the represented cuts that open up the flesh and neatly divide it into four equally proportioned areas leave no evidence of fraying at the edges of the skin/fabric. There are no fibrous sinews, no trailing entrails and, crucially, no blood that escapes from the cut. Everything is contained and orderly. In fact the image is quite opposed to the bloody realities of the dissection table that
Berengario would have encountered as an anatomist and therefore presents viewers with a more rationalised impression of the body. Conversely, the woodcut also reveals uncertainty about the body’s interior as a result of its attempts to rationalise the interior body. The substitution of lines and patterns in the place of anatomically recognisable parts creates an impression of a bodily interior that is unknown and of unmapped terrain. This keeps the possibilities open and suggests that knowledge, far from being fixed and authoritative, is open to constant reinterpretations and discoveries.

I have identified three specific problems that are traversed by the act of cutting, problems that reveal diversity in the ways that the act of cutting operates. The remaining sections of this introduction will explain how these problems relate to each of the four chapters of the dissertation, which are each conceptualised around different forms of printed images where the cut of the body and the cut of the print intersect and offer distinct potentials. The first of the three problems, how to represent the human body as it appears in life at the same time as transforming it into knowledge, is a constant issue addressed throughout the thesis. In chapter one, which deals with a German sixteenth century group of prints with moving parts (known as fugitive sheets) it will be examined most closely. Secondly, there is the problem of fixity versus change; this is particularly pertinent to my second chapter that will discuss the woodcuts for Charles Estienne’s 1545 anatomical treatise *On the dissection of the parts of the human body*. The third problem is that of animation, which threatens the construction of clear, coherent knowledge because it produces an image that is constantly on the move, and always reaching for change. I will discuss this issue particularly in relation to Chapter Three where the image of the extirpated eye from George Bartsch’s 1583 *On the Service of the Eyes* becomes imbued with its own form of animation, independent of the bodily assemblage, and Chapter Four, in which the prints of Johann Remmelin’s seventeenth century triptych of fugitive sheets disrupt, through animation, perceived binary oppositions on the surface of the print.
Cutting the paper

The first chapter is solely concerned with fugitive sheets, a type of novel variation on the standard anatomical print, which seeks to overcome the problem of how to present the body as both living and anatomised, externally intact and internally visible. The fugitive print offers the user a very particular role, the role of the anatomist. Each and every one who uses these prints makes marks upon its impressionable surface, whether intentionally or not. Some marks, like the shadow cast by a reader hunched absorbedly over a print, are only temporary, others are more permanent. Annotations in the margins, underlings, accidental tears, stains left behind by oily skin, all are evidence of the observer’s presence. Prints, unlike paintings or sculptures therefore have a unique connection with the bodies of those who use them. They are designed to be handled, not just looked at, and this is particularly the case with fugitive prints. They can be folded up and carried about one’s person. They can be handled, touched, coloured and adorned. Every surviving example of early modern prints therefore bears evidence of the wear and tear it has suffered in the hands of its users. However, for some prints more than others the user’s intervention is more obvious and has more immediate effects on the visual image.

This is the case for the category of prints known as fugitive sheets, which employ paper flaps, layered over one another to produce an approximation of three dimensionality and interior space within the body or organ depicted. For visitors who encounter fugitive sheets in museums and galleries today it is hard to imagine taking a pair of scissors to them. They are often now preserved under a protective layer of glass, preventing one from even touching them. But this is precisely how they were intended to be used. Fugitive sheets were intended to be cut, folded and assembled into new forms. In this way fugitive sheets attempt to meet the demand for bodies to be represented as ‘naturally’ as possible, at the same time as transforming the body into knowledge without abstracting its form. The overt cutting and layering of fugitive sheets also enacts the dissection of the body. In effect it invites users to adopt the role of an anatomist, feeling their way through the paper body on display and revealing new visual information with every turn of a leaf.
The sheets emerged on the print market in Strasbourg in Germany around 1538 with Heinrich Vogtherr’s pair of female and male prints. Although the majority of fugitive sheets seem to have been produced in the north they would nonetheless have enjoyed widespread circulation across Europe. The use of images with moving parts has long been affiliated with the production of knowledge. Vogtherr’s sheets were not the first anatomical images designed to be cut out and assembled by their users. Even earlier examples of experiments with moving parts are the devices known as volvelles (Figure 3). These are paper discs that can be layered on top of one another and sewn or glued onto the page so that they freely rotate around a central pivot. Volvelles were employed for many different purposes: medical charts, mystical divinations, and astronomical instruments expedient as navigational aids. And crucially, they were always conceived of as a way of producing, not just conveying information.

Amongst the earliest examples of volvelles are those attributed to Ramón Lull (also known as Llull or Raymond Lully) a late thirteenth century ‘doctor illuminatus’ of Mallorca who travelled extensively throughout Europe, Asia and Africa employing volvelles in his technique of prophesy. According to Lull’s unique system of logic, all things, ideas, substances, adjectives, verbs, knowledge and actions could be divided into ‘superior’ or ‘inferior’ groups indicated by alphabetical letters. Each letter had its own sector of a circle on roundels of different sizes and these discs could be placed on top of one another and rotated. Thus, Lull believed, he had found ‘a method of obtaining a higher knowledge of all things by simple mechanical means.’ The fact that volvelles were thought to generate knowledge and not just convey information is a significant distinction. This is the case with all anatomical prints, but it has particular implications for fugitive sheets, which on occasion are associated with astrology and the divination of prophetic knowledge. A case in point is Remmelin’s seventeenth century triptych, the Mirrors of the microcosm, which will be

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29 Ibid.
discussed in Chapter Four, and which represents human anatomy in combination with allegorical, philosophical and even occult forms of knowledge.

The earliest known example of an anatomical image employing moveable parts is Guido da Vigevano’s manuscript treatise *The Anatomy*, which dates from the fourteenth century. The manuscript originally contained twenty four anatomical plates, though some of these are now lost. One in particular – an illustration of a skeletal cadaver – harbours a surprising secret (Figure 4). Although the skeletal figure appears devoid of life (in stark contrast to the other figures in the treatise, all of which are depicted as active living patients receiving medical treatment) this proves to be false. The area of the illustration representing the rib cage is actually printed onto two pieces of parchment that are separate from the rest of the design. These can be opened outwards, like doors, to reveal the inside of the body, including the subcutaneous layer of muscle and fat, labelled the ‘mirac’. In terms of medical history, Vigevano’s work is mobilised as a link between Galenic anatomy and early modern anatomical advances attributed to Bartholomeo Eustachius and Andreas Vesalius. However, while it is not my aim to chart the development from the skeletal figure in Vigevano’s *Anatomy* to the fugitive sheets of the sixteenth century, the former shows that the representation of the relationship between the interior and the exterior of the body had long posed a problem. It is also a reminder that the attempt to resolve this problem by

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30 Guido de Vigevano, *Anathomia* (1345, Musée Condé, Chantilly, MS. 334, fol. 569). Guido de Vigevano (c. 1280–c. 1349) worked as a court physician to King Philip VI of Valois, to whom *The Anatomy* was presented, but he is also well known as an inventor. Today he is perhaps best known for his ingenious automotive machine designs. For further information on the life and works of Guido da Vigevano see: Faith Wallis, _Medieval Medicine: A Reader_ (Toronto: University of Toronto Press, 2010): 238-247.


32 Although it has been proposed that the figure is intended to be read as standing upright, I disagree with this assumption. For an alternative interpretation see: Choulant, *History and Bibliography*, 60-1.

experimenting with three dimensionality and moving parts was in place long before the first fugitive sheets started to be circulated in Strasbourg.

By the time Heinrich Vogtherr’s fugitive sheet of the female anatomy appeared on the print market, the form of the image with moving parts was considerably different. Printing technologies allowed for ever more complex designs. Even the most rudimentary examples of fugitive prints contain considerable visual information in the form of additional layers and are usually densely annotated with indexical letters or numerals linking the image to explanatory texts. In addition, the development of the printing press in Europe also allowed new opportunities for disseminating anatomical knowledge on an unprecedented scale. This in turn brought about opportunities for printers to experiment with form and to create ever more complex designs, mapping out the interior spaces of the human frame and inviting users to peer inside and imagine their own bodily interior.

What sets fugitive sheets apart from other types of anatomical prints, and makes them the ideal starting point for my examination of the role the cut played in shaping anatomical images, is the way they made the cut a physical component of their design. In fugitive sheets the surface of the print is itself cut into pieces. Through the clever use of cut-out components and layering, fugitive sheets are able to convey a sense of spatiality for the body and this offered a solution to an issue that had long posed a problem for anatomical illustration. But while the insertion of layers into the print’s design enables viewers to adopt a more active role than is usually presumed, I will show how users’ active participation has both advantages and drawbacks for the prints. One downside is that many prints sustained irrevocable damage and were essentially ‘thumbed out of existence’ – they were either damaged beyond repair as a result of continued use, or pasted onto walls and furniture and subsequently lost. Some, however, were carefully stored away folded between the pages of books, and for these surviving prints fingerprint stains, curling edges and little tears provide insight into how they may have been used.

34 Rhodes and Sawday, “Paperworlds,” 16.
Users engaged with and marked their prints in very different ways. Some even bear evidence of a ritualistic or talismanic belief in a print’s perceived ability to shape or influence the present. For example, one scholar has drawn attention to the traces of what appears to be blood or an approximation of it, smeared on the genital region of a female anatomical print.\textsuperscript{35} The suggestion being that it could point to a user’s anxieties regarding pregnancy and childbirth.\textsuperscript{36} While this claim is without concrete evidence, it nonetheless raises the possibility of a myriad of previously unconsidered uses for fugitive sheets. It is well known that wooden anatomical models were used for instructing women and young married couples about the reproductive process. Talismanic properties were also attributed to domestic objects like birth-trays. These examples reveal how images were often invested with special significance and sometimes thought to have the power to influence the outcome of a pregnancy. Might fugitive sheets have had a similar function for some of their users?

Undoubtedly the uses of fugitive prints are much more diverse than is usually presumed. It is no longer supposed that they were only of interest to specialist groups such as barber surgeons, who could not read the classical anatomical texts in Latin but were required to have some knowledge of the human anatomy because they had the task of cutting the body during the public anatomy lessons held at universities.\textsuperscript{37} It is now accepted that anatomical prints, including fugitive sheets, were used by a wide range of people and in diverse places.\textsuperscript{38} Evidence even suggests that some fugitive sheets may have been used to decorate the walls of anatomical theatres such as the one in the University of Leiden.\textsuperscript{39} Even so, the very success of the fugitive print has resulted in it being relegated to the category of ‘popular’ print.

\textsuperscript{35} Karr Schmidt, \textit{Altered and Adorned}, 91.  
\textsuperscript{36} Ibid.  
\textsuperscript{37} Choulant, \textit{History and Bibliography}, 156.  
\textsuperscript{38} See: Carlo, "Paper Bodies," 3, 104-113. He writes: ‘Some editions were intended for doctors and medical students, others for barbers and surgeons, still others for popular use rather than for any particular profession. There was little difference between the texts that each broadsheet printer would insert around the same woodcut, though these texts were adapted for the public at which they were aimed. They were, however, also intended, indeed required, by the printer to circulate beyond their designated audience’ (3).  
The ‘popular’ print is a problematic category, particularly since it assumes that the prints’ appeal, though evidently far reaching, was due to the moralistic premise that to know one’s own anatomy was to contemplate the divine ingenuity of God. Of course medicine and religious belief cannot be separated from one another, especially since, as I intend to show, the soul was frequently imagined as a physical part of the body. But the prints do not only address the soul, they also offer information about the physical concerns of ordinary people and provide information about illnesses and remedies.\textsuperscript{40}

Perhaps as a consequence of the fact that they emerged in northern Europe, fugitive sheets, more so than any other types of anatomical illustration tend to be discussed in terms of Reformation politics and Lutheran theology. Hans Guldenmundt the Elder, whose so called ‘Adam and Eve’ sheets were printed in 1539, was actively involved in the Protestant community and this has led some scholars to make connections between his fugitive prints and the reformist Protestant politics of the north.\textsuperscript{41} Reformation politics has also been at the forefront of discussions concerning a trio of fugitive sheets printed in Wittenberg in 1573 that features a skeleton, a female figure and a male figure. The location of the prints’ production in Wittenberg – the epicentre of Reformation politics – along with debates about the status of

\begin{footnotes}
\item[40] For example, the fugitive sheet held in the Wellcome Library, \textit{Interiorum corporis humani partium viva delineation} (London, c. 1559), which is sometimes attributed to Thomas Geminus, represents the ‘principal vaynes wvith the vse // of letting bludde,’ on the male figure while a separate sheet of text describes, in detail, the development of the foetus.
\item[41] Kathleen M. Crowther, \textit{Adam and Eve in the Protestant Reformation} (Cambridge: Cambridge University Press, 2010), 77-79. Crowther argues that Guldenmundt’s ‘Adam and Eve’ fugitive prints should be viewed as evidence of the importance Lutheran thinkers ascribed to the study of anatomy. In addition to extolling the perfection of God’s design for the human body, she argues that anatomical prints also served to draw attention to the imperfections and diseases that afflicted the post-lapsarian body by reminding viewers of the flaws and weaknesses that mankind had wrought on itself through Adam’s sin. Some analyses of Vogtherr’s fugitive prints have similarly been grounded within the context of Lutheran attitudes towards marriage. See for example: Karen Rosoff Encarnacion, “The Proper Uses of Desire: Sex and Procreation in in Reformation Anatomical Fugitive Sheets,” in \textit{The Material Culture of Sex, Procreation, and Marriage in Premodern Europe}, eds., Anne L McClanan and Karen Rosoff Encarnacion (New York: Palgrave, 2002), 239. She writes that Heinrich Vogtherr’s prints shape a particular kind of viewing experience through which social and moral value is attributed to anatomical knowledge. What starts out as an image of temptation – the temptation to ‘undress the figure’ and the desire for knowledge with all its negative connotations of the fall – is ‘redeemed’ when viewers arrive at the image of the foetus. For rather than finding death, the print’s users arrive at an image of new life that presents procreation as a means of transcending death. See also: Vivian Nutton, “Wittenberg Anatomy,” in \textit{Medicine and the Reformation}, eds., Andrew Cunningham and Ole Peter Grell (London: Routledge, 1993), 11-32.
\end{footnotes}
the image and their uses have all, justifiably, been important factors in their interpretation. There is evidence to suggest that there were differences in the teaching of anatomy in Protestant and Catholic universities. However, the narrow concept of the prints' moralising function cannot provide adequate answers to questions such as why the male figure in the Wittenberg trio bears such a striking resemblance to Vesalius, or why the foetus is given startling prominence in the representation of the female anatomy. As I hope to demonstrate, these are highly complex objects, engaging with users on a number of levels and commenting on medical knowledge of the body, gendered identity, social status and religious doctrine. As Chartier writes: ‘By reintroducing variation and difference where the illusion of universality spontaneously springs up, such reflection may help us to get rid of some of our over sure distinctions and some over sure truisms.’

I will argue that the categorisation of the prints as ‘popular’ is still far too reductive. I hope to demonstrate that the prints and their audiences are actually far more complicated than it has previously been presumed and that any attempt at interpretation based solely on the prints’ perceived audiences is problematic. To try to define a work according to its perceived audience is in danger of overlooking ‘the process by which a text [or in this case an image] takes on meaning for those who read it.’ Instead, one must attend to the visual evidence provided by the prints themselves. Handling prints, turning them over and examining the marks, tears, frays and colourful additions made to them by their users presents a very different image indeed. Far from being homogenous, the individual prints one encounters differ widely from one another. The image that begins to emerge therefore is of individuals, not groups, who engaged with fugitive sheets in divergent ways, shaping their own interpretations rather than merely accepting prescribed messages.

42 At the Lutheran University of Wittenberg the study of anatomy was deemed essential for all students of philosophy whereas at the Catholic University of Ingolstadt anatomy was only offered as part of the training for physicians. See: Jürgen Helm, “Religion and Medicine: Anatomical Education at Wittenberg and Ingolstadt,” in Religious Confessions and the Sciences in the Sixteenth Century, eds., Jürgen Helm and Annette Winkelmann (Leiden and Boston: Brill, 2001), 51-70.
43 Chartier, The Order of Books, xi.
44 Ibid., 7.
Fugitive sheets also offer an opportunity to discuss another of the three main issues that the cut has to contend with – animation. Animation is an important aspect of how fugitive sheets produce meaning, but it can work in different ways. For instance, the prints of the active men displaying their muscles in Book II of Vesalius’s 1543 *On the fabric of the human body* have been shown to develop the notion of the movement of the body through external space.45 When these woodcuts are arranged side by side, the animated écorché appears to stroll, twist and turn through a panoramic landscape that some scholars have claimed represents an actual geographical location in the Euganean hills near Padua in Italy.46 This animated aspect of Vesalius’s prints, first noted by E. Jackschath in the early twentieth century, has been the subject of considerable interest in recent years.47 In addition to how the muscle-men physically move around the landscape, the way the muscles are methodically stripped back from the body also produces another kind of movement, from outside to inside. In contrast, the seated figures in fugitive prints do not move in terms of walking, twisting or turning; instead movement is between two very different views of the body – the outside and the inside. Nonetheless, they are amongst the most embodied of anatomical prints. This is because fugitive sheets convey a sense of how embodiment is not only about movement, but also about change and eventual death – something that is lacking in Vesalius’s prints. The delicate moving parts of fugitive sheets are particularly susceptible

to wear and disintegration and, just like a living body, over time the paper itself begins to fall apart.

_Slicing the body_

While fugitive prints are particularly pertinent to the act of cutting, my discussion is not limited to prints with moving parts. The second chapter focuses on Charles Estienne’s full page woodcuts in the 1545 *On the dissection of the human body*.48 Estienne’s work is usually perceived as belonging to the more scholarly category of anatomical treatises since it is a weighty, richly illustrated volume. It therefore presents the opportunity to open up my discussion to other types of anatomical prints, including Vesalius’s canonical images for *On the fabric of the human body*. More significantly though, the images for Books II and III of Estienne’s treatise also present an opportunity to discuss the second problem of the cut – the conflict between the print, which strives for fixity, permanence, and stability, and the anatomical image, which requires the potential for change and movement in order to designate life rather than death.

Early modern medical research anticipated that the information contained within anatomical treatises was not complete and would require revision, and Estienne’s prints, more so than any of the other prints under discussion, visually draw attention to this fact. A number of the images in Books II and III exhibit noticeable gaps where a rectangular incision has been made in the existing woodblocks and new anatomical information inserted into the ensuing cavity. The schism between the inserted block and the rest of the print is a result of the complicated history of the treatise’s production, but it is also a reminder that the ‘surgical intervention’ required for bringing the woodcuts ‘up to date’ could easily be replicated in the future. Although most of the woodcuts were completed by 1539, publication was held up for many years due to a lengthy legal dispute between Estienne and the surgeon he employed

48 Charles Estienne, *De dissectione partium corporis humani libri tres ... una cum figuris, et incisionium declarationibus* a S. Riverio chirurgo cómpositis (Paris: Apud Simonem Colinaeum, 1545).
to advise on the project, Étienne de la Rivière.\textsuperscript{49} In fact much scholarly interest has focused on the intrigue surrounding this aspect of the publication’s history, along with numerous attempts to definitively attribute authorship to the full page woodcuts for \textit{On the dissection}. The prints vary considerably in terms of their execution, suggesting that they were not all made by the same hand and at least four different names have been linked with the treatise: Estienne, Rivière, Geoffroy Tory and Mercure Jollat.\textsuperscript{50}

Details of this legal dispute and the impact that it had on reception of the treatise will be explained in the second chapter. Needless to say, the most significant consequence was that \textit{On the dissection} was not published until two years after Vesalius’s treatise despite the fact that it was actually completed several years earlier.\textsuperscript{51} As a result there has been a tendency to compare Estienne’s treatise unfairly against that of Vesalius. The argument is that while both Estienne and Vesalius had their doubts about some of the then accepted anatomical teachings, Estienne failed to challenge tradition, whereas Vesalius was heroically outspoken on the subject. In fact these assumptions are misguided. Vesalius abided with many of the older Galenic teachings and Estienne did venture to ‘doubt tradition’ in some areas – even advising readers of \textit{On the dissection} to ‘trust his own eyes rather than the anatomical books’.\textsuperscript{52}

Although the visual schisms between the anatomical insert and the rest of the image could be interpreted as a negative consequence of Estienne’s production being split into two separate stages, I will consider what potential advantages there could be to revealing the processes by which organic matter (whether it be a dead body or a printmaker’s wooden block) takes on new significances through the act of cutting. I have identified four specific strategies of the cut in Estienne’s prints: the violent representation of surgical tears that rip

\textsuperscript{49} The plate on page 154 of \textit{De dissectione} is dated 1530. The plate on page 155 is dated 1531 and plates on pages 150 and 151 are dated 1532.

\textsuperscript{50} For further information see: Choulant, \textit{History and Bibliography}, 152.

\textsuperscript{51} Estienne acknowledges that Rivière was responsible for the depiction of the anatomical details in the title and more fully in the preface to \textit{De dissectione}. See also: Choulant, \textit{History and Bibliography}, 154-55; Herrlinger, \textit{History of Medical Illustration}, 92, 100.

apart the male body in the prints for the second book of the treatise, the transection of the brain that reveals new surfaces as opposed to spatial depth, the alignment of cutting and seeing in several prints that represent observers looking at the dissected body, and the unresolved cuts that bring together two seemingly different kinds of print: erotic images of mythological figures and anatomical images in Book III.

The erotic aspect of ‘undressing’ the body by revealing its interior spaces may be part of all the prints examined here, but in Estienne’s treatise it becomes explicit. The titillating potential of the flap print was most fully realised by the enterprising Paduan publisher Pietro Bertelli, whose costume prints published in 1589 conceal a secret (Figure 5). Like fugitive sheets, Bertelli’s prints invite users to ‘undress’ the figures on display, though it is the costume that ‘envelops the body as a second skin.’\textsuperscript{53} Outwardly the women appear almost indistinguishable from the ‘honest’ noble women of Venice, but lifting the ‘fabric’ of the full-skirted costumes reveals the courtesan’s distinctive undergarments and platform shoes. What is unusual about Estienne’s woodcuts is that they do not try and suppress the erotic potential of the images. The plates for Book III are considered by some to be almost pornographic in their explicit presentation of the female anatomy. As a consequence, much scholarly research on these prints has understandably focused on the overtly sexualised representation of the female body. In fact, it is widely accepted that at least eight prints depicting the female anatomy were adapted from drawings made by Perino del Vaga and Rosso Fiorentino for \textit{The Loves of the Gods}.\textsuperscript{54} But the question remains of how the eroticised, mythologised, female anatomies can invoke viewers to know themselves. How can the call to self-knowledge that is implicit in the anatomical content of the treatise be reconciled with the body on display? And precisely what kind of knowledge is one invited to uncover?

\textsuperscript{53} Bronwen Wilson, \textit{The World in Venice: Print, the City, and Early Modern Identity} (Toronto and London: University of Toronto Press, 2005), 131.

Scholarly analysis tends to overlook any potential significance for the figures’ metamorphoses from classical gods to subjected anatomical models. But as the mythological is pressed up against the anatomical there are slippages between god and mortal, inside and out, as well as between body and setting. It is my contention that the reuse of mythological figures in the third book of *On the dissection* is related to the notion of the cut as transformative, especially with the mythological body and its lack of restrictions. Like the anatomical body, the mythological body was also subjected to cuts that transformed it as punishment for its earthly transgressions. The myth of the satyr Marsyas, whom Apollo condemned to eternal punishment by being dissected alive, will prove a crucial link between the mythological and the anatomical, and the extending of visual possibilities.

My approach will differ from others that have examined the eroticised female body in contrast to the anatomical aims of the print. I intend to contextualise the strategy within a wider examination of how cutting works across the treatise. It is my conviction that cutting works to maintain bodies (both male and female) on the threshold between states, whether those are eroticism and violence, life and death, or inside and outside. For both the male and the female anatomies the cut offers a way of framing the anatomised interior, but it also necessitates the breaking up or fragmenting of one view of the body in order for it then to be remade as something new. This will be compared with Leonard Barkan’s description of how antique sculpture took on signification for early modern viewers, since both require the dual processes of unmaking and remaking.55 For both the cut facilitates the uncovering of knowledge and a means of sustaining the body – and therefore the image – in a state of perpetual flux, allowing new interpretations to emerge even as established ones remain.

*Dissecting vision*

The third chapter examines how the cut sought to open up the eye and reveal the secrets of vision. This will be explored through close analysis of two exceptional prints from the

beginning of the first book of George Bartisch’s treatise On the Service of the Eyes, which was published in Dresden in 1583. Bartisch’s treatise has been heralded by some scholars as the first major work in the field of ophthalmic medicine. It contains over ninety one woodcuts in total, but the two prints I will focus on are unique in the treatise because they utilise paper flaps. Despite the fact that these two prints are cut into and layered in a similar way to the fugitive sheets discussed in Chapter One, cutting works very differently. One reason for this is that the eye, unlike other bodily organs, is invested with its own ideological associations. For the image, the challenge is to represent medical science’s authority over the eye and to reveal knowledge about how it works without merely reducing the eye to the status of any other fragmented body part. But how does the eye’s power come under threat from the cut? And does subjecting the eye to medical observation necessarily imply a loss of its imagined agency? As I intend to show, animation has a crucial role in negotiating these problems. This also works differently in Bartisch’s prints than in the fugitive sheets discussed in the first chapter because the eye is a single organ, rather than a whole bodily assemblage. A second, no less important, issue is that the insertion of layers and the fact that users can physically intervene in the image through touch has a distinctive implication for the image of the eye. By introducing tactility into the print the implication is that vision is somehow not enough – potentially undermining the authority of the very organ that the atlas seeks to elevate.

The prints for On the Service of the Eyes open up discussions about the changing status of vision during the sixteenth century, which has been the subject of much recent scholarly debate. In the past this interest has tended to focus on perspective and the apparent veracity it granted to visual representation. Recently though, historians of art,

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56 George Bartisch, Ophthalmodouleia. Das ist Augendienst (Dresden: Durch Matthes Stöckel, 1583).
science and technology have begun to question the extent to which the visual was privileged above other forms of knowledge. The numerous discoveries, inventions and events of the early modern period profoundly changed the way vision was perceived. Chief amongst these was of course the invention of the printing press, which made information visually accessible to wider audiences than ever before. Other inventions and discoveries also brought about a shift in terms of vision – not only in terms of what was depicted on a printed page or in a painting or sculpture, but also in terms of how viewers saw themselves. The invention of eyeglasses, thought to have been made in Italy in the late thirteenth century, has similarly been regarded as a significant change. Eyeglasses brought clarity to many affected by poor vision and effectively extended the working lifespans of many people. The development of the telescope was another important innovation since it enabled people to see beyond what was visible to the naked eye – beyond the limits imposed by their own organic bodies. The development of powerful telescopic lenses also offered a new perspective on familiar landscapes – both terrestrial and heavenly, prompting individuals to reconsider how they thought about themselves in terms of their position within society, relative to others, and more generally in terms of one’s place in the universe. However, as I will explore in this chapter these changes also posed challenges to preconceived notions about vision. What exactly one saw with one’s own eye increasingly came under scrutiny and was subject to

interpretation see Jonathan Sawday, *Engines of the Imagination: Renaissance Culture and the Rise of the Machine* (London and New York: Routledge, 2007), 216-220. Sawday writes that though perspectival techniques tend not to be thought of as an instrument, they developed in a similar way to a machine: ‘Yet, perspective just like a machine, was evolving out of a set of precisely calibrated mathematical procedures’ (217).


As Chartier describes information was also more widely disseminated to those who could not read because printed texts would have been read aloud. See: Chartier, *The Order of Books*, 8.


Edward Rosen, “The Invention of Eyeglasses,” *Journal of the History of Medical and Allied Sciences* 11 (1956): 13-46. Rosen writes that eye glasses were likely to have been invented in Pisa around 1286 though an exact date cannot be confirmed due to conflicting evidence and a lack of reliable documents from the period.

Alina Payne, “Introduction” in *Vision and Its Instruments: Art, Science, and Technology in Early Modern Europe* (Pennsylvania State University Press, 2015), 1-3. Concerning Galileo’s observations of the moon through a telescope, Alina Payne writes: ‘However, what was on display beyond the moon and beyond Galileo’s finely ground lens was sight itself...Thus, beyond a triumph for science, Galileo’s moment was also a moment of crisis, where the testimony of sight over thought was propelled to the center of scientific discourse’ (2).
debate. As Sawday puts it, the question was: ‘How could one be sure that what one saw with the help of one’s instrument was not a delusion?’\textsuperscript{64}

Recently there has been a turn away from these arguments about perspective and the authority, or the veracity of the visual, in order to problematize vision. For example, Vision and Its Instruments: Art, Science, and Technology in Early Modern Europe brings together historians and scholars from across disciplines to assess the cultural investments in the eye and the image along with new technologies of vision.\textsuperscript{65} While for many the eye retains its status as the ‘ultimate instrument of nature’ of the early modern period, it is also recognised to be unstable.\textsuperscript{66} My own analysis of Bartisch’s prints seeks to address this peculiar, shifting status of vision and to consider what impact the cut has on either securing or challenging the changing claims made for the eye.

Bartisch’s prints also provide the opportunity to address the changing status of the viewer. Although the anatomist is notably absent from the scene of violation, the prints position the viewer in the role of anatomist and impose a distance between the observer and observed. The cut also works hard to produce a notion of the eye as more than a disinterested object of medical enquiry. It is represented as an autonomous organ invested with the power of sight and hence knowledge. By cleanly separating the eye from the body the cut strives to present an image of the eye as independent and, as I will show, this ultimately results in the remaking of the eye as something new. Moreover, by bringing tactility and touch into play, the cut threatens the authority of the eye as the primary means of access to visual knowledge.

\textit{The cut undone}

Finally, the fourth chapter will address how experiments with making the cut a physical as well as representational strategy for anatomical prints continued into the seventeenth

\textsuperscript{64} Sawday, \textit{Engines of the Imagination}, 217.
century, and how these complicated the issue of change in the anatomical print. Johann Remmelin’s trio of highly complex, multi-layered prints titled *Mirrors of the microcosm* developed the anatomical fugitive sheet by pushing the representational strategies of the medium to new thresholds. The prints bring together diverse themes addressed in my thesis: animation, the spatialization of the body, conflict between vision and touch, the convergence of mythological and religious elements, and the breakdown of gender boundaries. It also offers an opportunity to further examine the challenge that animation and change presents to the image. It is for these reasons that I have chosen to devote the final chapter to Remmelin’s three prints.

Scholarly literature has tended to differentiate the *Mirrors of the microcosm* from other types of fugitive sheets. With a mixture of allegorical, biblical and, it has been suggested, alchemical emblems, Remmelin’s prints seem more complex and multifaceted than other fugitive sheets. What also distinguishes them from other prints discussed in this thesis, all of which are woodcuts, is that the images for the *Mirrors of the microcosm* are intaglio prints. This is an important distinction to the categorisation of prints, but research continues to reveal examples of prints that do not fit tidily into either the category of artistic intaglio print, or ‘popular’ relief prints. Engravings, just like woodcuts had a variety of uses. For me, the distinction is important because the act of cutting is very different between relief and intaglio prints. Rather than cutting away the negative areas of the design, the lines scored into the copper plate in engravings or etchings is filled with ink and leaves its mark indelibly on the printed page. This holds implications to the way the cut operates in these prints.

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67 The Wellcome Library holds several editions of these prints but my analyses are primarily based on the following edition: Johann Remmelin, *Catoptrum microcosmicum* (Augsburg: Typis Davidis Francki, 1619).
69 They are made using a combination of engraving and etching techniques.
The three prints employ the familiar mirror metaphor, often mobilised in early modern texts in order to stress correspondences between man and universe. Various allegorical, religious and anatomical figures are counterpoised against one another on the printed page. Accordingly, much of the scholarly literature focuses on the parallels and oppositions that the images seem to activate. Yet the way animation – produced by the cutting, pasting and layering of sheets over the design – disrupts this analogy has been overlooked. Foucault writes that resemblance remained fundamental to the production of knowledge until the end of the sixteenth century.\(^\text{71}\) A complex web of resemblances ‘organized the play of symbols, made possible knowledge of things visible and invisible, and controlled the art of representing them.’\(^\text{72}\) However, a shift away from resemblance, and towards empirical knowledge, had already started. This would ultimately result in resemblance having to ‘relinquish its relation with knowledge and disappear, in part at least, from the sphere of cognition.’\(^\text{73}\) Remmelin’s prints straddle this divide, which problematizes some of the binary oppositions (good/evil, divine/corrupting, male/female) that are often claimed to stabilise meaning in the prints.

Reproduction is an important theme for all three of Remmelin’s prints. Visually though, it is presented in unexpected ways. In the first print the mythological body takes on specific importance for the portrayal of the female anatomy as the severed head of the gorgon Medusa is employed to cover up the female genitals. But instead of rehearsing now familiar arguments about how anatomical prints define the female anatomy as monstrous in contrast to the male sex, I will examine how the reproductive capacities of the female body are usefully aligned with those of the cut in print. Instead of effacing the genitals from visibility, Medusa’s head actually acts as a powerful reminder of the productive potentials of the female anatomy in ways that link the mythological narrative to the act of cutting. As well as Medusa’s decapitated head, reproduction is also signalled by an autumn crocus that


\(^{72}\) Ibid.

\(^{73}\) Ibid.
flowers when all else around it are withering and by a phoenix that rises from a plume of volcanic smoke.

The cut is also concerned with containing and rationalising embodied experience in visual form, which is why in this section I will return to the conflict between vision and touch. Whether or not cutting favours visual knowledge over tactility is a contentious issue for all sensory organs are carefully arranged in a hierarchical order. Cuts simultaneously inscribe boundaries by visually differentiating between organs, muscles, skin and bone, but they also invite users to engage with the prints in a tactile way. Finally, I will turn to how the cut is mobilised in the attempt to define but also to question gender difference. The anatomical models in the second and third prints are presented in the guise of Adam and Eve, complete with serpent emerging from between the empty eye sockets of an overturned skull. This is a representational strategy adopted by many prints, including Guldenmundt’s fugitive sheets discussed in the first chapter. However, it remains problematic. What does it mean to anatomise the first man and woman? It is frequently argued that for Remmelin’s prints anatomising the figures of Adam and Eve has a stabilising effect—defensively securing gender boundaries in spite of the threat the cut poses to these tropes. But like Medusa’s head, the presentation of the anatomical models as Adam and Eve also has associations with reproduction and humanity’s origins. Representations of the female body in anatomical prints have attracted considerable attention, and not just for Remmelin’s prints, but for anatomical images in general. Perhaps this is due to received knowledge about the corruptible influence of Eve and thus women’s bodies rather than the fact that the representation of Eve frequently fails to conform to modern expectations. In Remmelin’s prints, as in many other fugitive sheets, the female body adopts postures that are open and confident, making them appear visually equivalent to their male counterparts. These do not tend to conform with either the ideal early modern standards of the meek virginal figure or to its antithesis—the sinful lapsed woman.
Throughout this thesis I will question assumptions about what kind of knowledge the cut produces in anatomical prints. While inevitably themes overlap and intersect, the cut nonetheless manifests itself in divergent ways for each of the types of images that I address in the four chapters. Print attempted to enable users to picture the world and their relationship to it in new ways, and the cut was at the forefront of these attempts. The fugitive print, for instance, with its interactive layers, was used as a navigational aid, in the reading of astrology, as a devotional tool and even as a fashion plate. In fact prints with paper flaps seemed to lend themselves particularly well to satirical pamphlets and other printed ephemera due to the fact that careful investigation of the print could reveal previously hidden qualities in the subject depicted. For this reason, monarchs, popes, historical and contemporary civic figures were all rendered in prints with moving parts. The interactive format of such prints perfectly thematised their subject matter – namely that surface appearances can be deceptive.

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74 Fashion plates are sometimes referred to as ‘adorned prints’ because they were embellished with actual pieces of textile rather than just being coloured in by their users. The effect was to link the image of the costume depicted in the print with the material actually used to make the costume. For further information on this subject see: Alice Dolan, “An Adorned Print: Print culture, female leisure and the dissemination of fashion in France and England, around 1660-1779,” in V&A Online Journal <http://www.vam.ac.uk/content/journals/research-journal/issue-03/an-adorned-print-print-culture,-female-leisure-and-the-dissemination-of-fashion-in-france-and-england,-c.-1660-1779> [accessed 1 September 2015].

75 For example see the interactive flap portrait of Queen Elizabeth I known as ‘Elizabethan Conceit’ that was produced shortly before her death in 1603, now held in the Folger Shakespeare Library. The sheet is folded into fifteen rectangles and cut so that when each section is unfolded it reveals four more painted figures, each with their own pair of foldable flaps portraying alternate heads. Popes were also subjected to similar satirical treatment in a number of prints with moving parts dating from the late sixteenth century. See: Suzanne Karr Schmidt, "Catalogue A: European Single-Sheet Interactive Prints 1450-1700," in Art—A User’s Guide: Interactive and Sculptural Printmaking in the Renaissance <http://www.interactive-prints.org/A.pdf> [accessed 24 August 2015].
Chapter 1

Paper Cuts: The Early Modern Fugitive Sheet

Layer by layer the body is peeled away. First the skin of the torso is stripped back revealing the heart, liver, and kidneys. These are pushed aside, bringing into visibility the reproductive organs and a tiny curled foetus with hands covering the eyes in a protective gesture. But this anatomy is not performed by an official anatomist, or even by the barber surgeon who would have been responsible for opening up the body during the highly ordered and ritualistic public anatomical lesson. Rather it is the user of the print who performs the anatomy, enabled by an innovative assemblage of printed cut-outs and paper flaps. The anatomical fugitive sheet, as it has come to be identified by scholars, enjoyed great commercial success in sixteenth and seventeenth century Europe, perhaps as the animated version of the standard anatomical print.

If fugitive sheets produce knowledge, it is through the act of cutting, marking and inscribing on the body. These cuts are both literal and imagined by the users of fugitive sheets, and can be conceived of in at least two ways. Firstly as the sheets are concerned with medical knowledge, they entail the anatomist cutting into, fragmenting and dividing the body in order to reveal its internal secrets. The scalpel pierces the skin’s boundary in order to open up the body to the viewer’s inquisitive gaze. The cut thus produces knowledge but must do this by conjoining as well as dividing the body – it brings together aspects of the body normally kept apart by making them visible on the body’s surfaces. Secondly, the notion of cutting into or incising is also activated through the technology of print itself. Visual information is formed and constructed by repeatedly cutting lines, marks and forms into the woodblock or copper plate. The practices of cutting into the body with a scalpel, and of incising the plate with a burin converge on the image and become metaphors for the production of knowledge in the anatomical print. This is extended by the viewer’s physical interaction with the cut; the users of the print repeat the cuts as they lift the moveable paper
flaps. In effect, what is brought into visibility and what remains outside of visibility are entirely
dependent on multiple concepts and negotiations of the act of cutting.

The first fugitive sheets were produced around 1538, less than half a century after
the first anatomy theatre opened in Europe – in Padua – and they were sold in the print
market until the end of the seventeenth century. In Germany, the printer/engraver Heinrich
Vogtherr the Elder, who was actively committed to Protestant issues, produced some of the
earliest documented anatomical prints with moveable parts and these were made out of
collaged paper. Around the same time Hans Guldenmundt produced a pair of anatomical
fugitive sheets, which depicted male and female figures in the guise of Adam and Eve. Both
the Vogtherr and Guldenmundt prints were repeatedly copied by anonymous printers
throughout the course of the sixteenth and seventeenth centuries. The prints were usually
produced in pairs depicting male and female anatomies, and also feature accompanying
explanatory texts printed around, or beneath the central figures. As Andrea Carlino has
pointed out, it is testimony to the success of fugitive sheets that between 1538 and 1540 at
least fifteen different editions were published in Europe. The relatively low price of the
prints ensured their dissemination but as they were printed in the form of broadsides (on
loose leaves rather than pasted or bound into books) many were pasted onto walls or used
in other ways that resulted in them being destroyed or damaged. The history of why and how
the prints were made is equally difficult to trace and their uses are a matter of speculation,
especially as very few fugitive sheets remain intact.

Fugitive sheets are not easily situated in art historical discourse. They have all too
often been dismissed as mere curiosities aimed at uneducated audiences and as such they
remain on the peripheries of the discipline, with little research dedicated to them. Where

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76 The first anatomical theatre opened in Padua, Italy, 1490. See: Michael Sappol, *Dream Anatomy*
(Bethesda, MD: National Library of Medicine, National Institutes of Health, Dept. of Health and Human
Services, 2002), 161.

77 There is evidence that Heinrich Vogtherr the Elder (1490-1556) had a brother who was a surgeon
and this may have given him greater insight into the workings of the human body or merely sparked
his interest in the subject – see Giulia Bartum, *German Renaissance Prints* (London: British Museum
Press, 1995), 55.

78 Andrea Carlino, "Knowe Thyself: Anatomical Figures in Early Modern Europe," *RES: Anthropology
there have been attempts to situate fugitive sheets in art history; these have traditionally focused on establishing a genealogy and dividing the prints into groups. Le Roy Crummer, historian of medicine and ardent collector of anatomical illustrations, was the first to devise a system of classification in 1923, dividing the prints into five groups: 1) skeleton sheets; 2) the Tabulae of Vesalius and its imitations; 3) the Adam and Eve plates; 4) the female figure; and 5) the male figure. Crummer made some amendments to this system in later publications, but the idea of grouping and categorising prints remained the dominant mode in subsequent scholarly literature. Although it can be useful to understand the iconographic precedents of individual sheets, this approach, whereby prints are grouped together according to their visual similarities, risks overlooking the many anomalies, aberrations and adaptations that occur between copies.

More recently, Andrea Carlino, who initiated the study of the relation between medicine and printing, has examined fugitive prints not only in terms of function but also audience. However, Carlino retains the classificatory approach, and by keeping to the concept of ‘popular’ print, he ultimately delimits the potential of the fugitive print. The term ‘popular’ has a long and complicated history in the study of print culture, and while it has been challenged as a category that presumes an uneducated audience and an unsophisticated usage, it retains a stronghold on certain prints. The idea that ‘popular’ print frequently held a moralizing purpose is one of the legacies of the category of the ‘popular’ and one which I seek to challenge. Scholars including Carlino have stressed the moral intention of the fugitive prints and used it to explain their success but also to dismiss or

diminish the problems raised by contradictory or anomalous aspects that co-exist within fugitive sheets.

I propose to argue that fugitive prints are not only more challenging and thought-provoking than has been suggested but also that they trouble the all too neat separation between popular print and professional medical print. It is useful to return to Roger Chartier’s important argument that the potential of print cannot be delimited by the assumption of an already established audience. Indeed it was print that called up users rather than the other way around. I propose to consider these prints in relation to the technological innovations of printing that opened up new and unexpected possibilities. The relation between the making of the image and the making of a cut is at the centre of these innovations and at the centre of my research. Notions of cutting into or inscribing have long been conceived in relation to the production of knowledge in print; the permanence of the engraved line and the exact repeatability of the impression have been considered the locus of print’s authority. However, the conjunction of printing and new forms of knowledge is too readily associated with permanence and the success of representation in securing knowledge. The cut both produced and challenged representation, especially as printing came into relation with changing notions of the body such as questions about the precise location of the soul and the emergence of mechanistic ideas of the body.

The fugitive print, the focus of my first case study, is particularly suggestive of how the cut becomes the means to the production of knowledge. The printmaker’s skilful cutting into the woodblock literally reveals a form that was previously concealed, and thus becomes

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84 Before René Descartes’s writings about the split between mind and body in the seventeenth century, Leon Battista Alberti compared the human body to a machine when he wrote: ‘the same Distention and Contraction of the Members and Nerves, which we use in pulling, thrusting or lifting, we are to imitate in our Engines.’ Translation of Alberti’s text as given in: Jonathan Sawday, *Engines of the Imagination: Renaissance Culture and the Rise of the Machine* (London and New York: Routledge, 2007), 109. Sawday also compares the display of the human body in Vesalius’s *Fabrica* – ‘dissected, enumerated, categorized, and opened to the public gaze’ – to that of mechanical devices. There is also a wealth of literature on the subject of Leonardo da Vinci’s anatomical illustrations and how they compare the human body to a machine. See for example: Paolo Galluzzi, *Renaissance Engineers from Brunelleschi to Leonardo da Vinci* (Florence: Giunti, 1996); Martin Kemp, *Leonardo* (Oxford: Oxford University Press, 2011) – especially the chapter ‘Body and Machine’ (91-130).
analogous to the exploratory cuts made into the body by the anatomist. But the cut doesn’t simply separate matter and reveal form. In anatomical illustration the cut seeks to order and contain the body by establishing a critical distance from the bloody realities of dissection where the body is unruly and chaotic, and division between outside/inside are blurred by parts seeping out or bleeding into one another. Yet these very images also use the cut to demarcate the relation between body, space and time, and in the process produce a new relationship between image and viewer. How do these images produce visibility as they activate a process of cutting and stitching, both literally and metaphorically? Unlike other prints that also mobilise the cut to make the body’s interior visible, fugitive sheets go further, making the cut tangible and inviting users to engage with and activate the image, rather than passively receiving a prescribed message.

The fugitive print has been regarded all too separately from anatomical images within medical treatises. The woodcuts in Andreas Vesalius’s 1543 On the fabric of the human body are considered to be the foundational images in the attempt to visualise the process of anatomical dissection described in the treatise itself. At different times, they have been praised for their accuracy or critiqued for being idealizing or normalizing. Yet Vesalius’s woodcuts remain at the centre of anatomical imagery, even if in terms of medical knowledge they were very quickly superseded. Moreover, they have only gained in credibility as the interests of the history of science and the history of art have become interconnected. This has had consequences for anatomical prints outside of the Vesalius paradigm. Vesalius’s prints have served to create the category of ‘popular’ print as much as the idea of ‘popular’ print has served to produce the prestige that Vesalius’s prints occupy within professional medical knowledge.

85 Andreas Vesalius, De humani corporis fabrica libri septem (Basel: Ioannis Oporini, 1543).
In fact this dichotomy is not helpful for thinking about either of these types of prints; Vesalius’s prints are no more rigidly confined to the category of medicine than fugitive sheets are to the category of the ‘popular’. Fugitive prints, unlike Vesalius’s expensive treatise, were undoubtedly accessible to a greater diversity of users, but it is the prints themselves that must suggest the possibilities and limits of their usage rather than a preconceived idea of the category of the ‘popular’. Both are equally experimental from the point of view of printing technology, testing out and exploring the body in terms of its external surfaces and its internal spaces. The woodcuts in Vesalius’s treatise attempt to bring the body into visibility but also struggle with maintaining a separation of inside and outside, or a conjoining of dead and alive. In fugitive prints, it is the edges of the skin’s boundary that offer an entry point into new forms of knowledge; but this boundary does not simply open a view into neutral bodily matter. The skin is also a threshold into an interior space long imagined and controlled through religious belief, shared medical learning, and changing politics.

The animated aspect of fugitive prints has always made them too unruly to suit later conceptualizations of art or science, yet animation was a central concern in attempts to convey anatomical knowledge from the study of inert corpses. It is well known that Vesalius’s muscle men figures for the Fabrica appear to walk across a conjoined landscape background that continues across multiple prints. Vesalius also pursued the potential of fugitive sheets for representing movement, animation and even change in relation to the

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body; the *Epitome*, which was published shortly after the *Fabrica*, included illustrations that were clearly intended to be cut out and assembled just like fugitive sheets.\(^8^9\) For Vesalius the fugitive print was not just about their considerable commercial success, but the way they marshalled print form itself, producing the possibility of movement and transformation through the physicality of the medium and not simply through the image.

The potential of the print, the technological implications as well as the imagery shaped by the technology, is activated by those who used it. This is true of all printed matter but for fugitive sheets the question of use is brought to the forefront. Chartier was the first to suggest that the term ‘reader’ is far too passive to describe those who interpret and manipulate printed material and similarly the term ‘viewer’ is hardly sufficient to describe the role of those who pieced together, looked, probed, turned and examined fugitive sheets. It cannot fully do justice to the complex and integral role that was enacted, and continues to be enacted, by people engaging with the prints. Instead I will refer to those who engaged with the prints as their ‘users’ and remain conscious of the many ways in which their role exceeds the traditional concept of ‘viewer’ or ‘reader’.

In breaking from previous approaches I aim to resist classification whilst revealing the importance of fugitive sheets not only for the history of print, but also in terms of anatomical, cultural and religious practices. In fact, freed from the constraints of trying to align the prints with one particular agenda, whether it is moral, popular or medical, it becomes possible to bring out visual issues which have long lain dormant – hidden in plain sight one might say – starting with the unusual birthing pose that both male and female figures adopt in fugitive sheets. This might lead to considerations of how the images are also about disciplining the body – exploiting it as a site of control – since it reveals how they are not only concerned with medical knowledge but also with imposing social norms.

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The arguments about the body's changing visibility and its transformation into knowledge are by now well known. Michel Foucault's *Discipline and Punish* (1977), has perhaps made the most influential contribution to this field, generating theoretical debates on how the notion of the body changed, and still has much to offer to discussions of the relation between body and image. According to Foucault, the body's location in early modern European imagination was in the process of change. Taking the criminal body as an example, he emphasised the body's move from public visibility and the spectacle of the scaffold to its invisibility within the penitentiary. The anatomical body is of course closely linked to forms of punishment. Vesalius's *Fabrica*, for instance alludes to this when it depicts an anatomised cadaver suspended by a noose from the gallows in order to display the jaw bone. In some European cities, the bodies of executed criminals were transported from the gallows directly to the anatomy theatre for dissection; although it is questionable whether the subjection of the criminal body to yet further fragmentation under the anatomist's knife was perceived as an extension of punishment. Foucault's argument undermines this idea in so far as he argues that physical punishment became the most

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92 Vesalius, *Fabrica*, 190.

hidden part of the process of control within the penitentiary. Yet he argues that along with the disappearance of the spectacle of the scaffold, the body took on new possibilities, reconceived as a site for the production of knowledge rather than the visible infliction of torture – the focus was no longer on marking the body with the crime, but on reforming the person through regulation and supervision. This was to be a new form of subjection, and one that went hand in hand with the body as productive of knowledge. The anatomical body represents the culmination of this new drive to survey, examine and understand the body and if the criminal body effectively disappeared from view then the anatomical body has to be seen as having replaced it as a site of subjection and productivity.

Foucault states: 'one no longer touched the body, or at least as little as possible, and then only to reach something other than the body itself...The body now serves as an instrument or intermediary.' The eschewing of touch that Foucault raises as an issue here is particularly pertinent to anatomical illustration where there was an existing conflict between touch and the cut. This conflict is very present in Vesalius’s Fabrica where the text argues vigorously for the anatomist’s skilled hand and experience through touch, yet in the illustrations the anatomist’s touch is strangely effaced. Instead, it is the body’s interior that is made visible, but only through a series of clean, precise cuts that seem to leave the body (or bodily part) fully functional, thus eradicating the need or desire to touch (to pull open the incision, push viscera aside, or feel one’s way through the body). It might be argued that while the cut makes things visible but aims to control the view, touch is a more messy and unpredictable mode of acquiring knowledge about the body, requiring experiential practice and with the potential to unsettle order and allowing users to interpret different, perhaps proscribed meanings from the body. In fugitive sheets this conflict is further complicated by

94 Foucault, Discipline and Punish, 9.
95 Ibid., 11.
the fact that the cut is physical as well as conceptual. Conceptually the cut seeks to establish
critical distance from the body, by ordering, containing and rationalizing the experience of
the body. However, the cut is also tactile inviting users to handle, fold or bend the body into
new forms.

In this chapter, I will examine how the cut opens up new ways to think about these
prints, which will be pursued through four strands. First I will examine how the image offers
knowledge through new forms of visibility produced by the idea of cutting. I hope to
challenge previous assumptions about continuity between pre-print and post-print depictions
of the body in anatomical illustration, arguing instead that the invention of new printing
technologies should be regarded as a moment of rupture. The most important change is the
spatialization of the body’s interior, which is not the same as the representation of the interior
of the body. I will argue for how the technology of print and the user’s own participation forge
an internal space which one can enter, traverse and order, and how in doing so the user also
animates the image.

But the cut is used in fugitive prints to produce not only an internal versus external
space but also a new notion of the surface of the body. And it is here, on the surface, that
one encounters significant differences from the strategies of the Vesalius woodcuts. In the
second part of my argument I will examine how surface ornamentation (decorative or
didactic accessory figures printed around the peripheries of the page) helps to construct
something as complex as gender, securing it as both a biological and social category. The
body’s own internal organs, transposed from their original location inside the body and
printed around the peripheries of the page are part of an established strategy of anatomical
print to isolate and represent a part as a whole. But here they are accessories to a new
image of the interior as a whole, ensuring that real and imagined differences between the
sexes are brought into visibility. Meanwhile the similarities between the male and female
bodies in the later stages of dissection remain decidedly invisible.

The use of the cut in fugitive prints goes even further, opening up the body to get to
the soul, and in ways that recall Foucault’s argument about using the body to get to the
person. The prints conceive of the body in theological, spiritual, and political terms, which
cannot be separated from the bodily, as the scholarly literature tends to do. This, the third
strand of my argument, addresses the anatomical fugitive sheets produced in Wittenberg, a
charged meeting point in the histories of printing and religious unrest during the Reformation.
The prints produced in Wittenberg have been the subject of scholarly focus but unpacking
how they have been located within art history will demonstrate how audiences were more
diverse and meanings far more malleable than has previously been proposed. In fact, the
prints retain their ambiguity, and certain features, such as the use of Vesalius’s portrait for
the male anatomical figure, cannot simply be explained by their ‘popular’ nature or the idea
that they are all about imparting morality. Bodily knowledge in the prints does not comply
with the Cartesian split between body and soul.\footnote{René Descartes is well known for his writings on the division between body and soul. See: René
Descartes, \textit{The Philosophical Writings of Descartes}, trans., John Cottingham, Robert Stoothoff and
\textit{Descartes declared}; ‘I can infer correctly that my essence consists solely in the fact that I am a
thinking thing. It is true that I may have (or, to anticipate, that I certainly have) a body that is very
closely joined to me. But nevertheless, on the one hand I have a clear and distinct idea of myself, in
so far as I am simply a thinking, non-extended thing; and on the other hand I have a distinct idea of
body, in so far as this is simply an extended, non-thinking thing. And accordingly, it is certain that I am
really distinct from my body, and can exist without it’ (54). For further information on Cartesian
dualism see: Marleen Rozemond, "Descartes's Dualism," in \textit{A Companion to Descartes}, eds., Janet
Broughton and John Carriero (Oxford: Blackwell Publishing Ltd, 2008), 372-89. On the influence of
Cartesianism in contemporary thought see: Grosz, \textit{Volatile Bodies}, 8-10. Grosz writes that at least
three lines of investigation that are 'heirs of Cartesianism' dominate contemporary thought (8). In the
first line of investigation the body is an object of study for the natural sciences, in the second, the
body is an instrument 'or a machine at the disposal of consciousness' (9). The third line of
investigation treats the body as a medium for the transmission of information between the interior self
and the exterior environment.}
simultaneously destructive. While printing is often conceived as a means of stabilising and ordering knowledge, the conflict between the cut and the touch threatens to undermine this established function of printing. In late seventeenth century fugitive prints which attempt to secure meaning through overloading the possibilities of the image, the delicate balance that holds the prints together threatens to collapse. As Michel de Certeau would argue, how can they be turned into knowledge, in my case art historical knowledge, without distorting their possibilities and containing their unruly ways?


describes the discovery of space as: ‘one of the key conceptual shifts which took place in Europe during the early-modern period.’ Likening anatomists’ interrogations of the body’s interior spatial recesses with this discovery: ‘the study of anatomy was the study of the organization of space.’ The kind of space is as much about the physical space the body occupies in the world as it is about the spatial relationship between the body’s interior and exterior. How to picture this interconnected sense of the body in space had long posed a problem. Fugitive sheets achieved this through the combination of cuts made into the woodblock which was subsequently inked and pressed to create an image of the body on paper. The resulting image was then itself cut into pieces and a series of precisely cut paper flaps were layered over the area of the design illustrating the torso. Cutting was thus central not only to how the body was made visible but also to how it was animated.

Starting with the outermost view of Vogtherr’s fugitive sheets, which were reissued by the Strasbourg publisher Jacob Frölich in 1544, the figures are seated on a stone plinth (Figure 1.1 and Figure 1.2). Their legs are turned outwards; the left leg is raised slightly while the right foot is planted firmly on the floor. A sense of depth is created by the use of

98 Sawday, The Body Emblazoned, 86.
99 Ibid.
crosshatching, variation in the thickness of line and the foreshortening of the feet. The space occupied by the figures is otherwise rather ambiguous; the stone plinth recedes into nothingness and it is left up to the print’s user to flesh out the details of the scene in the imagination. Superimposed on top of this space are up to nine accessory figures illustrating the internal organs and alongside these are textual descriptions printed in columns. The fixed pose and the repetition of the internal organs ensures that certain parts of the body, and therefore certain interpretations of it, are always visible no matter what stage of dissection the figure itself has reached.

But there are also a number of clues to the animated potential of the image inscribed upon this first outer layer. One clue is the distinctive open-legged pose of the figures, largely overlooked by scholars. This pose is found extensively in anatomical imagery, including fourteenth century Persian anatomical manuscripts and Johannes de Ketham’s 1494 medical treatise (Figure 1.3). It is also intriguing that it resembles a birthing position. Before female birthing attendants were replaced by the midwife or predominantly male medical professionals and control shifted from the woman to the person delivering the child, it was far more common for women to give birth in a seated or squatting position rather than lying down on a bed. Sixteenth century books intended to instruct midwives on childbirth include illustrations of women adopting an identical open-legged squatting pose during labour (Figure 1.4). A female figure showing the reproductive organs from Johannes Dryander’s 1536 Anatomy of the human head leaves little question about the posture (Figure 1.5). Moreover, the distinctive curve of the plinth upon which the woman sits is recognisable as an ornate form of birthing stool. The birthing pose is deliberately mobilised in fugitive sheets, not simply out of tradition, but because it evokes a moment of transition from one state to another. Birth is the moment when a child ceases to be an interdependent part of its


mother’s body and is remade as an autonomous whole. In fugitive sheets the pose signals that users are invited to move between viewing the body as an autonomous whole and as an assemblage of interdependent parts. The cut in the paper allows the user to move between these two views of the body and to animate the image in the process. Therefore, it is in effect the birth of knowledge, rather than a child, that the pose represents in fugitive sheets.

The hands too hint at the animated potential of the image (Figure 1.1). They are carefully arranged to convey acquiescence and agency over the dissection – the right hand is tucked away out of sight, but the left hand is poised on the thigh. Index finger and thumb delicately handle the fabric draped across the lap obscuring the genital region, almost as if they are poised to pull back the fabric and reveal the bodily secrets hidden beneath. And if the print's user looks a little closer still they might notice that there are creases in the paper around the neck and that the edges of the torso curl up slightly; tantalizingly inviting users to peel back the outer layer of skin and reveal what lies hidden beneath.

Lifting each of the seven layers of the fugitive sheet reveals the internal organs as they are brought into visibility through the cut: pulmo (lungs), cor (heart), spleen, diafracmma (diaphragm), stomaciaus (stomach), vesica (bladder), osmatric (uterus) and intestina (intestines) (Figure 1.6). Each sheet is examined and turned over until the print's user arrives at the spinal column printed on the centre of the final sheet. Often the anatomist’s final act in dissecting the body was to clean and reassemble the bones, wiring them together to make an articulate skeleton which could then be used for teaching purposes, where it would be: ‘continually re-divided and reunited in infinite investigations.’\textsuperscript{102} The articulated skeleton was particularly important to Vesalius who even had his own method of cleaning the bones.\textsuperscript{103} Like the articulated skeleton, fugitive sheets also promise ‘infinite investigations’ since by carefully replacing each layer the user can return the image to its initial, complete state. Thus the image of the anatomised body is caught in a continual cycle of being torn apart,

\textsuperscript{102} Michael Lyser, \textit{The Art of Dissecting the Human Body} (London: Joseph Davidson, 1740), 248. \textsuperscript{103} Carlino, “Paper Bodies,” 47.
revealing knowledge, and then having this knowledge collapse back in on itself through the lifting, replacing and infinite rearranging of paper flaps.

Text plays an integral role in defining and controlling the production of meaning throughout this cycle. The names of the parts are printed onto each flap in Vogtherr's design, but where this was not possible or where more extensive explanatory texts were required, indexical marks were used to secure meaning by visually anchoring the image to its accompanying textual description. The use of indexical marks linking text and image is a representational strategy Robert Herrlinger traces back to medieval images where a figure or disembodied hand points to the body using a long stick, possibly a cautery used for burning off diseased or infected tissue. Herrlinger describes the iconographic development of the indication line as a seamless process unfolding between the first and second editions of Ketham's *Fascilicus medicanae*, as the freehand line is replaced by a ruled straight line in the 1493 edition. Indeed Ketham's *Fasciculus* is often mobilised as an important piece of evidence for the continuity between manuscript and printed forms of anatomical illustration: ‘The passage from manuscript to print did not, as we have seen with the gravida figure of the Fasciculus medicinae, bring with it any major or radical change to the techniques of representation of the human anatomy.’

The use of indication lines effectively disappeared from fugitive sheets and was replaced by numerals or letters that, superficially at least, perform a similar function. Numbers or letters printed onto or near the individual body parts correspond to accompanying texts, located around the edges of the broadsheet that name the individual organs and provide a brief explanation of their functions inside the body. However, the relationship between indexical mark and text is more abstract and its function extends beyond that of the indication line. In Ketham’s anatomical illustration and others like it the line operates as a purely didactic tool, demonstrating textual information through the image. In the fugitive sheet however, where the image is never static and meaning is therefore

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104 Herrlinger, *History of Medical Illustration*, 54-59. Herrlinger refers to the indexical line as an ‘indication line’.

105 Carlino, “Paper Bodies,” 82.
potentially unstable, the indexical mark takes on a much more significant function. It aims to bring stability to the image and restrict what is brought into or concealed from view.

Indexical marks linking image and text were not unique to anatomical illustration. They also appear, for example, in Theodor de Bry’s engravings of the Americas, and here they work, according to Michael Gaudio, to ‘translate the otherness of the New World body... into the familiarity of a European sign system (alphabetical writing).’\(^{106}\) Like the ‘New World’ body, the anatomical body also represents strange and unchartered territory. But another aspect of Gaudio’s argument has implications for fugitive sheets. He makes a convincing case for looking at – not through – the cuts made by engravers ‘for dwelling at length upon their surface hieroglyphics’ which has the effect of ‘bringing us back to the workshop where the engraver, at work with his tools, crafts alterity out of lines cut with a burin into a copper plate.’\(^{107}\) By interrupting the illusionistic representation of space the letters cut into the surface of the fugitive sheet inevitably reveal to the user a process which should in fact be hidden – the printmaker’s act of cutting into and inscribing meaning on the woodblock or copper plate. The cut then is both the means through which knowledge is brought into visibility and how the image strives to control it, but also contradictorily threatens to destabilise this process by leading the user back to the ‘fallible hand’ of the printer.

The 1599 fugitive sheet *Interiorum corporis humani partium viva delineation*, published in London is complemented by two separate leaves of text describing ‘The anatomie of the inwarde partes of man’ and ‘...of Woman’ (Figure 1.8).\(^{108}\) Unusually, the illustration depicts the male and female figures sitting alongside one another on the same sheet. The headings declare that the information contained within is of interest to almost everyone and the use of the vernacular affirms this:

\(^{107}\) Gaudio, *Engraving the Savage*, xii-xiv.
The Anatomie of the inwarde Partes \of man, lyuely sette foorth and: diligently declaring the principal vaynes wvith the vse \of letting bludde, very necessarie for Phisytians and Surgians and all \other that desire to knowe them selues.\textsuperscript{109}

The text accompanying the female anatomy has a similar heading implying that the treatment of the two bodies is somehow uniform. Yet, there are discrepancies between the treatment of the male and female bodies in these texts. The first few lines taken from the description of the female body are revealing:

\begin{quote}
For so muche as the declaration of most of \the principal partes is suffi- \ciently set foorth in the Anathomie of \man, therefore wyll I remyt you the- \ther:Ther to beholde the operation of \them, and here we wyll declare the si- \tuation and manner of such partes as are in woman \differente from the partes in man.\textsuperscript{110}
\end{quote}

The text evidently imposes a hierarchy in which the male body is the ‘normative’ or ideal model from which the female body deviates. This reflects medical as well as social attitudes towards the body, since female cadavers were always used in anatomical displays as a counter to the male body. The female body was used to describe difference and most importantly to examine the generative functions of the female organs. It was in effect defined by its reproductive capabilities and the ways in which it deviated from the ‘normative’ male model. Although the text clearly seeks to privilege the male body, its success in this matter is entirely dependent on the user activating the abstract relation between image and text, a risky strategy especially when it cannot be assumed that the fugitive sheet’s users would all

\textsuperscript{109} Text from the plate ‘Anatomie of the inwarde partes of man’ accompanying the fugitive sheet: \textit{Interiorum corporis humani partium viva delineatio} (London: [n.pub.], c.1559), which is held in the Wellcome Library.
\textsuperscript{110} Text from the plate ‘Anatomie of the inwarde partes of woman’ – Ibid.
have been literate. The link between image and text was further weakened in these prints because the descriptions appeared on a sheet separate from the one with the image, thus presenting a very real danger that the information could be overlooked, misplaced, destroyed or even used in conjunction with another image altogether.

Nonetheless over half the surface area of the sheet corresponding to the female figure is devoted solely to describing the reproductive organs and asserting sexual difference. Letters S-X label these secret parts of the woman’s body while an additional section of text numbered 1-9, which has no counterpart in the text describing the male figure, offers further information on the reproductive organs and pregnancy.111 Its function seems to have much in common with the seventeenth century small anatomical models, usually carved from wood or ivory (Figure 1.9). A section of the torso can be removed from the models, exposing the internal organs as well as a foetus. But in addition to functioning as educational aids, possibly intended to teach women or married couples about pregnancy, the models are also highly decorative objects, particularly those carved from ivory. Many of them feature rich fabrics such as velvet and ornately carved decoration around the base of the ‘couch’ the figure reclines on. This brings into question the function such objects would have fulfilled and suggests that like fugitive sheets the models may have been intended to be both didactic and decorative. But while the body lies prostrate and inert in the models, in fugitive sheets the body is very much alive (or at least animate), and though it may be complicit in its anatomisation it is certainly not neutral matter. In fact the body reveals itself as a contested space where even the internal organs are implicated in the struggle for control.

Organs as accessories of gender
A conflict has emerged between the attempt to spatialize and the attempt to clarify through a focus on the surface, not only of the body but also of the print. I return to Vogtherr’s print,
reissued by Frölich, and compare it to the muscle men (or écorché as they are sometimes known) from Vesalius’s Fabrica. How does surface ornamentation, the few constant elements of the composition that are not obscured as the user lifts the flaps of the torso, play a strategic role in stabilising the image and demarcating the limits of knowledge acquired from the body?

The representation of the ‘whole’ body, even as it is systematically reduced to parts, posed a challenge to anatomical illustration. The fragmented body might fail to produce clear and complete knowledge and thus strategies were necessary to mitigate this possibility. Yet it is usually agreed that the muscle men from the Fabrica, while they are stripped of skin, nonetheless retain a sense of ‘wholeness’. There is no threat of spillage or undoing of meaning, instead this is a body that is perfectly contained: ‘a body that is both all surface and all inside.’112 Glenn Harcourt has argued that the images achieve this effect through their active presentation of the figure, even though in reality such movement would be structurally impossible.113 The idealised forms of the male figures also have an important role in the attempt to stabilise the image and establish a separation between inside and outside. Like the visceral figures, in which the human anatomy is contained within fragments of antique sculpture and the divide between inside and out is clearly marked by the smooth, clean cut of stone, the muscle men are also adapted from idealised antique forms. For Harcourt the device is necessary in order to mitigate the anxiety felt about cutting into the human body: ‘…the fact that they do not read as actual cadavers, sets up a foil within the structure of the illustrations that mitigates the deadening, objectifying force of the accompanying narrative.’114 And also aims to elevate anatomical practices above their moral ambiguity by establishing a connection between Vesalius and his ancient predecessors.115

The visual strategies described by Harcourt are embedded within representation, but in the fugitive sheet these are situated on the surface of the image. Each of the internal

112 Harvey, "Sense of all Senses", 85-6.
114 Ibid., 34-5.
115 Ibid., 52.
organs is reproduced around the peripheries of the page, and at first glance their purpose seems to be the construction of a view of the ‘whole’ body, wherein all of its parts are visible at all times, regardless of the moveable paper flaps pasted over the torso. But because the accessory organs are always visible, like the texts that accompanied them, they can tell us a great deal about what kind of knowledge the print aims to instil. Indeed, Valerie Traub, who has written extensively on gender and embodiment in early modern literature, argues that the images which constitute surface ornamentation are key to the ‘process of materialization.’

This is a strategy that effectively produces the boundary between male/female, life/death in anatomical illustration. Drawing on Thomas Laqueur’s work and citing the homologies between male and female figures in anatomical images, Traub writes:

> For instead of expressing an essentialized vision of two pre-existing and radically incommensurate genders, early modern anatomical illustrations demonstrate the extent to which gender is reciprocally *manufactured* in order to defend against the vulnerability to mortality that all bodies share.¹¹⁷

There are certainly many striking similarities between the male and female figures from the fugitive prints made after Vogtherr (compare Figure 1.1 and Figure 1.2). The main bodies of the figures, including the shape of the shoulders, arms, legs, feet and the plinths they are seated on are all clearly printed from the same woodblock. This is because the woodblock was initially cut to illustrate the female figure, which is dated as early as 1538. The sheet illustrating the male anatomy appeared a year later and the two were eventually issued together as part of a pamphlet Vogtherr authored, titled ‘Interpretation and description of the human body.’¹¹⁸ A few adjustments were made in order to print the male figure; firstly the

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¹¹⁷ Ibid., 45.

¹¹⁸ The text in German reads: ‘Auszlegung unnd beschreibung der Anathomi.’ Translation taken from: Marisa Mandabach, ”Heinrich Vogtherr the Elder,” in *Prints and the Pursuit of Knowledge in*
section of the block used for the head would have been left un-inked when the image was pressed and a second woodblock illustrating the man’s head would have been inked and pressed in its place. In some prints it is even possible to discern the outline of the woman’s head made by the impression of the un-inked block, which is visible as a faint halo around the head of the male figure. The man’s bushy beard no doubt proved to be an effective device for concealing the join where the two woodblocks meet at the neck. This technique of printing both figures from the same block may have arisen out of the necessity to keep printing costs low, or a desire to present the archetypal human figure, which would explain why it was adopted in many anatomical fugitive sheets thereafter. This process of re-using or adapting existing images occurred in numerous other examples of printed matter, as Stephen Orgel has demonstrated the two female figures of the Prioress and the Wife of Bath from William Thynne’s 1532 edition of *The Canterbury Tales* are printed from exactly the same woodcut making them interchangeable. Re-use of woodcuts was also particularly common for title pages where reusing an existing plate saved money.

However the reuse of the woodblocks was not without its problems. The similarities between the two figures in the fugitive prints belie the socially constructed gender differences. Differences that are subjected to yet further deconstruction as the user cuts into, opens up, folds back, reveals or conceals visual information on the printed page. These actions reveal how gender difference is, in Traub’s words: ‘precariously attained and

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*Early Modern Europe*, ed., Susan Dackerman (New Haven and London: Yale University Press, 2011), 68. The prints are respectively titled: ‘Anathomia oder abconterfettung eines Webs leib’ and ‘eines Mans leib’ (Anatomy, or, a faithful reproduction of the body of a female and... of a male). The German word ‘abcounterfettung’ meaning made against an original seems to be used in a similar way to the Latin term “contrafactum” which Peter Parshall analyses. See Peter Parshall, "Imago contrafacta: Images and Facts in the Northern Renaissance," *Art History* 16 (1993): 554-79.

119 Mandabach, “Heinrich Vogtherr the Elder,” 68.


121 See: William Ivins, *Prints and Visual Communication* (Cambridge MA and London: MIT Press, 1953), 28. Ivins describes a series of prints illustrating the saints which are all printed from the same block except for the heads and the attributes which are printed from smaller blocks dropped into slots left for the purpose in the bigger blocks: “Thus different saints would have identical bodies, clothes, backgrounds, and accessories, all printed from one identical block.”
defensively secured.\textsuperscript{122} The accessory organs that do illustrate this difference therefore play a crucial role in defining the two genders. The reproductive organs and the foetus, which are inscribed on the surface of representation in the female fugitive sheet, ensure that woman’s difference from man is always visible, always defining the female body. Although the foetus occupies a seemingly inconspicuous position on the page unlike the other inert parts that surround it the foetus is animated; sitting cross legged with eyes and ears tightly covered. Perhaps it is in response to the see no evil proverb that the unborn child averts their gaze away from the evils of the world into which it has all too prematurely been exposed. The significance of the foetus for defining the female body was clearly recognised by the anonymous printer of the fugitive sheets produced in Wittenberg in 1573, who made the foetus larger and gave it an even more prominent position within the composition. However, this is an issue to which I will return. Fugitive sheets dating from the seventeenth century go even further in marking the woman’s body with visual references to original sin.\textsuperscript{123} Accessory figures play a pivotal role in defending the notion of gender difference against the deconstructive potentials of the cut. For if gender is socially constructed then the deconstruction of this trope is necessarily implied along with the deconstruction of the human body under the anatomist’s knife. Fugitive sheets construct gender as both a biological and social difference, by heightening the visibility of these differences and securing them on the surface of the page even as the anatomisation of the body reaches a certain point and biological difference should no longer be visible.

\textit{Cutting to reveal the soul in each bodily part}

The cut thus can produce a body both spatialized and flattened out, both animated and stilled. And it also moves to socialise the body and establish order through gender differences. Moreover, the opening up of the body to learn its secrets ultimately meant gaining access to the soul, a notion which is frequently mobilised in anatomical literature, for

\textsuperscript{122} Traub, “Gendering Mortality,” 50.
\textsuperscript{123} Ibid., 83.
instance in Vesalius’s dissection of the heart, in which he refuses to conjecture on the precise location of the soul. Interestingly enough, some fugitive prints have become intricately connected to the religious conflicts of the later sixteenth century. For instance, the triptych of fugitive sheets printed in Wittenberg in 1573 has been discussed in relation to the active Protestant politics of the region (Figure 1.10, Figure 1.11 and Figure 1.12). Wittenberg and its university played an active role in the circulation of Protestant ideas, transforming practices of devotion and changing the way Protestant citizens conceived of the relationship between the spiritual and the material, part and whole.

It is significant therefore that the triptych has been associated with Phillip Melanchthon’s *de Anima*, the textbook used by students of Natural Philosophy at the University of Wittenberg. Imprinted across the bottom of the sheet depicting the female anatomy are the date MD LXXIII and a brief text aligning the prints with the *de Anima*, first published at Wittenberg in 1540 (Figure 1.11). Melanchthon (1497-1560), Lutheran theologian and lecturer, played an important role in transforming the study of Natural Philosophy at the University of Wittenberg, as Sachiko Kusukawa has demonstrated, and the *de Anima* brought together his views on the importance of Natural Philosophy along with its relevance to Lutheran theology. The study of human anatomy, which the sheets might have complemented, was included as part of a chapter on the soul because for Melanchthon

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124 Vesalius wrote: ‘I shall wholly abstain from considerations of the divisions of the soul and their locations, since today, and especially among our people, you will find a great many censors of our very holy and true religion.’ Translation of Vesalius as given in: O’Malley, *Andreas Vesalius of Brussels*, 178. Furthermore, Vesalius was also unable to locate the rete mirabile in the brain. This was believed by Galen to be responsible for imbuing bodies with ‘animal spirit’ and accepted in Christian belief as the physical location where body and soul intermingled. See Richard Sugg, *The Smoke of the Soul: Medicine, Physiology and Religion in Early Modern England* (Basingstoke: Palgrave Macmillan, 2013), 73-76.

125 The inscription: ‘Edita Vuitebergoe in gratiam studiosce iuuentutis, discentis elementa doctrinae Anatomice in libello de Anima. M. D. LXXIII’ appears on the female sheet from the triptych printed in Wittenberg, 1573 (Wellcome Library, London). Melanchthon’s *de Anima* was first published as the *Commentarius de Anima* in 1540 and a substantially revised edition titled *Liber de Anima recognitus* was published in 1552. For a detailed account of the publication and impact of *de Anima* at Wittenberg see: Sachiko Kusukawa, *The Transformation of Natural Philosophy: The Case of Philip Melanchthon* (Cambridge: Cambridge University Press, 1995).

126 Ibid.
understanding human anatomy was integral to understanding their inseparable relationship and to accurately describe the Christian man – body and soul.\textsuperscript{127}

An outcome of this connection with Natural Philosophy has been an emphasis on the call to self-knowledge, although in relation to imposing a moral premise for the prints. In this way they have been distinguished from the images in Vesalius’s \textit{Fabrica} which have been regarded in relation to the formation of knowledge. Writing in 1923, Crummer dismissed previous notions about specialised audiences for fugitive sheets and suggested that they were actually intended for a far wider ‘popular’ audience than had previously been imagined.\textsuperscript{128} The prints secured their wide readership, according to Crummer, by employing the moral message to know God through knowledge of the self. Drawing on Jungian psychology, Crummer defined the Renaissance as a period of adolescence, one of the great queries of which is: ‘Where do I come from?’\textsuperscript{129} In Crummer’s view fugitive sheets try to answer this question by revealing God’s design in the perfect organisation of the body’s interior. Carlino also stresses the importance of a moral stance in relation to the phrase \textit{Nosce te ipsum} (know thyself), which he associates with attracting potential buyers:

\textit{…the moral dimension of anatomy and its associations with the \textit{Nosce te ipsum} motto – intended as a recognition of divine power and as a \textit{memento mori} – actually pushed anatomical knowledge out of the narrow confines of practical use, expanding the potential public of anatomical sheets to the whole God-fearing population.}\textsuperscript{130}

\textsuperscript{127} Ibid., 75-123.
\textsuperscript{128} See: Crummer, “Early Anatomical Fugitive Sheets,” 202. Crummer argues that neither Choulant, who wrote that fugitive sheets would have been displayed in barber shops, bath houses and apothecary shops, nor J.G. De Lint, who postulated that the sheets would have been used by students as a cheaper substitute for books, account for the popularity and wide distribution of the sheets. See also: Choulant, \textit{History and Bibliography}; J.G. De Lint, “Fugitive Anatomical Sheets,” \textit{Janus}, 28 (1924): 78-91.
\textsuperscript{129} Ibid.
\textsuperscript{130} Carlino, \textit{Books of the Body}, 112.
Carlino’s assertion of the ‘narrow confines’ of the fugitive print is debatable. Located within Natural Philosophy, it was already within a mixture of disciplines that only later would become distinctive and separate. Furthermore, the *Nosce te ipsum* motto occurs in a wide range of prints, many associated with new forms of knowledge, and as Rose Marie San Juan argues it is as much about invoking *self-awareness* by encouraging users to question the world for themselves as about accepting prescribed moral codes.¹³¹

The call to self-awareness is implicitly tied up in embodied experience and the new emphasis on touch, which Vesalius stresses throughout the *Fabrica*, deploring those who: ‘abstain from the use of the hands as from a plague.’¹³² In Vesalius’s portrait in the *Fabrica*, he is depicted dissecting the upright body of a corpse with his hands. With his left hand Vesalius firmly grips the anatomised arm, while with the thumb and index finger of his right hand he separates muscles from sinew (Figure 1.18).¹³³ Such close physical proximity between the bodies of the corpse and the anatomist was not without its problems, however, and with his fingers ‘entwined in entrails’ it starts to become unclear exactly whose body is on display here.¹³⁴ As Luke Wilson writes: “the ‘body’ the anatomist shows is both his own and that of the cadaver.”¹³⁵

Intriguingly the male figure from the Wittenberg triptych bears an uncanny resemblance to the portrait of Vesalius, with his distinctive beard and head slightly turned, almost as if he has just been distracted from the work that occupies him and to which he will momentarily return his attentions (compare Figure 1.10 and Figure 1.18).¹³⁶ Like the self-

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¹³⁴ ibid., 293.
¹³⁶ The resemblance of the male figure to the portrait of Vesalius from the 1543 edition of *De humani corporis fabrica libri septem* was first noted in: Crummer, "Early Anatomical Fugitive Sheets," 199-200. Crummer also noted that the hairline changed slightly between editions, perhaps as subsequent printers attempted to perfect the likeness. See also: Wells, "A Remarkable Pair of Anatomical
demonstrating figures from Vesalius’s Fabrica, or Juan Valverde’s 1556 Anatomia del corpo humano, which lift up folds of skin and inquisitively peer beneath the fleshy veil, the image of the anatomist and the anatomised body collapse in on one another (Figure 1.13). What then does it mean for the user of the fugitive sheet to anatomise the anatomist? One obvious implication is that it aligns new anatomical practices with the study of Natural Philosophy at Wittenberg. Melanchthon is known to have been interested in the work of Vesalius as his letter to John Stigelius dated 29th June 1552, demonstrates:

The work of Vesalius was not yet published when I was collecting those elements from Galen and Capri...Therefore even with fair diligence I picked out the principal parts, yet later when I saw it, correction became necessary. And if I may live, I shall renew the whole book.\(^{137}\)

The Wittenberg triptych was produced almost two decades after Melanchthon expressed his admiration for Vesalius thus the inclusion of the portrait is intriguing. It is plausible that the anonymous printmaker of the Wittenberg sheets was asked to address Melanchthon’s interest in Vesalius’s work. However the image retains its ambiguities and the portrait could just as easily be interpreted as contemptuous. In the guise of Vesalius the figure could even be seen to paradoxically mock the invitation to self-knowledge. Since anatomical knowledge of the body’s interior is contingent upon its death, it is impossible, even for Vesalius, to know himself in anatomical terms. The body’s interior is a ‘Medusa’s head’ as Richard Selzer puts it: ‘one glimpse of which will render blind the presumptuous eye’.\(^{138}\)

The skeleton from the first sheet of the triptych is another suggestive addition and is also adapted from Vesalius’s treatise. The Wittenberg skeleton is almost identical to the woodcut of a skeleton leaning on a spade in the Fabrica except that in one hand it displays

\(^{137}\) Translations of Melanchthon’s letter as given in Kusukawa, The Transformation of Natural Philosophy, 114-5.

\(^{138}\) Richard Selzer as quoted in Sawday, The Body Emblazoned, 16.
an upturned skull and littered about its feet are fragments of bone prepared for display (compare Figure 1.12 and Figure 1.14). The exterior landscape setting of the original illustration is also absent from the Wittenberg sheet and instead seven new accessory figures have been added. Although the spade initially seems to imply that the skeleton has just dug its own grave and could therefore be seen as a moralizing figure, the broken fragments of bone littered about its feet seem to be an indication of the violence it has wrought on the skull in order to attain knowledge from it – hence associating it more closely with anatomical endeavours.

Indeed the stripped down, cleaned and reassembled skeleton used in the teaching of anatomy is a Vesalian reference, and the skeletons can be interpreted, according to San Juan, as strategies for re-orientating the relationship between death and life in the production of anatomical knowledge. This reorientation begins with the figures of Adam and Eve, who represent the body at the threshold of change and return attention to the moment of creation rather than death. To quote San Juan: ‘The appearance of Adam and Eve in Vesalius’s anatomical images is ultimately about the performance of their disappearance from this form of knowledge.’ The skeleton continues to be linked to the figure of Adam, and with notions of death, but it also starts to move elsewhere, to the new space of anatomical knowledge where it begins to build a new route for the production of knowledge that is not invariably tied to sin and death. Guldenmundt’s sheets are the earliest known examples of this kind, representing the male figure as ‘Adam’ who holds an apple in his left hand, while in his right he grasps a twig. Although in later reproductions of this figure the apple and the twig were no longer included, the positions of the hands remain frozen in space and continue to hint at the implications of the gesture.

140 Ibid., 972.
141 Ibid., 966.
142 The Guldenmundt fugitive sheets were published c. 1538, around the same time as the Vogtherr sheets.
143 For examples of these figures see Carlino, “Paper Bodies.” 141-2.
The figure of Vesalius from the Wittenberg sheet also holds something aloft in his right hand but it is a fragmented part of his own anatomised body (Figure 1.10). The fragment is labelled A and identified in the accompanying text as part of the eye, *oculi*. Oddly, this fragmented section of the eye appears to be supported on a pole, used by the figure as a handle, but the illustration is unclear, indeed without a label the figure could be mistaken for holding a magnifying glass. But what is suggested by this gesture? Does the remaking of Adam’s body reach its completion in this sign of authority over anatomical knowledge? Or does the anatomised male body in the guise of Vesalius lay claim to new technological knowledge and through a firm grasp of the *oculi* claim agency over vision?

The treatment of accessory figures such as the *oculi* certainly deserves closer attention. There are twenty five accessory figures in total surrounding the central figures from the three sheets. While in most fugitive sheets there is a separation between the space inside representation and the accessory parts overlaid on the surface of the image, in the Wittenberg triptych this separation is less clear. This difference is particularly evident in the sheet illustrating the female anatomy (Figure 1.11). The organs labelled I and II are anomalous because they hover at the top of the picture frame, occupying a distinctly separate plane from the rest of the representation. These organs belong to the reproductive and digestive systems, the lowest of the venters according to Melanchthon’s tripartite division of the human anatomy and described by William Harvey as: ‘nasty yet recompensed by admirable variety.’ The heart and lungs comprise the middle group, the final supreme group consists of the organs of cognition – the eyes, ears, nose and brain.

While the eye, an organ from the ‘supreme’ group has a privileged position for the male figure, it is the foetus which defines the female body. The foetus is not concealed within the layers of internal organs printed on the flaps of the torso, nor is it relegated to surface

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144 San Juan, "The Turn of the Skull," 971.
145 Kusukawa, *The Transformation of Natural Philosophy*, 93.
ornamentation superimposed over the top of the image as it was in Vogtherr’s design.

Instead the foetus sits upright, apparently unsupported, alongside the female figure, with arms and knees tucked up in a protective gesture. To further heighten its visibility within the composition the foetus is repeated again in an accessory figure at the bottom of the sheet, labelled X. This repetition reminds Lutheran users of the relationship between part and whole and that each anatomised part contains and transmits the soul through its functions within the body. In this way, the foetus and the part of the eye from the male sheet play important roles in defensively securing gender difference in spite of the anatomical similarities between man and woman.

Disrupting order: the user’s remaking of the cut

Maintaining order in the sheets is a precarious balancing act between the production of visibility and invisibility. Sometimes this balance is unsettled and things that had previously been concealed or possible interpretations that were held in check are suddenly revealed. This effect can be all too literal in some cases. Whilst researching the Guldenmundt sheets at the Wellcome Library I came across a figure of Eve whose torso could no longer contain its visceral insides; the intestines had slipped from their original position inside the body and were protruding from behind the flap of the torso, creating an unsettling visual image. A similar problem also affected Eve’s counterpart. Where Adam had once held a leaf to protect his modesty there is now a tear in the sheet, revealing the internal anatomy beneath it (Figure 1.15). This may be about the condition of a particular pair of fugitive sheets but it has implications that pertain to the ephemeral nature of the prints. For de Certeau reading is itself an ephemeral process during which the eyes wander over the written spaces of the page and meanings are lost just as easily as they are inferred from a few words: ‘Reading takes no measures against the erosion of time (one forgets oneself and also forgets), it does not keep what it acquires, or it does so poorly…’

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(or rather the user) who forgets, the prints themselves are incapable of holding on to the knowledge they produce. Knowledge revealed through the cut is only fleetingly brought into visibility before it is lost again, obscured from view by another turn of the page. The ephemeral nature of fugitive sheets is further accentuated by their flimsy materiality; poorly executed assembly, deterioration due to repeated use over time, and the delicacy of the paper all affect the success of the prints. Not only does damage to Guldenmundt's prints disrupt the divide between inside and outside, it also reveals how precariously they hold the image in check and the numerous potentials for failure in these types of assemblage, particularly when so much control is handed over to the user.

Yet print has all too often been conceived as stable and verifiable. The exact repeatability of print has long been the subject of art historical investigations into the locus of print's 'authority' and constructed as the means through which print inscribed knowledge. William J. Ivins Jr. stressed the importance of print to the production of knowledge and thought, science and technology, when he coined the phrase: 'exactly repeatable pictorial statements.' Repetition, it has since been argued, was mobilised as a powerful metaphor in the sixteenth century, turning abstract ideas into permanent verifiable knowledge. Although more recently Gaudio has shifted the discussion towards the materiality and processes of printing, I would like to return to the role of the user as a key factor in the mobility offered by the act of cutting.

The role of the user in activating possibilities within the printed text (but equally applicable to the image) is described by Chartier:

The meanings attributed to their forms and their themes depend upon the areas of competence or the expectations of the various publics that take hold of them.

To be sure, the creators (or the 'powers' or the 'clerics') always aspire to pin down their meaning and proclaim the correct interpretation, the interpretation

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149 Parshall, "Imago contrafacta," 554-79.
that ought to constrain reading (or viewing). But without fail reception invents, shifts about, distorts.\textsuperscript{150}

Here Chartier argues for the instability of printed matter in the hands of users that intervened in the ways print was marketed. The user could respond to and employ images or text in a multitude of different ways finding unpredictable, perhaps sometimes even undesirable uses for them. This effect is further accentuated in fugitive sheets, where the design necessitates and invites users to intervene in the image and to bring certain aspects into or out of visibility through their interaction with the cut. However this privileged position is also potentially a dangerous one in terms of representational cohesion. The image is constantly at risk of falling into disorder as users negotiate the delicate balance between overall coherence of the human form and the individual constituent parts that are revealed by lifting or replacing the paper flaps. Moreover, it is conceivable that the user’s intervention extends beyond merely lifting the print’s various layers and absorbing the visual material. It is likely that the fugitive sheet’s very first users were also responsible for making the physical cuts into the image and assembling its constituent parts. This would mean that the user began to shape the image and therefore have an effect on the meanings it was capable of producing even before the sheet took on its finished appearance.

Scholars have speculated on who would have assembled the moving parts of a fugitive print.\textsuperscript{151} It remains unclear whether this work would have been carried out by the printmaker, or if it was left for the print’s users to piece the image together for themselves. Considerable variations in the assembly of fugitive sheets further add to the ambiguities about who was responsible for piecing together the image, or exactly how the finished article was intended to look. Fugitive sheets reveal numerous examples of piecing separate things

\textsuperscript{150} Chartier, \textit{The Order of Books}, ix-x.

together that are less than stable. A female figure, published in Paris c. 1560 and now held in the Wellcome Library collection, is one such example where poorly executed assembly threatens to undermine the production of knowledge through the cut (Figure 1.7). Upon lifting the outermost flap of the torso, a disjunction between the internal and external anatomy is revealed. The individual pieces have been pasted together far too closely, with the whole internal anatomy effectively crammed into less than three quarters of the total space. Far from rationalising and containing the user’s experience of the body as the cut promises, the imperfect construction of the body’s inside re-introduces an element of unpredictability and lack of visual definition between parts that is closer to the experience of touching the real body. Conflicts between touch and the cut, which are located just beneath the surface of the fugitive print, are brought to the forefront in this particular image. But it is precisely through imperfections such as these, where users find themselves having to negotiate with something unexpected, that opportunities to depart from prescribed meanings arise. The order imposed by the cut breaks down; indexical letters are no longer clearly visible amongst the incoherent jumble of body parts and texts cease to be secured to the part of the image they define. In effect the user is freed to navigate their own way through the body and to feel out their own meanings between its layers. Comparing the assembly of this sheet published in Paris c. 1560 to others printed from the same woodblocks, for example the 1544 print in the Boston Medical Library reveals that there are huge variations between the assemblies of the flaps over the torso.\textsuperscript{152} Each user’s negotiation with the cut is bound to hold substantial differences that hold consequences to the interpretation of the print.

But some clues as to the assembly process can be found amongst Vesalius’s anatomical illustrations. The full page woodcuts of the cardiovascular system from \textit{The Epitome} published in Basel, 1543 shortly after the \textit{Fabrica}, were evidently intended to be cut out and assembled as with fugitive sheets.\textsuperscript{153} The sheets these figures are printed onto are

left blank on the reverse, which was an unusual decision given that paper was a relatively expensive medium. But the heading of the sheet reveals why this was the case; once assembled the two manikins would take the form of fugitive sheets:

All the figures printed on this sheet have in view [the construction of] a single illustration which is to be attached to the head, or however you may consider convenient…we wish to advise those who obtain unprepared copies, and put them together by their own efforts and industry, on the method of cutting each from the superfluous paper and pasting them on, and then of colouring them according to their ability and desire.

By referring to ‘those who obtain unprepared copies’ the text implies that, most likely for an additional sum, pre-assembled versions of the plates could be purchased. It seems that many buyers did indeed follow Vesalius’s instructions for cutting out and assembling the figures because copies of the Epitome with these plates still intact are extremely rare, as are assembled versions of the cardiovascular models (Figure 1.16). Perhaps more surprisingly, a copy of the 1555 edition of the Fabrica that is held by University College London Library has been adapted in a similar way, by cutting out the smaller figures and pasting them onto the large image of the cardiovascular system (Figure 1.17). These Vesalian flap anatomies do not employ the birthing pose, nor do they fully represent the transition from external to internal bodily view, making them different to other loose leaf fugitive sheets. Instead the first outer view of the cardiovascular system is expanded upon by lifting the flaps. Nevertheless, the inclusion of fugitive style sheets amongst the plates of

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154 Paper could constitute as much as half of the publisher’s total costs – see Kusukawa, Picturing the Book of Nature, 50.
156 A letter dated 1912 is pasted into the front of the Wellcome Library’s edition of the Epitome and describes how even a century ago these prints were rarely found intact. The letter states that: ‘This Epitome has been edited in single leaves of which the last two have no signature and are printed only on the recto, these are almost always missing.’
the *Epitome* and the 1555 *Fabrica* complicates the distinction between prints intended for scholarly and non-scholarly audiences and demonstrates the efficacy of the fugitive technique for representing the body’s spatialization. It is also particularly fitting that Vesalius appropriated the fugitive model since it banks on the importance of touch in the production of knowledge as he asserted in his treatise.

In addition to assembling the prints there is also evidence that users sometimes coloured fugitive sheets by hand. Since they would have been sold at a relatively low price in comparison to printed treatises, it seems unlikely that print workshops would have gone to the unnecessary expense of cutting and colouring all the images. If they had, coloured copies may have cost more to purchase than the uncoloured ones by as much as twice or four times the price. Publishers did recognise the advertising potential of coloured copies however and occasionally had a limited number of prints coloured in order to attract potential buyers. However, it seems more likely that the majority of fugitive sheets would have been assembled after purchase and sometimes coloured according to their owner’s preference. Perhaps since fugitive sheets could be pasted up and displayed on walls their owners sometimes sought to render them more decorative through the addition of colour. Suzanne Karr Schmidt, an art historian who has published research on interactive prints and the ways users altered and employed printed material, has suggested that users could have filled in parts of the designs as they meditated on the image. She argues that printed images were used in many different ways, including touching, kissing, annotating and even making alterations in pen. Even those users who did not actually hold knife to paper still had a

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158 For further description of techniques and practises of colouring printed books see Kusukawa, *Picturing the Book of Nature*, 62-82.

159 Kusukawa describes how Oporinus, the publisher of Vesalius’s treatises, employed this strategy in order to attract students and booksellers. There is a hand coloured copy of the *Epitome* held in Cambridge University Library that might also have been intended as a dedication copy. See Kusukawa, *Picturing the Book of Nature*, 59.

160 Suzanne Karr Schmidt, *Altered and Adorned. Using Renaissance Prints in Daily Life* (New Haven and London: Yale University Press, 2011), 11. For an alternative analysis see Mandabach, "Heinrich Vogtherr the Elder," 68. The pigments used to colour the Vogtherr prints held in Boston Medical library are consistent with those used on woodcuts during the printing process.
hand in shaping the print and psychically re-enacted the process of cutting into it with each use.

This process of cutting into in order to unveil the bodily interior is not dissimilar to the erotic potentials attached to undressing. Indeed, flap prints were also employed in costume illustrations, wherein this potential was brought to the surface of visibility. As already mentioned, Pietro Bertelli's 1589 flap engravings of different fashions enable users to lift up skirts and peel back clothing. Eroticism, as Mario Perniola describes, is conditional on just such a state of transit and does not necessarily stop at the skin's boundary: 'The erotics of dressing go beyond the skin and dress the insides of the body.' Sequentially lifting the paper flaps reveals new knowledge to the user as the hitherto hidden interior recesses of the human body are brought into visibility, but it also performs an unintentional, opposing action. Fugitive sheets printed before the seventeenth century were only printed on the recto, so while a new part of the anatomy is revealed each time a flap is lifted conversely the previous view is taken out of visibility. As the user moves progressively further into the body and attempts to reveal new visual information so the paper body is progressively rendered illegible.

Upon reaching the final layer in any fugitive sheet the user is confronted with an empty space. The body has been hollowed out until all that is left on the page is a cavity, or a vast open space inside the torso, with only the vertical line of the spinal column represented inside it. Although the animated potential of the image means that this process can be reversed, momentarily at least this view represents the point at which the experience can no longer be called erotic and knowledge therefore ceases to be produced. Folded back against their hinges and now concealing the neck and head of the figure is the crumpled mass of over turned flaps. The user is left staring at the underside of these viscera-shaped flaps, but they are nothing more than an unintelligible mass of white shapes.

Print workshop practices are also implicated in the destabilisation of anatomical imagery. The fugitive sheets printed during the seventeenth century are often described as marking the demise of the purely anatomical fugitive sheet, as printmakers strived to appeal to an ever expanding readership and the sheets took on different roles. The trio of sheets representing the human anatomy in Johann Remmelin’s *Mirrors of the microcosm* are often mobilised as examples of how fugitive sheets became overloaded with meanings as a result of printers’ zealous efforts to reach ever expanding audiences (Figure 4.1, Figure 4.2 and Figure 4.3). These will be the subject of more careful and sustained examination in Chapter Four, but I raise them here in order to make a point about how legibility is threatened by the way anatomical, allegorical and religious messages seem to compete for the user’s attention in the image. Choulant was particularly scathing in his analysis of Remmelin’s prints: ‘The anatomic value of these drawings is very slight and even as a whole, they represent the clumsiest study of anatomy.’ It would be easy to dismiss Remmelin’s prints as a mass of incomprehensible body parts and disjointed knowledge, but there are strategies aimed at holding bodily knowledge together, as David Hillman and Carla Mazzio describe in their analysis of the prints: ‘Upon closer inspection, though, the illustration is not only legible but carefully designed to ward off the very possibility of scattering and dismemberment, of representational collapse.’

For Hillman and Mazzio the overwhelming strategy employed in the prints is one of oppositions: male and female, inside and outside, divine ethereality and monstrous embodiment. There are technical innovations too, designed to resolve some of the problems encountered in earlier fugitive sheets. The problem of rendering the body illegible as the user folds back the paper flaps for example, is resolved by printing the image on both sides. And as the interior layout of the body took on an even more complex interactive form in the prints, removable parts allowed users to extract some of the organs and inspect them more

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closely. If fugitive sheets printed in the seventeenth century do mark the demise of the anatomical fugitive sheet it is not because they incorporated an overwhelming array of competing visual references; the prints’ users had always been capable of bringing multiple possibilities into visibility through the cut. But the way that Remmelin’s prints try to fix these ideas on the surface of the image and to thereby legitimise their uses, does threaten to erode the ambiguities or ‘indefinite plurality of meanings’ which characterised fugitive sheets.164

There are significant differences between fugitive sheets and more scholarly anatomical prints such as the woodcuts of écorché in Vesalius’s Fabrica, but these differences are not dictated, as it is often claimed, by the different audiences that utilised them. Fugitive sheets would certainly have been able to reach a much wider audience than Vesalius’s richly illustrated and costly treatise; however, this does not mean that their interpretation should be delimited by the category ‘popular’. Different users found many diverse ways of employing fugitive sheets, and some, such as the 1573 Wittenberg triptych, were even associated with teaching in universities. It is actually the different approaches that fugitive sheets adopted in representing the spatialization of the body, and the way that they are not just about the formation of medical knowledge that distinguishes them from Vesalius’s écorchés. Fugitive sheets are highly complex prints because of how they try to negotiate between medical and social or religious knowledge. More so than other anatomical prints, fugitive sheets commented on, engaged with, and even altered the social, cultural, political and religious contexts in which they were made.165 For this reason, some fugitive prints, including Remmelin’s Mirrors of the microcosm encounter technical and design challenges as allegorical and religious signifiers threaten to overload the image.

The tidy cut made by the printmaker’s burin and re-asserted through cuts made in the assemblage of the prints promises a cleaner, more definite divide between the body’s exterior/interior, and with it the potential for clear and definitive bodily knowledge. Yet this

164 De Certeau, The Practice of Everyday Life, 170.
165 Karr Schmidt, Altered and Adorned, 11.
apparent clarity is still susceptible to disintegration. The engraver’s cut is not always as tidy as it might first appear. Mistakes, aberrations and slips made by the burin are all recorded on the hard metal surface, or ingrained in the wooden block, and these are transferred onto the impressionable page. Moreover, the permanence of the engraver’s mark and the exactness of the reproduction are challenged by the user’s engagement in the cut. The image – like the process of dissection it depicts – is therefore defined by its temporality.

There were of course attempts to instil order and exert control over the process of revealing knowledge through the cut, some of which directly resulted from the new technological possibilities of print; others had their roots in earlier manuscript traditions such as the birthing pose, the indexical marks and the naming of parts. But strategies to bring clarity to the image through a focus on its surface sometimes found themselves in conflict with the spatialization of the body. From the anatomist’s first incision into the flesh, to the engraver’s mark on the woodblock or copper sheet, fugitive sheets depict a body that is in flux, where boundaries are visible yet invite and allow transgression. Harvey writes that: ‘The power of the anatomist is concentrated in the hand, as if the tactile sensation were transposed from the cadaver’s flayed skin into the anatomist’s probing hand.’\(^{166}\) Similarly, the process of viewing is inextricably linked with the tactility of fugitive sheets. The user’s hand performs much the same probing exploration of this paper assemblage as the anatomist performs on the cadaver, and the ability of the user’s tactile interaction to animate these prints cannot be underestimated.

Chapter 2

Transformative Cuts in Charles Estienne’s 1545 *On the dissection of the parts of the human body*

A female figure reclines on a sumptuous bed, her fingers entwined in her hair as if at ease or even complicit with the act of anatomisation that is underway (Figure 2.1). The cushions and lavish fabrics on and around the bed envelop the figure, framing head, arms, torso and most of the legs with rich material. These voluminous swathes of fabric provide a setting for the figure, but they also seem to echo its interiority. Knots and twists of fabric resemble overspilling viscera, the oversized pillow upon which the figure rests her arm recalls part of the intestine, and the cushion on which she sits evokes and distorts the shape of her breasts. The folds and recesses of the fabrics even resemble incisions into the body, which the observer soon finds to be actually present in the area of her abdomen. This cut has been made by a surgeon or anatomist – someone skilled in the use of the knife – because the incised flesh has been neatly rolled back, forming a scroll of skin to reveal the internal anatomy. The internal view is labelled with the letters A and B, which are identified in the text on a tablet in the upper left of the image as the afterbirth (or placenta). 167

This intriguing image appears in the third book of Charles Estienne’s 1545 treatise *On the dissection of the parts of the human body*, which was first published in Paris. 168 The woman’s open posture, coupled with the textual information contained in the tablet, invites observers to peer beneath the fleshy veil and examine the body’s interior. But, perhaps inadvertently, observers are also prompted to reflect on the process of inscribing knowledge through print and the inevitable need to update and revise anatomical knowledge. Looking carefully at the image a distinct disjuncture emerges between the view of the interior body

167 The image is from Charles Estienne, *De dissectione partium corporis humani libri tres. una cum figuris, et incisionum declarationibus a S. Riverio chirurgo compositis*. (Paris: Apud Simonem Colinaeum, 1545). The text, which states in Latin: *Secundina dissecta, usque ad allantoidem*, explains that the placenta is dissected down to the allantois (a membranous sac important in the formation of the umbilical cord and placenta).

168 Ibid.
(the anatomical content) and that of the exterior body resting in the richly furnished chamber (the frame of the anatomical content). A gap in the ink can be discerned as it cuts across the top of the figure’s left thigh and up the inner thigh of her right leg; it is also visible between the left breast and a section of torso and abdomen. Initially one wonders if a mistake was made during the printing process, but leafing through the treatise reveals that this is no anomaly since many of the full page woodcuts throughout the second and third books are marked with the same gap. The gap disrupts the possibility of a coherent body, and reveals precisely what was necessary in order to bring the interior into view – a cut. And once noticed it is impossible to ignore.

In fact this gap is a trace left over from the printing process, which unusually was conducted in two separate stages. The anatomical detail, which takes up roughly only a fifteenth of the printed page, was prepared separately from the majority of the print. It is most likely the work of the surgeon, Étienne de la Rivière, whom Charles Estienne employed to advise on the proper conduct of the anatomy and to illustrate anatomical details. The surgeon’s contribution is acknowledged in the protracted full title of both the original 1545 Latin edition of On the dissection of the parts of the human body and the French translation of 1546. Rivière’s contribution is further emphasised in the preface, where Estienne writes:

Rivière the surgeon, whose labour was most assiduously and frequently contributed both in drawing what was necessary, such as bones, ligaments, nerves, arteries, veins, muscles, etc. and in picturing the methods of dissection, in which subject he has much experience. You will

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171 The Latin title reads: De dissectione partium corporis humani libri tres. Un cum figuris, & incisionum declarationibus, Stephano Riverio Chirurgo compositis. The title of the French edition that was published by Colines in 1546 is: La dissection des parties du corps humain divisee en trois liures, faictz par Charles Estienne docteur en Medecine: avec les figures et declaration des incisions composee par Estienne de la Riviere chirurgien.
see these dissections, described by us in the lettering engraved within the pictures, throughout the book.172

By contrast, the rest of the image would have been prepared by a skilled woodblock cutter following the design of an artist rather than an anatomist. In fact, a number of the images of male and female figures in the second and third books of the treatise are closely modelled on pre-existing prints, adapted to fit their new anatomical purpose.173 For instance the female figure reclining on her bed is closely modelled on an engraving of Venus.174 The adjustments include the addition of a scroll containing textual information and the substitution of Cupid with an ornate urn in the foreground.

Significantly, the gap has no place within visibility since it makes no obvious contributions to the construction of knowledge. One might even argue that the visible divide between exterior and interior results in destabilising the effect of the print. Bette Talvacchia, who has written extensively on the adaption of erotic engravings for the female figures of the third book of *On the dissection*, has suggested that the gap, unlike the representational cuts, does not produce knowledge but actually threatens to undermine it.175 In effect, the gap reveals the disjunction between opposing bodily states – for instance between inside and outside or between mythological goddess and anatomical model. But perhaps even more importantly, the disjunction between the woodcut and the insert also inevitably refers the

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172 Translation of Estienne's comments from the preface of *De Dissectione* as given in: Harvey Cushing, *A Bio-Bibliography of Andreas Vesalius* (New York: Schuman, 1943), 34.
173 The first book of *On the dissection* begins with an image of the skeleton and, similarly to Vesalius's *Fabrica*, muscles and skin are added to the bones over subsequent pages. Although in anatomical practices the skeleton would actually be the last thing to be revealed there is logic to beginning with the bones, related to the Aristotelian principle that any investigation of the body should reveal the purposefulness of its parts. For further information on this subject see: Sarah Parker, "Subtle Bodies: The Limits of Categories in Girolamo Cardano's De Subtilitate," in *Anatomy and the Organization of Knowledge, 1500-1850*, eds., Brian Muñoz and Matthew Landers (London: Routledge, 2015), 71-85.
The observer is reminded back to the act of cutting, reminding one of how the image is ultimately the product of the printmaker’s hand and therefore potentially fallible.

The blank space that remains visible between the two woodblocks offers an interesting parallel with the representation of the anatomist’s cuts into the body. But could there be some advantage to revealing the process of cutting rather than merely the end result of the cut? Anatomical illustrations are after all concerned with the process of transformation by which dead flesh is turned into knowledge about the living body. The gap separating the inside from the outside of the body draws attention to this process of transformation and, critically, reveals the potential instability of medical knowledge about the body which, far from being stable, was subject to the diversity of bodies. Arguments about how anatomical prints move towards homogenising the bodies they display are well known, particularly in relation to the images in Vesalius’s treatises. Sachiko Kusukawa has written about the creation of a ‘canonical body’ through synthesizing of many different cadavers into one archetypal figure in Vesalius’s images.\(^\text{176}\) However, Estienne’s use of mythological goddesses as frames for the anatomical inserts results in a very different outcome; the image is also able to suspend the body in its transformation from flesh into knowledge. Moreover, one possible advantage of the insert is that it inscribes the expert knowledge of a skilled surgeon that could potentially be updated if alterations became necessary.

The differences between the smaller anatomical images and the larger mythological images reveal the complicated and fractured history of the publication of Estienne’s treatise. Although On the dissection of the parts of the human body came into the market in 1545, two years after Vesalius’s Fabrica, work had been completed up to the middle of the third book by 1539.\(^\text{177}\) The length of time that elapsed between the production of the first plates and the project’s completion has been the subject of much scholarly interest and it has even been suggested that variations in the style of anatomical illustrations throughout the treatise

\(^{177}\) The plate on page 154 of De dissectione is dated 1530, page 155 is dated 1531, pages 150 and 151 are both dated 1532.
can be ascribed to the work’s lengthy ‘gestation period’. Variations between prints can also be attributed to the fact that a number of different printers are known to have worked on the publication.

The delay in publishing the treatise, which was the most costly book produced by the printing press owned by Estienne’s stepfather Simone de Colines, is attributed to a lengthy legal dispute between Estienne and the surgeon Rivière. Following a quarrel over authorship, Rivière filed a lawsuit against Estienne thus holding up the book’s publication by six years. By the time it was published in 1545 Estienne had received the degree of doctor of medicine in Paris and a number of unsanctioned copies of On the dissection had already entered the market. There has been speculation about how these delays in publication might have affected its reception. However, there is evidence to propose that Estienne’s and Vesalius’s treatises had different goals. Whilst both Vesalius and Estienne share certain strategies, such as the use of the antique and fragments, the latter is particularly concerned with the surface of the print, while the former is organised by progressively excavating deeper into the body. In On the dissection interest in cutting across or slicing through is manifested particularly clearly in images from Book II, which represent the dissection of the brain. These confront observers with another previously hidden surface where parts are aligned side by side in the same way forms and symbols are arranged on a printing block.

Having identified four specific strategies of the cut at work across Estienne’s treatise, I intend to examine how these work to simultaneously divide and unify aspects of the images. The first of these strategies concerns how the anatomist’s incision into the flesh is

179 The first skeleton woodcut bears the initials, ‘S.R.’, which Choulant ascribed to Étienne de la Rivière. Other plates bear a signature ascribed to François Jollat and a Lorraine cross used to denote the workshop of Geoffroy Tory is also imprinted on a number of plates. See: Choulant, History and Bibliography, 152.
180 Kellet, “Two Anatomies,” 350.
181 Ibid. It is plausible that, as Kellet suggests, Estienne was forced to acknowledge Rivière’s assistance with the dissection illustrations in the ‘careful wording of the title and in the Introduction to the reader...’ (350).
represented with increasing forcefulness and violence for the images of Book II. What begins as a series of neatly incised rectangular ‘windows’ offering a view of the body’s internal organs, quickly progresses to violent tearing. The bodies that are subjected to cutting in this series of images adopt the form of ‘idealised’ antique statues and for this reason Vesalius’s series of écorché figures for the Fabrica provide a useful comparison. But while it is often argued that Vesalius’s use of the antique is intended to mitigate anxiety over opening up the body by presenting a ‘universal’ anatomy, for Estienne the antique seems to offer a different set of possibilities. The way cuts work to tear open and also stitch back together, simultaneously make and unmake the image. I will argue that in this way Estienne’s prints take up the potential for restoration and the multitudinous possibilities of the antique fragment. Rather than taking Vesalian images to their extreme, the visual strategies deployed in Book II of On the dissection actually depart from what has come to be considered ‘normative’ in anatomical illustrations after Vesalius. Drawing on Derrida’s definition of the parergon, I will argue that the mythological rather than the antique acts as Estienne’s frame for the transformative potential of the anatomical body. However, this strategy will not fully reveal itself until my third section concerning Estienne’s woodcuts of the female anatomy.

The transection cut is the focus of the second section. This is a very particular kind of cut, different from anything seen in other anatomical illustrations, because it entails slicing across (rather than excavating into) the top of the head to reveal the brain. The transection first appears towards the end of Book II and in addition to making the underlying structure of the brain visible, by cutting across it, new surfaces are also uncovered. The view offered by the slice through the brain is evocative of a printing block with everything laid out side by side and forms sculpted in relief separated by gaps or incisions. It also resembles a map, revealing a topography that is far from fixed. Instead it was subject to continual changes and revisions.

The third section specifically concerns two images that suggest a strong relation between cutting and seeing in terms of how they depict observers stationed in elevated
positions looking down on the bodies on display. The first of these images is from the end of Book II, while the other is from Book III which represents the female anatomy. While the images clearly thematise one’s own act of looking, I will also consider how new technologies of vision are implicated in this address to the observer through comparisons with Johannes Stradanus’s engravings *New Inventions of Modern Times.*

Lastly I will take up the cut in relation to the framing of female anatomy in Book III with its eroticised figures adapted from Giovanni Jacopo Caraglio’s *The Loves of the Gods* and the problematic conflation of mythology and medical knowledge. Significantly, it is not so much a particular kind of cut that interests me here, but rather the way cutting seems to be an ongoing process. The image, and indeed the body, is cut in order to transform it into something else but ultimately this process of transformation is never fully resolved. The gap demarcating the point at which the anatomical segment prepared by Rivière was inserted into an area cut out of the larger image becomes an even more fraught point of tension as the mythological and the anatomical push against each other. It has been suggested that the sexualised presentation of the female figure is part of an intentional strategy of visual compensation, intended to counteract the violence acted out on the male figures in Book II. For Valerie Traub, the presentation of the female models as sensual goddesses is about displacing anxiety with arousal. Yet this does not necessarily ensure stability for the prints. Cutting into the body/woodblock and inserting new anatomical knowledge into mythological bodies also legitimises slippages between forms. Moreover, in a number of prints such slippages go even further, making it unclear exactly where the interior body ends and the ‘exterior’ space that supposedly contains it begins. As I intend to show, these are bodies and settings in flux. Their transformations are not yet fully accomplished and for them cutting is an ongoing process, capable of working in either direction.

186 Ibid., 82.
**Framing the anatomised body**

The first of the full page woodcuts from Book II represents a contrapposto male figure, face turned in profile, standing alone within a pastoral landscape (Figure 2.2). The ground beneath him is rocky and uneven, with only a few straggly tufts of vegetation and a large, round *all’antica* decorative urn. The muscular physique and twisted posture of the anatomical model invite comparisons with heroic but fragmented sculptural bodies, such as the Apollo Belvedere, which were being unearthed in Italy during this period. These became well known across Europe through the distribution and sale of prints. Curiously though, the placement of the figure’s arms seems carefully contrived to draw attention to the rectangular outline of the insert containing the anatomical information. The curling fingers of the left hand even give the illusion that they are holding Rivière’s anatomical insert in place. But what could be gained from drawing attention to the point at which the anatomical insert pushes up against its frame – the one area that it might be assumed observers were not to notice? In order to address this question it is necessary to examine the relation between the cut and antique imagery in Book II.

Since the pebbles, vegetation and urn are all outside the rectangular inner frame with the anatomical information, they could easily be misconstrued as surplus to the production of anatomical knowledge. Even the figure’s limbs and face might be considered extraneous to the insert. However, Jacques Derrida writes that it is just such seemingly surplus ornamentation that constitutes *parergon* – the frame. According to Derrida, the *parergon* is something extra or exterior, the columns on buildings or the ‘clothing on statues’ and yet these seemingly insignificant details perform a crucial function in holding systems of representation together.

According to Derrida:

*The parergon inscribes something which comes as an extra, exterior to the proper field...but whose transcendent exteriority comes into play,*

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189 Ibid., 57.
abut onto, brush against, rub, press against the limit itself and intervene
in the inside only to the extent that the inside is lacking.\textsuperscript{190}

Parergon therefore only exists in order to compensate for a lack in the ergon – the internal
structure of the work. Far from being superfluous ornamentation, the external view of the
figure and the landscape surrounding Rivière’s insert play a vital role in securing meaning for
Estienne’s print. As I will show, even seemingly insignificant details, such as the pebbles and
rocks that litter the ground, speak of fragmentation and link the body back to the earth.

Indeed, the use of antique sculpture as a frame for the anatomical content of an
image was a common strategy in medical prints, including those of Andreas Vesalius. The
antique seems to have lent itself well to framing the cuts acted out upon the dissected body,
perhaps because, as Leonard Barkan writes: ‘fragmentariness was understood to be the
natural condition of rediscovered ancient statues.’\textsuperscript{191} But whereas scholarly literature has
explored Vesalius’s use of the antique, the same is not the case for Estienne’s prints.\textsuperscript{192} In
fact, Estienne’s have been dismissed for their lack of clarity and ‘ugliness.’\textsuperscript{193} Perhaps such
a response from scholars is due to a misunderstanding of the representational strategies
employed by Estienne in his treatise.

Comparing Estienne’s anatomical figure with one of the écorchés from the Fabrica
reveals a number of shared strategies (Figure 2.3). Firstly, both anatomical figures are
presented in exterior space, amidst rural landscapes that are littered with fragments of
architectural ruins. Both also make use of an ‘idealised’ male body, clearly in keeping with
ancient Greek and Roman sculpture, perhaps intended to exemplify a ‘universal’ human

\textsuperscript{190} Ibid., 56.
\textsuperscript{191} Barkan, Unearthing the Past, 121.
\textsuperscript{192} On the function of the antique in prints for Vesalius’s Fabrica see: Glenn Harcourt, "Andreas
Vesalius and the Anatomy of Antique Sculpture," Representation, 17 Special Issue: The Cultural
\textsuperscript{193} For example, Charles Singer wrote of the figures ‘distorted ugliness’. See: Charles Joseph Singer,
The Evolution of Anatomy. A Short History of Anatomical and Physiological Discovery to Harvey
(London: Kegan Paul & Co., 1925), 100. Another damming critique of Estienne’s prints labels them
‘without doubt the most hideous ever published.’ This quotation is taken from: Saunders and O’Malley,
The Illustrations from the Works, 24.
anatomy. Yet another similarity is the way the two prints present the anatomised body as active and alive, gesturing emphatically with their arms in order to demonstrate how the muscles work. For Harcourt, the active presentation of the anatomised body in the *Fabrica* has a dual purpose. Firstly, to remove the anatomist from the scene of violation, and secondly to present the structure and function of the body part simultaneously. But contrary to what is often argued about the antique bringing stability to the anatomical image, Barkan has shown the reason antique sculpture was subject to so many imaginative and physical restorations during the fifteenth and sixteenth centuries is precisely because its meanings could not be pinned down. For Barkan this ambiguity is a defining characteristic of antiquities: ‘...changes wrought upon fragmentary sculptural objects represent attempts to fix their shape and identity. Yet observed diachronically...the process reveals just the opposite – that is, how persistently unfixable these works prove to be.' The absence of any definitive sense of resolution for fragmented antique artefacts and the uncertainty surrounding them provided the necessary scope for imaginative speculations in sculpture, painting and print. Estienne’s prints exploit the ambiguity of the antique, the way it can readily change and develop new possible significations, and this marks a difference from the deployment of the antique in Vesalius’s treatise.

The prints of Estienne and Vesalius differ in their use of the antique model. Vesalius used the truncated form of the Belvedere Torso as a frame for the viscera, neatly circumventing anxieties about the physical violation of the body by transforming rotting flesh into hard, smooth stone (Figure 2.4). This is unlike Estienne’s images that open up the body to show the internal anatomy. In the first of these images, cutting takes the form of a neat incision in the upper body (Figure 2.5). The skin is peeled back like a scroll of paper, to create a ‘window’ into the body’s interior that replicates the outlines of the anatomical insert.

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194 With regards to Vesalius’s woodcuts Harcourt writes: ‘their normative nature is implicit in their antique form.’ See Harcourt, “Anatomy of Antique Sculpture,” 44.
195 Ibid., 49.
196 Barkan, *Unearth the Past*, 185.
197 Ibid.
And further differences between Estienne and Vesalius emerge as the observer progresses through the pages of the two treatises. Whereas for the Fabrica the cut successively strips back layers from the whole of the écorché in a progressive series of images that represent a continuous dissection, for Estienne there is no continuity and the images are more independent of one another. There is a dramatic contrast between Estienne’s first image of the cut body, which I referred to above, and the subsequent image of the model slumped against a broken tree (Figure 2.6). Here a very different kind of cut – more akin to a forceful tear or rip – has been deployed. The subjected male body is still vertical in this print, although it retains none of the agency or stature of the first figure. The hands no longer gesture didactically but instead hang limply at the waist; the legs and feet are apparently unable to support the body’s weight. With eyes raised upwards and lips slightly parted, the figure in this print seems more closely related to depictions of martyrdom than to ancient Greek or Roman statues.

The broken branches reflect the body’s subjection and the deep gash running up from the base of the tree trunk further repeats and emphasises the tearing apart of the body. The limited ability of the body to act unimpeded inevitably leads one to question whether it is really still alive.\(^\text{199}\) But there is one crucial distinction between the body and the dead tree it leans against. Whereas the hollow tree is devoid of meaning, the indexical lines and letters marking the body remind observers that for the dissected human body there is potential in its fragmentation. A suggestively placed broken branch, protruding from between the legs, also offers visual compensation for the castration of male agency implied by the loss of bodily integrity.\(^\text{200}\) Nonetheless, the extreme visual violence of this cut appears to undo the initial function of the antique fragment, which served to normalise the bodily fragmentation on display.

\(^{199}\) C.E. Kellet, “A Note on Rosso,” 325-336. Kellet writes: “Despite the care with which they are arranged, it is abundantly clear that they are dead. They have none of the fictitious stereotyped life of the Vesalian muscle men” (327).

\(^{200}\) On the castration of the male body see: James Glisson, "The Anatomy of Gender"
<http://anatomyofgender.northwestern.edu/glisson01.html > [accessed 22 April 2014].
In fact this unmaking of the body is integral to how the process of restoration works. As Barkan writes, restoration requires the dual processes of unmaking and making. Therefore, if the image strays dangerously close to representing death, which is of course the undoing of meaning and highly problematic in terms of inscribing knowledge, it is only to facilitate the body being remade as anatomical knowledge. The figure slumped, lifelessly against a tree represents a momentary turn away from the antique. It cannot support itself and its flesh is torn open in numerous places, but this undoing of the body is required in order to later take up the full potential of the fragment. This is because, just like the antique fragments Barkan describes, the body in Estienne’s prints has to be torn apart in order for it to be remade as something new – specifically as anatomical knowledge. It paves the way for what will later emerge in the treatise as the mythological body takes over from the antique as *parergon*. However, I will return to address this in the final section of this chapter.

Even as the violence continues in the images following on from this, an attempt is made to try to reverse the fragmentation of the body. There is no doubt that the male anatomical figure in the next woodcut is living (Figure 2.7). Although no longer standing, the figure, seated on a kind of throne amidst a crumbling architectural landscape littered with broken pillars, tears violently at his flesh. The left hand rips apart the skin of the torso in order to make the interior body visible while the right hand is tucked away out of sight behind the back – thus parodying the duality of a body which performs both the roles of active anatomist and passive anatomised subject. Many anatomical prints of the period sought to displace the ‘onus of violation’ from the anatomist to the dissected body by employing so-called ‘self-dissecting’ figures. But the violence of the gesture in Estienne’s print inevitably leads one to question whether the figure is merely complicit in the search for self-knowledge or actively seeking self-evisceration. Although it is unlike the images in the *Fabrica*, it does resemble engravings in Juan Valverde de Amusco’s anatomical treatise of 1560, *Anatomy of

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201 Harcourt, “Anatomy of Antique Sculpture,” 49. For further discussion of the conflation of the body of the anatomist with that of the corpse see: Traub, “Gendering Mortality,” 53.
the human body, for the way they take self-demonstration to its extreme.\textsuperscript{202} In Valverde’s engraving of a partially dissected figure whose rib cage has been lifted up to reveal the lungs (similar to how the moveable paper flaps work in a fugitive sheet) the subject of the anatomical investigation also takes on the role of the investigator (Figure 2.8). However, the investigator’s gaze stubbornly remains directed away from the cut, almost as if out of refusal to acknowledge how the revelation of self-knowledge is dependent upon ‘physical violation of bodily integrity.’\textsuperscript{203}

Yet contrary to how the cut operates in Valverde’s prints, cutting works in both directions in On the dissection. In spite of (or perhaps in response to) the disturbing gesture of Estienne’s self-anatomising figure tearing at his own flesh, there are also certain features of the image that work to reverse fragmentation (Figure 2.7). Looking more closely at the gaping cavity in the figure’s chest it becomes evident that the fabric of the body is sewn back together in at least four points on the abdomen and there are several more stitches across the collar bone. Disturbingly, the material used to sew with appears to be the skin itself. At the centre of the cross-shaped incision the subject’s flesh is twisted into a loose knot, preventing the interior organs from spilling out. Interestingly, this attempt to reconstitute the body is also made possible by a cut, since sewing requires an incision to be made into the surface of a material in order to bind it back together. Albeit tiny, the pricks made by the needle are significant since they not only pierce into the skin, but also cut from the inside out with the return stroke of the needle.

Any attempt to remake the body, at the same time as the self-demonstrating figure is bent on destroying itself in order to reveal its anatomical secrets, seems perplexing. Yet it speaks about the process of dissection, which unavoidably has to destroy the physical body

\textsuperscript{202} Juan Valverde de Amusco, Anatomia del corpo humano (Rome: Ant. Salamanca and Antonio Laffery, 1560). Although many of the figures for Valverde’s treatise are copied from Vesalius there are a number of intriguing original prints conflating the figure of the anatomist with the dissected body. Vesalius wrote of Valverde’s plagiarism: “Valverde who never put his hand to a dissection and is ignorant of medicine as well as of the primary disciplines, undertook to expound our art in the Spanish language only for the sake of shameful profit”. Translation as given in: Charles Donald O’Malley, Andreas Vesalius of Brussels, 1514-1564 (Berkeley and Los Angeles: University of California Press, 1964), 294.

\textsuperscript{203} Traub, “Gendering Mortality,” 53.
in order to remake it as anatomical knowledge. This is similar to the way antique statuary
must first be unmade, either through loss of physical integrity or by losing its original
identification in order to take on new significations following its unearthing. The broken
columns and crumbling architecture pushed up against the foreground in Estienne's image
serve to remind viewers of this. Directly in front of the figure's feet is the top of a shattered
column, the jagged outline of which matches up neatly with the base of the column still firmly
rooted to the ground just behind it. The implication is that this fragmentary architectural
feature could be restored, though it also harbours the potential to be remade as something
new. It is this useful characteristic of the antique fragment – its potential to be made,
unmade and remade again in a continual process of change – that the images from Book II
of On the dissection are able to draw upon. Crucially it is a process of renewal and
reinvention that, as I intend to show, has great potential for the anatomical body.

The transection of the brain/woodblock
At the end of Book II, the male body, no longer able to support itself in an upright stance
slumps across the ground leaning against the trunk of a tree (Figure 2.10). The head is tilted
backwards displaying the interior structure of the cognitive organ, the various parts of which
are labelled by the letters A-K. However, what makes this image different from those that
precede it in the treatise is neither the fact that the male body can no longer be defined as
active or that the layout of the page has been reoriented in order to accommodate the full
length of the prostrate body.\footnote{Although it should be noted that the image's textual
description represented in an ornate frame resists the reorientation of the print. Instead it remains vertical and hence has the same orientation as the text on the opposite page.} It is the distinctive cut that immediately reveals itself to the
observer. For rather than cutting \textit{into} the body by piercing the outer layer of skin and
revealing subsequent layers, this cut \textit{slices across} the body and produces a new kind of
surface.
This particular kind of cut can be described as a transection, meaning a cross-section or a cut made across the tissue of an organ. Though the transection cut appears in other contemporaneous anatomical works, including the Fabrica and Walther Ryff's 1541 On the most sublime, elevated and noble of all creatures, Estienne's prints exploit the transection cut more fully and do not separate it from the view of the rest of the body. Transection enables a view of the internal body, not as a cavernous space that can be excavated by the anatomist/observer, but as a new kind of surface which, much like the external surface of the body covered in skin, has its own landscape made up of crevices and folds of tissue.

Moreover, this strategy of slicing across rather piercing into is about the prospective for change rather than a fixed image. It does not conceal the unknown parts from view. Instead everything is made visible, laid out side by side, for the viewer to study in much the same way as a map with the yet unknown terrain of old and new worlds.

Anatomy and cartography’s close association in the pre-disciplinary moment of the sixteenth century is well known, especially since both practices are concerned with the discovery and conquering of previously unknown or uncharted spaces. Traub argues that anatomical and cartographical illustrations shared a common ‘spatializing logic’ that...
developed during this moment of discovery.\textsuperscript{209} This reciprocity is certainly evident in Bartholomeus Eustachius’s 1722 anatomical plates (Figure 2.9).\textsuperscript{210} Although Eustachius’s plates were published much later than those of Estienne, nonetheless comparisons between the two can be useful, particularly because of how they make explicit the connection between the mapping of the body and the mapping of geographical spaces. Eustachius depicts the anatomical model located in an indeterminate space and framed by a narrow border containing measurements given in five degree increments. The strategy of using measurements to define and categorise particular areas of the body is an adaptation of a schema routinely employed for maps – thus associating the anatomist’s explorations of the body with contemporaneous travel to distant and previously unmapped lands. By doing so it stresses how the body is a space to be discovered and explored. Another similarity would be the way anatomists, like explorers, also conquered and laid claim to the body’s interior space by naming parts and claiming these territories. Furthermore, just as the dissected body is often represented within a ‘contextualising landscape’, the ‘body of the map’ was itself framed by bodies, perhaps of personifications of continents or of actual indigenous people.\textsuperscript{211}

Reciprocity between body and landscape is also explicit in the strange anthropomorphism at work in Estienne’s woodcut, making the surfaces of flesh, rocks and even a nearby tree blend and merge with one another (Figure 2.10).\textsuperscript{212} The figure’s right arm has been transformed from soft flesh to solid rock and the tree has been pruned back, ‘echoing the pollarding which the body has undergone.’\textsuperscript{213} The shoulder merging with a rocky outcrop on the horizon of the landscape, the use of shading likening the shapes of the

\textsuperscript{209} Traub, “The Nature of Norms,” 54.
\textsuperscript{210} Eight of Eustachius’s plates focusing on the kidneys and vascular system were first published in 1564 in Opuscula anatomica. Another thirty-eight copperplates were found after Eustachius’s death and published by Giovanni Maria Lancisi along with his own explanations in Rome in 1714 under the title Tabulae anatomicae Bartholomaei Eustachii. For further information see: Choulant, History and Bibliography, 200-04.
\textsuperscript{211} Albano, “Visible Bodies,” 89.
\textsuperscript{212} This anthropomorphic effect is also noted in Jonathan Sawday, “The Fate of Marsyas: Dissecting the Renaissance Body,” in Renaissance Bodies. The Human Figure in English Culture c. 1540-1660, eds., Lucy Gent and Nigel Llewellyn (London: Reaktion Books, 1990), 127-8.
\textsuperscript{213} Ibid., 127-8.
buttocks to the boulders and pebbles littering the ground and the way the legs blur with the rough terrain – all inescapably tie the body to the earth. It is therefore difficult for the observer to ascertain the precise boundary where body begins and landscape ends and vice versa. For Sawday this anthropomorphism recalls the Ovidian transformation at the end of the Marsyas myth, whereby the tears of onlookers drain into the earth transforming it into a body once more. The link with the earth stresses the naturalness of anatomy because: ‘far from attempting to disrupt the body’s organic integrity, [the anatomist] is only assisting that natural process of decay and dissolution which the body is, in any case, inevitably fated to undergo.’ Serendipitously, this quotation reveals yet another way in which the body resembles not just nature but also the antique fragment; both were uprooted (albeit pre-emptively in the case of the cadaver that was yet to be buried) from the ground into which they were fated to disappear through long-term decay. But I disagree with Sawday’s insistence about the ‘naturalness’ of dissection, after all there is nothing natural about the cut that slices across the head, revealing the internal geography of the brain. In fact the crisp outline made by the transection of the cognitive organ is entirely unnatural, especially when one considers the reality of the physical effort that would have been required to saw through the skull and the brain. It would seem that the transection alludes more to the printing block, with its clean cuts scored on the surface, rather than the human body.

Another interpretation of the body’s relation to the landscape is therefore required. The figure’s connection to the landscape from which it threatens to disappear, rather than appear, stresses that man does not merely exist within the world but in fact is the world. This visual analogy is well known from other sixteenth century prints such as The Fool’s Head with World Map printed in Antwerp, c. 1590. In this print the conflation of map and head, world and body is even more explicit as the fool is given a world map for a face. The map as a representation of the world both merges with and separates from the body of the fool.²¹⁵

By contrast, in Estienne’s print the head is the only part that escapes being visually

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²¹⁴ Ibid., 129.
subsumed into landscape and yet the way it is cut across rather than into inevitably leads the viewer back to the map.

The cut slices across the head, revealing a flat surface, whereby everything is laid out side by side, in order to be mapped and labelled. However, not all of the parts of the brain can be categorised in this way, and the unlabelled areas suggest unchartered forms that elude the formation of knowledge. This is unlike prints of the brain in the *Fabrica* that strategically conceal areas and characteristics still unknown or undefinable through a strategic sequence of images in which the skin is first peeled back to reveal fractal patterns of veins and arteries crisscrossing the head, before another layer is removed, exposing parts of the brain which were known and could be labelled (Figure 2.13) By contrast, in Estienne’s print, everything is brought into visibility by the transection cut.

Thus the internal space of the head proves itself to be, much like the world the body inhabits, unfamiliar terrain, and like the cartographic map in constant need of revision – a point made all the more evident by the anatomical inserts forced into an area undefined in the print’s original design. The reason the transection view of the brain has so much in common with a map then is not simply the way both share a common ‘logic of the grid’, regarding their flattening out and handling of space.\(^{216}\) It is also related to how both attempt to bring together both known and unknown features within the same field. Following new knowledge, as well as the discrediting of old knowledge, including the fruitless attempts to pinpoint the location of the soul, it must have been apparent to early modern practitioners of anatomy that there was a great deal about the human body that was still not fully understood. Indeed, for both anatomists and cartographers there was a turn towards questioning the authority of the ancients during the period, since: ‘What one actually saw, rather than what – according to the classical tradition – one expected to see, gradually became the focus of investigation.’\(^{217}\) Rather than using the cut to pin down meaning or

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\(^{217}\) Albano, “Visible Bodies,” 91.
define ‘normative’ anatomy as it is so often argued, the visual analogies between the surface of the brain (made visible by the transection cut) and maps, redefine the practice of anatomy as a mode of exploration in which knowledge of the body is not fixed or stable, but is instead continually developing and reconceived.

**Between materiality and meaning**

The fine line between revealing and obscuring information through the cut emerges for the first time in another woodcut representing the dissection of the head (Figure 2.11). The woodcut depicts a male anatomical model sprawled across an oversized table, with the smooth cross-section of the head perfectly aligned with the flat edge of the table; anything beyond this surface has been sliced off in one precise, clean cut. What is apparent from this view is that the brain is not a flat surface, but is in fact punctuated by recessed areas and gaps, evoking the possibility that, like the printer’s woodblock, the brain might also produce an impression were it to be pressed against the absorbent surface of the page.

Analogies between the woodblock and the transection view of the brain are significant, particularly since in the sixteenth century great emphasis was placed on the importance of the observation of nature. At the same time that the anatomist’s demanded direct physical contact with the cadaver, printmakers experimented with the imprinting of specimens directly from nature. By printing an image made directly from the object of study even the most intricate of lines and minutest of details could easily and accurately be transferred onto the printed page, while the ‘fallible hand of the recorder’ was conveniently detached from the print’s production, thus strengthening claims of veracity.

While I am not proposing that Estienne’s print is formed from a direct impression of the human brain, the

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Allusion it makes to physical contact with the object of study is clear, and reminds observers of the cut’s potential to transform marks and incisions into knowledge.

Furthermore, it is not only the dissected brain that evokes the surface tactility of the printer’s block. Throughout the treatise there is emphasis on surface ornamentation and texture, for example the lavishly carved benches, or the patterns visible on tree trunks. Such emphasis on materiality and texture inevitably leads the observer back to thinking about the surface of the print itself and the ‘deeply carved incisions and sculptural raised lines’ of the woodblock. This process of making would probably be even more apparent to the early observers of the print since the raised areas of the woodblock made an embossment in the surface of the paper at the same time as they transferred the inked parts of the design. Over time this embossment becomes less pronounced, particularly if the print is bound as part of a weighty volume. But the surface of a recently pressed woodcut would not have been flat, and the undulating terrain of inked depressions and raised blank areas produced a materiality that was a ‘tangible, physical experience of the natural world.’

As if mirroring the observer’s own engagement with the anatomised body, a pair of eager onlookers is represented at the upper left of the image. The two seem to be engaged in a lively conversation, presumably on the subject of the anatomised figure. The younger of the onlookers points towards the dissection, imploring the older bearded man — and crucially also the print’s observers — to look closely. The way that the two onlookers reciprocate the observer’s own position implies that this tableau is included in the image for the observer’s benefit. It has also been suggested that this interplay between the bodies of the onlookers (positioned both literally and socially higher) and the body of the anatomical model re-enact the judicial relationship between the criminal’s body laid out for dissection and that of the

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222 For an example of the ornately carved bench see the print illustrating the anatomy of the brain in: Estienne, De dissectione, 250.
223 Dackerman, “Dürer’s Indexical Fantasy,” 168. An alternative interpretation is that Dürrer’s emphasis on the decorative ornamentation of the rhinoceros’s skin is a visual reference to his early work designing armour, following in the footsteps of his father who was himself a goldsmith; see Joseph Koerner, “Albrecht Durer: A Sixteenth-Century Influenza,” in Albrecht Durer and His Legacy: The Graphic Work of a Renaissance Artist, ed., Guilia Bartrum (London: British Museum, 2002), 31.
executioner/anatomist. However, located high up in their privileged vantage point, the onlookers seem more likely to thematise the unmediated access that the transection cut offers.

Another onlooker is perched on a parapet in an image from Book III, representing the dissection of the female body (Figure 2.12). A pair of spectacles balances precariously on the man’s nose and his gaze is directed towards the female model on the foreground of the image, whose foot rests upon a stone tablet containing textual information pertaining to the dissection of the womb. The skin of the torso has been neatly cut into and rolled down, revealing the reproductive organs along with foetus. Significantly the curling folds of the female figure’s skin look remarkably like the scroll unfurling from the onlooker’s right hand. Could this be another visual reminder of the materiality of the paper body on display? The resemblance between the way the skin is cut and rolled back and the unfurling scroll is certainly suggestive, making an interesting parallel between the parchment scroll and the human flesh. Moreover the spectacles worn by the observer are not only an aid to vision, they are also a new technological invention, linking them to the development of printing technologies.

Significantly, the invention of eyeglasses appeared alongside book printing and copperplate engraving in Stradanus’s New Inventions of Modern Times, a series of twenty prints reporting on new inventions and discoveries that was published in Antwerp, c. 1599-1603 (Figure 2.14). Although printed over fifty years after Estienne’s treatise, Stradanus’s image highlights the association between technology and the ability to observe accurately. Two further images in Stradanus’s set of prints also represent the new printing technologies

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226 Talvacchia compares the inclusion of an onlooker in this print to a voyeur represented in one of the prints for I modi “The Positions” by Giulio Romano. She writes that their function is to remind viewers of their own position whilst also bringing to mind the role of the doctor/anatomist. See Talvacchia, Taking Positions, 168-9.
of 'book printing' and copper engraving (Figure 2.15 and Figure 2.16). Both emphasise the capacity of the printing press to reproduce multiple copies of an image or text, with every possible space utilised for drying prints. Moreover, the work of reproducing prints continues elsewhere, as skilled craftsmen ceaselessly go about their duties.

One of the craftsmen, depicted in the lower right of 'The Invention of Copper Engraving', wears eyeglasses to aid his vision (Figure 2.16).\textsuperscript{228} He pours over his work, carefully gouging out the design onto the smooth surface of the metal plate. Curiously though, instead of aiding his vision, the glasses appear to obstruct or cloud the man's sight due to the fact that the thick lenses are represented as white and opaque. Likewise, in spite of (or perhaps because of) their spectacles many of the figures depicted in 'The Invention of Eye glasses' struggle to see, including the man in the foreground who holds his papers close to his face and strains forwards (Figure 2.14). It is unclear whether the opaque lenses he wears aid his vision, which is curious given that the images in Stradanus's report are intended to promote technology. However vision is not only the perception of light as it enters the eye, it is also knowledge or understanding and spiritual 'seeing' that claims to make the invisible visible. Therefore the question of whether or not the eyeglasses in Stradanus's print improve vision is a complicated one, since even 'as spectacles strip away falsehood, making man see clearly and impartially, they also compound the illusions to which man is already subject.'\textsuperscript{229}

Michael Gaudio discusses how observers are invited to reflect on the technologies of vision in Theodor de Bry's 1590 engraving 'A cheif Lorde of Roanoac'. In the following passage Gaudio argues that the copper plate – notable for its lack of markings – worn around the neck of an Indian chief is both a token of the chief's authority in Algonquian

\begin{multicols}{2}
\textsuperscript{228} For other discussions of the figure wearing eye glasses see Jessica Wolfe, \textit{Humanism, Machinery and Renaissance Literature} (Cambridge: Cambridge University Press, 2004), 28; Michael Gaudio, \textit{Engraving the Savage: The New World and Techniques of Civilisation} (Minneapolis: University of Minnesota Press, 2008), xx-xxi.
\textsuperscript{229} Wolfe, \textit{Humanism, Machinery and Renaissance Literature}, 28. See also: Gaudio, \textit{Engraving the Savage}, xxi. Gaudio writes that the image could also be a reminder that, for all the potential advancements technology promises, it merely offers a form of mediation between human vision and representation produced by 'imperfect human beings working with tools and copper plates.'
\end{multicols}
culture and an invitation to reflect on de Bry’s own art of engraving: ‘This chief lord’s “token of authoritye”…draws our eyes downward to the tables of the workshop; it reminds us that the matter of engraving can never be entirely left behind…It belongs both to the art of engraving, as its leftover, and to the savage, as his defining feature…’\textsuperscript{230} For Gaudio the copper plate is mobilised in two key ways. Firstly, the copper plate is used to accentuate the savage-civilised dichotomy. Secondly, and most importantly for my own argument, the copper plate also reveals the degree to which engraving not only mediates vision of the world but the extent to which its very materiality can get in the way or stand in between the viewer and the world.\textsuperscript{231}

Estienne’s images raise this issue in the way cutting and seeing are inextricably intertwined throughout Books II and III. Returning to the image of the anatomised woman from the beginning of Book III, it is difficult to ascertain whether the lenses worn by the onlooker in the upper left of the image are clear or opaque (Figure 2.12). Regardless, their role in bringing together new technologies of vision (eyeglasses and print) is significant. The observer alone would thematise the act of looking – the addition of the spectacles adds yet another layer to the formation of knowledge by conflating the technology of printing with that of seeing. Perhaps it was even intended as a comment on the drawbacks of conceiving seeing as something that is simply determined by the physical eye. After all, seeing involves other aspects of the person, including the spirit and the mind. This would be particularly fitting given that all is not as it seems in the woodcuts representing the female anatomy. In the section that follows, I will consider how the onlooker observes more than the anatomisation of the female body; they observe their \textit{transformation} from mythological god to subjected anatomical model.

\textsuperscript{230} Ibid., xxii. 
\textsuperscript{231} Ibid., xx-xxi.
Cutting the mythological body

Reclining in a bedchamber, her face partially obscured by a raised left arm, the sleeping figure is on display for our scrutiny (Figure 2.17). A curtain hangs down from the upper right of the image, and in a theatrical gesture of revelation its rippling fabric is twisted back. The lavish interior setting is far removed from the arid and somewhat harsh exteriors in which the male figure is displayed. The deployment of sensuous devices seem to invite the anatmist(observer’s touch, although it is it is the female figure’s interior as much as her smooth skin that one is invited to examine. An incision begins in the middle of the thigh and running up the leg opens into a gaping cavity in the abdomen. Here we see the viscera, including the uterus, which is what defines woman’s difference in early modern anatomy. The tear that splits apart flesh to reveal the internal organs is just as violent as anything done to the male body, yet the figure’s pose introduces a considerable level of ambiguity. The curling toes, the raised left arm, and the fingers grasping the bed clothes could be interpreted as signs of sensuous abandon, though they could just as easily be the contorted writhing of a body in pain. Again Estienne’s print is caught between multiple actions that intertwine eroticism and pleasure with death and pain.

If the image harbours a potential for eroticism, it is because it is based on an engraving of Jupiter and Antiope from the mythological prints The Loves of the Gods, engraved by Jacopo Caraglio (Figure 2.18). Although Jupiter, disguised as a satyr and identified by the eagle, has been removed, his role as observer is taken up by the viewer.

It is widely accepted that at least eight images in Book III were adapted from Perino del Vaga and Rosso Fiorentino’s drawings for The Loves of the Gods. Although there has been much speculation, very little is actually known about how or why Caraglio’s eroticised illustrations came to be used by Estienne. I disagree with Kellett’s suggestion that Estienne merely stumbled across the prints for The Loves of the Gods in his step-father’s warehouse.

233 I disagree with Traub’s suggestion that the female anatomical figures for De dissectione take exhibitionist pleasure in the viewer’s gaze. Actually most appear unaware of the viewer’s presence and some are depicted with their eyes closed. See: Traub, “Gendering Mortality,” 81.
and seized upon the idea of reusing them simply because they provided suitable nude figures.\textsuperscript{235}

However, it is safe to assume that process of adapting the figures involved at least three separate stages.\textsuperscript{236} During the first stage, Estienne’s artists would have copied the images from ‘The Love of the Gods’ reversing them on the woodblock in order to match the original orientation in the final print. Secondly, the images were altered slightly in order to fit their new anatomical purpose – the plaque, elaborately framed with garlands of fruit and flowers in the upper left of the image was added during this second stage in order to accommodate the textual explanation. The third step entailed physically cutting into the woodblock in order to insert the more detailed anatomical content. This step left a highly visible mark on many of the images, just as it did for the prints concerning the male anatomy from the second book. Moreover, because the printer’s intervention remains visible, the transformation from mythological to anatomical can never fully be complete. Instead, cutting maintains the body and image in a constant state of flux.

Bette Talvacchia has made a significant contribution to the scholarship on the female figures in Estienne’s treatise and brought the re-use of the mythological figures from Caraglio’s engravings to greater attention.\textsuperscript{237} Talvacchia’s interpretation is that the prints can be placed in the category of works that responded directly to the possibilities of sexual representation spawned by \textit{I modi} – the text from which Caraglio’s engravings were adapted. The unsettling frisson between anatomical content and mythological context in Estienne’s prints is the subject of Talvacchia’s investigation, although she argues that their coexistence was originally harmonious and only later, as the categories of art and science became more rigidly defined, this tension emerged and proved disconcerting for observers.\textsuperscript{238} According to Talvacchia, the framing of anatomical information within mythological bodies is intended to

\textsuperscript{235} Kellet, “Two Anatomies,” 344.
\textsuperscript{236} For a detailed description of the process of adapting Caraglio’s engravings into anatomical models see: Talvacchia, \textit{Taking Positions} 164-5. See also: Thomas Laqueur, \textit{Making Sex: Body and Gender from the Greeks to Freud} (Cambridge, Mass. and London: Harvard University Press, 1990), 130-1.
\textsuperscript{237} In particular see the chapter “Mythology, Sexuality, and Science” in Talvacchia, \textit{Taking Positions}, 161-188.
\textsuperscript{238} Ibid., 163.
legitimise the representation of the naked female form and to cancel out the suggestion of death in the representation of the dissected body, since: ‘Estienne’s women do not give the impression of death; rather, they loll in sensuous abandon.’\textsuperscript{239} It is a convincing argument given the highly eroticised postures adopted by the female models and the fact that the women do not return the viewer’s gaze and maintain their eyes firmly closed. Thus supporting the interpretation of a passive female model subjected to the active, anatomising gaze of the male surgeon/observer.

Scholars continue to focus on the overtly sexualised representation of the female body in the prints.\textsuperscript{240} Yet this tends to overlook the crucial metamorphoses from classical god to subjected anatomical model. Instead the explanation is left to the context, the court at Fontainebleau, a ‘powerfully gendered cultural venue’ where Estienne was court physician to Francis I.\textsuperscript{241} The languorous poses, the fabrics that invite touch, and the choice of classical goddess for the anatomical models can all be associated with the treatment of women’s body parts in poetic blazons and counter blazons at the court of Fontainebleau.\textsuperscript{242} In these ideological constructs of the female body, male courtiers took enjoyment in reading and writing poetic descriptions of disembodied female parts, which contrasted the exquisite and the grotesque. For example: ‘The beautiful breast – ivory, rose, a fruit – poetically confronts the ugly breast – black sagging, stinking, shapeless.’\textsuperscript{243} The contrast between the perfectly shaped body of the anatomical model and the horror of the cut that tears flesh open in order to reveal the internal anatomy seems to be linked to practices of poetry in the court.\textsuperscript{244}

Accordingly, it has been proposed that the representation of the female body is constructed for the (implicitly male) observer’s pleasure and that the appropriation of Caraglio’s erotic engravings, like the decorative ornamental and architectural structures that

\textsuperscript{239} Ibid., 167.  
\textsuperscript{241} Laqueur, Making Sex, 130. See also Sawday, The Body Emblazoned, 194.  
\textsuperscript{243} Laqueur, Making Sex, 130.  
\textsuperscript{244} Ibid.
surround the figures, is intended to, ‘bolster an enjoyment of the anatomy, a mode of transmission of knowledge and learning.’ In this interpretation the anatomical content of the image is little more than a cover for the representation of erotic female bodies that elicit response from ‘the libido and the intellect.’ Yet this interpretation fails to address how Estienne’s mythological female figures invoke viewers to know themselves or how the call to self-knowledge that is implicit in the anatomical content of the images can be reconciled with the body on display. After all, Estienne frames his anatomical treatise in a specifically Christian narrative and writes in the preface that the body is a ‘unique artifice and work [that] allows us to understand the incredible power of our immortal God.’

I would propose that the reuse of the mythological figures relates to the transformative possibilities of the mythological body, which had fewer restrictions placed upon it. As I will show, the mythological body was a site of change and it is this issue that is taken up in Estienne’s prints. The Ovidian myth of the satyr Marsyas, condemned to eternal punishment for his transgressions against Apollo by being dissected alive, has great resonance for the anatomical body. Marsyas was in effect the original anatomical figure as well as ‘object of erotic longing.’ The anatomical body, like Marsyas, is of course also closely associated with criminality and transgression, because it was usually the body of an executed criminal. Indeed both Marsyas and the anatomical body are not only subjected to fragmentation under the knife, they are also both exposed, in the most literal sense, for public spectacle. But it is not the connotations of punishment, integral to the Ovidian myth, which is taken up in Estienne’s print. Any implication of physical pain or the spectacle of


247 Translation of Estienne’s text from the preface to *On the dissection* as given in Parker, “Subtle Bodies,” 79.


249 Sawday, "The Fate of Marsyas," 113.
punishment is carefully side stepped by the female figure’s apparent complicity in the act of
dissection. Yet the myth’s focus on transformation as an ongoing process that produces
knowledge and self-discovery remains a central concern.

The myth of Marsyas was the subject of many sixteenth century prints and paintings, but perhaps the best known is Titian’s painting of 1576, *The Flaying of Marsyas* (Figure 2.20). The painting depicts the subjected satyr hanging helplessly upside down from a tree, his body caught in an incomplete process of metamorphosis. The satyr’s flesh merges with the earth and his blood seeps into the ground. For viewers this evokes his fate to endure eternally the horrors of being torn apart and remade in order to endure it all over again. This process of constant change recalls Estienne’s illustration of the placenta in which the female figure is based on the print of Venus (Figure 2.1). Transformations between forms occur throughout the image, with the most obvious being the reuse of Caraglio’s engraving to make the anatomical model as open to the viewer’s scrutinizing gaze as the erotic mythological body. This rectangular incision occupies the very centre of the image and thus the process of transformation from god to anatomical model is impossible to overlook.

The whole composition seems carefully arranged to suggest movement from one state to another with the placement of objects and materials at boundaries. In the foreground of the print the figure’s left foot steps off the bed, complicating the division between interior and exterior spaces. In Traub’s analysis, the division between interior/exterior distinguishes male from female so the move towards the foreground of the image is particularly significant for the female body. Indeed, the anatomical tools are found in the foreground of the print, tantalisingly close to the woman’s toes. Does this suggest the possibility that the female figure is about to emerge from the domesticated luxurious interior space and move towards the outside (male) space of anatomical knowledge? While the figure is ultimately suspended in time and space, unable to break free of the rich fabrics that surround her, the location of her foot complicates the division between interior (feminine) and exterior (masculine) space.

The body is depicted on the threshold of these spaces with the, albeit unrealised, potential to break away or turn back.

Drapery too is employed to convey movement.\textsuperscript{251} The bed clothes spill over the boundary of the bed onto the ground, the drapery in the upper right is on the verge of collapsing, and the billowing folds of fabric hang weightily and threaten to engulf the figure entirely. This undoing of the bed and drapery echoes the undoing of the body in that both are on the threshold of being unmade and yet have not fully reached that state. The materiality of the body and the materiality of the fabric remain suspended, in a state of the in-between. If the observer were to momentarily avert their eyes from the rectangular incision containing anatomical information, then the body would return fully to the living instead of being between life and death. But neither fabric nor body can be restored as neither has yet come fully undone.

In some areas of the print it even becomes difficult to ascertain where flesh ends and material begins. Unlike Caraglio’s engraving, in which the fabric is pulled back on either side of Venus to perform the unveiling and framing of the goddess, in Estienne’s woodcut the fabric threatens to envelop the figure. Body and fabric become almost indistinguishable courtesy of dense cross hatching, and the insides of the body seem to exceed the confines of the anatomical insert and begin to subsume the whole image. Bed clothes, curtain fabric and the plush pillows all start to appear as an echo of the body’s interior. And the juxtaposition between female body and fabric goes even further. The addition of a large vase with two handles in the place of cupid is linguistically and physically evocative of a part of the female anatomy – the womb. Thomas Laqueur explains that the Latin word vaso or French vase can both mean container or vessel, and hence the vase is comparable to the uterus, which is itself a container or vessel for the foetus.\textsuperscript{252} In this interpretation the handles of the vase are ‘seminal vessels’ and the ornamental bearded men directly beneath the handles

\textsuperscript{251} Although the effect is less pronounced in some images, the dislodged fabric slipping from the bed appears in prints in the following pages of On the dissection: 260, 271, 275, 279, 285.

\textsuperscript{252} Laqueur, Making Sex, 131.
are the ovaries. A curtain sack has also been added to Estienne's print, the bulbous, swollen forms of which again duplicate the womb. Repeated emphasis on woman's reproductive organs as signifiers of sexual difference is not unique to Estienne's treatise however, it is a familiar early modern strategy to define the female body, and one that played a particularly important role in constructing gender difference in fugitive sheets. Yet the inclusion of these objects does not simply re-inscribe gender difference on the surface of the image, they also move the internal anatomy outside of the insert, blurring the boundaries between inside and outside. In effect, these objects ensure that the entire image becomes a way to consider the body's interiority.

The ambiguity of pictorial space, first noted in the representation of the dissected head for Book II, constitutes the representation of female anatomy especially as it serves to blur boundaries between interior and exterior space. For instance it is not immediately evident whether the anatomical ‘Venus’ is intended to be read as sitting or reclining upon the cushions of her bed. If the figure is intended to be seen as lying down then her body should recede backwards into the representational space, but in fact it appears more like it has been propped up. This ambiguity is even more pronounced in the contorted positioning of the figure from page 279 (Figure 2.19). The figure half reclines, half balances precariously with her weight supported only by an outstretched right leg. With left leg folded behind her and arms delicately resting on the folds of fabric that billows and encircles her, the woman seems miraculously suspended on the edge of the bed – not unlike the placenta that has been removed from her womb and placed on the footstool in the left of the image. Both the woman and the anatomised organ have an equivocal relation to the space they inhabit, having been pushed up against the surface rather than receding backwards into the depth of pictorial space.

The flattening out of space and the distortion of perspective seems to be an intentional strategy, designed to encourage observers to contemplate the surface, not only of

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253 Ibid.
the body but also of the print. The push and pull between flatness and depth is akin to the oscillating experience of viewing a print which involves moving back and forth between reading the image as a comprehensible whole and seeing it for what it really contains – a combination of lines cut into the surface of the woodblock and transferred onto paper by the application of ink and pressure. The transformation of the cuts made into the woodblock by the printer enact together with the transformative capacity of the mythological body. And even if the internal anatomy is separated from the rest through the marking of its edges, the lines cut into the woodblock that form a ‘frame’ for the anatomical content tend to blur the division between the two parts of the image.

One more intriguing, though easily overlooked, transformation occurs in the lower right corner of the print depicting the dissection of ‘Antiope’ (Figure 2.17). In Caraglio's engraving an eagle, which in mythology served as Jupiter's personal messenger and represents his ability to transform himself into other forms, emerges from between the Antiope’s legs (Figure 2.18). In fact it is the eagle rather than a bed that Antiope appears to be lying on, and this is not the only evidence that the ‘bed chamber’ is a makeshift setting; the drapery hangs from the truncated branch of a tree and a clump of grass is partially obscured behind Jupiter’s satyr hoof. As part of the strategy to domesticate the space in Estienne's print the eagle is removed, replaced by a more conventional piece of furniture. But there is a grotesque decorating the corner of the bed. Significantly, its line of vision leads directly to the dissected woman’s interior making it a fitting reminder that the woman’s body is now the object of a different kind of vision.

Caroline Walker Bynum writes that metamorphosis must be understood as a process occurring over time and with no specific end point. The body does not leave behind what it

255 See for example the print on page 271 of On the dissection with the onlooker who spies the female figure through his eye glasses. In this image spatial ambiguity distorts the relation of the figure to the throne they are seated on. According to Talvacchia the female figure in this print is meant to be read as adopting a reclining position, although she actually appears bolt upright – see Talvacchia, Taking Positions, 168. Also see the woodcut on page 270, where the parallel lines of the tiled floor create a vertiginous sense of perspectival depth sharply in contrast to the flattened out forms of the figure who rests her arm on a tablet containing a textual description of her anatomy. Like the tree from the image depicting the transection of the brain in Book II, this tablet occupies a space both simultaneously yet impossibly in the foreground and the background of the print.
once was, nor does it fully become something new because to do so would be to cease to be in the process of becoming.\textsuperscript{256} It is a process in which the body is never still but always changing. Thus the metamorphosis of the mythological body is similar to the ongoing transformation from flesh to knowledge and back again as it is cut on the dissection table. Cutting into the body changes it, but like the mythological body it never leaves behind what it was before, nor can it ever return to its previous state. As Caroline Walker Bynum writes, this state of flux can be both useful and problematic:

\begin{quote}
...metamorphosis can, on the one hand, be ways of suggesting that the reality they image is what the world really is; in this sense they are revelations...On the other hand, both hybrid and metamorphosis can be destabilizings of expectation. Both can suggest that the world, either in process or in the instant, is disordered and fluid, with the horror and wonder of uncontrolled potency of violated boundaries.\textsuperscript{257}
\end{quote}

This lack of fixity for the image/body and the potential for change is embraced throughout Estienne’s \textit{On the dissection}, but is perhaps most striking in the conjunction of the mythological and the anatomical that define female anatomy. The body is suspended in an unresolved state of flux, its metamorphosis from flesh to knowledge not yet fully complete. But rather than threatening or challenging the production of self-knowledge, the body’s unresolved status actually draws attention to the fact that the acquisition of anatomical knowledge is an ongoing and embodied process of interpretation.

The cuts in this treatise display diversity but all of them demonstrate the cut as a starting point for change – for knowledge to be acquired, corrected and added to over time. Significantly then, throughout the treatise observers are invited to engage in the process of acquiring knowledge for themselves as opposed to receiving something already fully prescribed. Unlike other anatomical images that seek to pin down meaning and prohibit

\textsuperscript{257} Ibid., 30-1.
slippages or transformations between forms, Estienne's prints utilise the potential of
transformation in order to reveal (rather than conceal) the body's potential for anatomical
knowledge. This seems fitting, since anatomical knowledge was itself undergoing rapid
change and was quickly superseded. The image, which was itself undergoing change as
new strategies were tried and discarded, was left to deal with the process of change itself.

The appropriation of Caraglio's visually seductive mythological goddesses for the
third book of On the dissection may seem out of keeping with the treatment of the body in
the rest of the treatise, but mythology and the antique are of course very closely related.
Moreover, for On the dissection the expediency of the antique fragment and the mythological
body lies in the fact that both are about present and ongoing transformations. This makes
them an ideal frame within which to substitute the notion of the cut – something that
suggests a definitive and irreversible change occurring in the past tense – with the notion of
cutting, which is an ongoing process. By doing so the image is able to retain a trace of what
the body was before it was cut, whilst simultaneously suggesting its transition into something
new.\textsuperscript{258}

\textsuperscript{258} Ibid., 33.
Chapter 3

Dissecting Vision in George Bartisch’s 1583 On the Service of the Eyes

Balanced between the forefinger and thumb of the surgeon’s right hand is a cataract needle, its sharp point directed inwards towards a book (Figure 3.1). The left hand clutches a curved instrument shaped somewhat like a spoon but with a sharpened outer edge. Both instruments are specialist cutting tools designed and used by the itinerant eye surgeon George Bartisch (1535-1607), who is represented in this portrait. Bartisch has been called the ‘father of ophthalmology’ by historians of medicine, and in the portrait he stares out resolutely, his gaze fixing the attention of the observer.\(^{259}\) In fact this is one of the few images in his 1583 treatise On the Service of the Eyes, published in Dresden and credited with being the first treatise to provide a comprehensive examination of the eye, in which eyes meet each other.\(^{260}\) Elsewhere, eyes are systematically pierced, cut open, and removed from the head. Even if eyes and thus seeing are not obliterated they fail to return the gaze directed at them. Whitened pupils stare blindly into the middle distance or hooded caps, prescribed by the surgeon to correct strabismus, obscure the line of vision.\(^{261}\) This marks a distinct contrast with the presentation of Bartisch’s own inquiring stare in the portrait, which establishes an opposition between the surgeon’s eyes that actively observe


\(^{260}\) George Bartisch, Ophthalmodouleia Das ist Augendienst (Dresden, Mathes Stöckel, 1583). Treatises on the eye had been published before Bartisch’s, for example Benvenuto Grassi. De Oculis (Florence, 1474) and Leonhart Fuchs, Alle Krankhaft der Augeri (Strasbourg, 1539) – see: Benvenutus Grassus of Jerusalem, De oculis eorumque egritudinibus et curis, trans., Casey A. Wood (Palo Alto, California: Stanford University Press, 1929). However, On the Service of the Eyes was the first to describe surgical operations such as the extirpation of the eye ball in detail. Bartisch produced only two books during his lifetime the first of which was Cutting for Stone (1575). Unlike On the Service of the Eyes this first book has received little scholarly attention.

\(^{261}\) See for example the curious series of hooded faces illustrated in Bartisch, Ophthalmodouleia, 15r, 16r, 16v.
the world, and the eyes as an object of scientific inquiry. In effect, the eye, under the surgeon’s knife, is stripped of its ideological power as an organ of vision and hence knowledge. The new medical profession’s attempts to acquire insight into the workings of the eye and to claim sovereignty over vision by cutting into and laying bare the eye’s inner workings render the eye impotent; no longer able to see, it exists only to be seen.

In his portrait Bartisch holds the tools of his trade and the sharp point of the cataract needle directs attention towards the diminutive book resting at the centre of a stone ledge. Although the needle is designed for piercing cataracts that form over the eye, it also resembles a burin used for cutting lines into the woodblock, declaring Bartisch’s dual roles as surgeon and author of his treatise. And while he may not have personally taken the pains to cut the woodblock, the positioning of the sharp implement implies that Bartisch is not only responsible for cutting into the eye, but also had an important role to play in deciding how the knowledge he produced through surgical practice would be recorded on the woodblock. The coming together of quill and scalpel – book and body – in this image should not be overlooked, particularly since it was a radically new approach for a surgeon to combine these tasks. Before Vesalius’s Fabrica was published in 1543, the anatomist/surgeon was distanced from either physical acts of cutting into the body or the inscription of medical knowledge in a book: ‘In the pre-modern, pre-Vesalian, Mondino model, the anatomist-physician does not author the book he recites: he has not yet taken quill or scalpel – or speech – into his own hands. The role of the anatomist is expanded even further in the portrait, in which Bartisch is framed by an ornate stone arch surmounted by two putti and other decorative devices. Directly above the surgeon is the image of God

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262 It has been suggested that Hans Hewamaul was responsible for cutting the woodblock and that the designs were closely based on drawings made by Bartisch. Although some of the anatomical illustrations of the eye are based on Vesalius’s woodcuts for the Fabrica the majority of images for On the Service of the Eyes, including those representing the surgical apparatus and scenes of surgery being performed, are original designs believed to be based on Bartisch’s own drawings. For further information on this topic see: Tower, “Notes of the Life,” 61.

holding the *globus cruciger* in one hand while offering a sign of blessing with the other, suggesting the divine sanction of Bartsch’s work.

*On the Service of the Eyes* is important to an understanding of early modern notions of vision, when the veracity of what one saw was beginning to be questioned. At the same time, printing was reorganising the way knowledge could be transmitted to readers. The treatise contains ninety one woodcuts in total, ranging from representations of surgery being performed on a patient to detailed images of surgical implements and the preparation of remedies. Around half of the woodcuts depict tightly cropped portraits of individuals with diverse ocular ailments and illustrate conditions described in the text. These prints also differ from contemporary anatomical treatises in depicting not only the specificity of ailments but also people in a historical context through their distinctive attire.

The prints in this treatise exemplify the changing status of vision as it intersected with both embodied experience and the pursuit of medical knowledge during the sixteenth century. European eyes were after all at the centre of social, political and religious debates of the period: ‘Discovery, iconoclasms, revelation, observation, all presumed some kind of direct relationship between the human eye and knowledge.’ It is usually argued that European cultures had long held an *ocularcentric* bias, placing vision above all the other senses. Eyes were claimed to be intrinsically linked to the process of memory making and learning since it was believed that a mental image or ‘phantasm’ was inscribed in a person’s memory after something was seen by the eye of the mind. The eye was also thought to

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264 There is evidence for the continued popularity of the treatise since a second edition was printed: George Bartsch, *Ophthalmodouleia. Das ist Augendienst* (Frankfurt, 1584). The only differences between the first and second editions occur in the title page where the printer’s name ‘A.M. Sigismundi Feyerabends’ is added to the second edition. Later, in the seventeenth century, *On the Service of the Eyes* was reprinted again under a new title: George Bartsch, *George Bartsch Augendienst* (Nürnberg: Georg Scheurer, 1686). More considerable alterations were made to this reprint. For example, the whole of chapter sixteen, which describes the preparation of medications, was deleted and the costumes represented in illustrations throughout the treatise were updated to reflect more contemporary fashions. For a more detailed discussion of this see: Tower, “Notes of the Life,” 61.


266 This privileging of the sense of sight pre-dates early modern anatomies. Both Plato and Aristotle associate vision with reason, placing it above the other cognitive senses.

be the body part closest to the soul and for this reason spiritual seeing was closely modelled on physical seeing.\textsuperscript{268} Writing about the superiority of the eyes above all the other senses, Bartisch proclaims: ‘It is also the most necessary, noblest, clearest, and most subtle member above all others.’\textsuperscript{269} Of course, as an ophthalmologist it is no surprise that Bartisch would wish to stress the importance of vision and maintaining good ocular health, but in this view he is not alone. For instance, Helkiah Crooke’s 1615 treatise \textit{Microcosmographia}, pronounced that the eye’s elevated position, at the highest point of the body, substantiated its superiority over all other parts. Crooke wrote that eyes are: ‘Centinals or Scout — watches in the top of the Towre, whence they may discerne farther off.’\textsuperscript{270}

Yet a number of developments between the fifteenth and seventeenth centuries worked to undermine confidence in vision. Technological developments, such as the invention of the printing press, are particularly important factors in understanding the shifting status of vision and its relation to knowledge. As information increasingly came to be disseminated through visual rather than oral forms, the printed word began to usurp the spoken word as the primary means of conveying information. Traditionally, art historians have also postulated that the codification of a clear set of rules for the construction of linear perspective in painting, as laid out in Leon Battista Alberti’s 1435 treatise \textit{On Painting}, for example, established a stable relationship between vision and external truth.\textsuperscript{271} However, that claim has rightly come to be questioned in more recent scholarship, not only because Alberti was unable to shed any new light on how the eyes see, but more importantly because concerns about vision and seeing are not just ocular — they are also about not simply believing the surface of things.

\begin{itemize}
\item \textsuperscript{268} Ibid.
\item \textsuperscript{269} Bartisch quoted in Clark, \textit{Vanities of the Eye}, 9.
\item \textsuperscript{270} Crooke as quoted in Clark, \textit{Vanities of the Eye}, 10.
\item \textsuperscript{271} For example: Erwin Panofsky, \textit{Perspective as Symbolic Form} (New York: Zone Books, 1991); Martin Kemp, \textit{The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat} (New Haven and London: Yale University Press, 1990).
\end{itemize}
More recently Stuart Clark has argued that vision, far from being secure in its claim to represent truth, came under increasing scrutiny during the sixteenth century.\textsuperscript{272} There were growing concerns, even mistrust, over the veracity of what one saw or believed as a result of merely observing the surface of things. This was particularly pertinent to religious debates of the period, with Protestantism deeming mass a: ‘visual lie, reinforcing its own determination to see bread as bread and wine as wine – to accept species for what they seemed to be...’\textsuperscript{273} Miraculous apparitions were reclassified by Protestant reformers as devilish hallucinations. But Protestant scepticism about vision was symptomatic of a growing mistrust of spiritual as well as optical sight. Clark argues that the destabilizing of confidence in vision was not just limited to religious doctrine. The rise in anamorphic art, which has too often been dismissed as merely a curiosity or amusing distraction, can also be seen as commenting on the artificiality of perspective. It suggested that perspective does not merely replicate an accurate visual experience of the world, it is in fact a visual contrivance intended to deceive the eye. By manipulating vision, anamorphic images highlight the fallibility of vision and: ‘expose perspective’s claims to objectivity and truth by adapting perspectival techniques for yet more manipulative and deceitful purposes.’\textsuperscript{274}

Although people continued to invest a great deal of importance in vision, it was increasingly evident that seeing and knowledge were not always the same. This is manifest in Bartisch’s attitude towards wearers of eyeglasses, whom he claims are mistaken in believing that they improve vision.\textsuperscript{275} Bartisch stresses that the improvements wearers perceive are only an illusion and that their eyes are actually deceiving them. He writes: ‘When however it happens that some people say they see better through spectacles and eyeglasses, better than otherwise, consider this more as a habit, than as an affliction or

\textsuperscript{272} Clark, \textit{Vanities of the Eye}, 10.
\textsuperscript{273} Ibid., 4.
\textsuperscript{274} Ibid., 3.
\textsuperscript{275} A whole section of the treatise concerns the detrimental effects of eyeglasses. This begins with an image of an elderly, bearded man straining to read. He wears eyeglasses but a pair of discarded goggles is also depicted on the bench he is leaning on. See: Bartisch, \textit{Ophthalmodouleia}, 31r.
It was not until later in the seventeenth century that
ocularcentricism once again took precedence over the other senses when Descartes wrote:

‘The whole conduct of our life depends on our senses, among which vision being the
noblest and most universal.’

In order to argue for the importance of On the Service of the Eyes in securing the
importance of vision and the development of ophthalmology as a distinct branch of medical
enquiry, its content needs to be reconsidered. For instance, the treatise does not conform to
the conventions of medical texts. Actually, despite what the title suggests, the treatise is not
solely devoted to the study and medical treatment of the eye. Old and new knowledge
related to the eye and derived from the treatises of Galen and Vesalius, are conflated
alongside ‘popular’ forms of knowledge such as the phases of the moon and witchcraft.
Among the woodcuts depicting people suffering from serious conditions there is an image of
a man with two bulbous growths protruding from his eye sockets, which in modern medical
terms would be categorised as massive bilateral exophthalmos, causing the eyeball to bulge
and protrude out of its lid. But Bartisch cannot conceive that the man’s affliction could have
a natural cause and instead attributes it to witchcraft and the forces of evil. For some
scholars, such aspects of the treatise have brought its production of knowledge into
question.

The problem of categorisation is also compounded by the fact that Bartisch
belonged neither to the unlettered barber surgeons nor to the scholarly ranks of
physician/authors such as Jacopo Berengario da Carpi, Andreas Vesalius, or Charles
Estienne. By comparison, relatively little is known of Bartisch’s early life, other than that

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276 Translation as given in: George Bartisch, Ophthalmodouleia: That is the Service of the Eyes,
277 Translation of a passage from Descartes’s Dioptries as given in: Vincent Ilardi, Renaissance Vision
278 Julius Hirschberg, The History of Ophthalmology: Volume II: The Middle Ages – The Sixteenth and
279 Jacopo Berengario da Carpi was an Italian surgeon and physician whose anatomical treatise
Isagogae breves (Bologna, 1523) refashioned Mondino de’ Liuzzi’s fourteenth century anatomical
treatise for publication in print.
he was probably born in Kongsbruck near Dresden in Germany.\textsuperscript{280} Despite the fact that Bartisch personally bore much of the expense for the richly illustrated volume, he was not from a wealthy family.\textsuperscript{281} In the preface to the treatise, Bartisch explains that his parents could not afford to provide the formal education he required in order to become a physician, and thus he was apprenticed to a surgeon of ophthalmology at the age of thirteen. He apparently served three apprenticeships in total, gaining much of his working knowledge of eye diseases and surgery through self-taught, practical, hands on experience.\textsuperscript{282} Significantly, this emphasis on direct contact with the body is an argument carried forwards by the images in the treatise.

Despite Bartisch's lack of formal university education, it is evident from his writings and the images that he was well acquainted with the work of Galen and Vesalius on the eye. In 1588, following the publication of his treatise, Bartisch was appointed court ophthalmologist for August Duke of Saxony and it is to him that \textit{On the Service of the Eyes} is dedicated.\textsuperscript{283} The Duke also granted the treatise an imperial privilege, protecting it from being copied or reprinted, while Bartisch was granted the freedom to travel and practice medicine in other cities.\textsuperscript{284} In the preface, Bartisch anticipates his publication reaching a diverse audience, including everyone from doctors to heads of families as well as those who were personally afflicted by eye diseases.\textsuperscript{285} Towards this end, and posing another problem in the categorisation of the treatise, it is written in the vernacular as opposed to Latin, which was the accepted language of scholarship.

\textsuperscript{280} Bartisch describes his early life in the introduction to the treatise. For an English translation of this see Hirschberg, \textit{The History of Ophthalmology}, 323. There is some debate over his precise place of birth, with some scholars arguing that he was actually born in Gräfenhain – see: Wolfgang Straub, "The First German Textbook of Ophthalmology "Augendienst" by G. Bartisch, 1583," \textit{Documenta Ophthalmologica}, 68 (1988): 105-14.

\textsuperscript{281} The first edition of \textit{On the Service of the Eyes} is bound in vellum. It contains approximately 548 pages of text, 28 preliminary and 8 appended leaves and has a total of 88 large woodcuts. August I, the Elector of Saxony, is thought to have paid more than 20 florins for the treatise though it is likely that Bartisch spent much more than this producing the work. For further information see Hirschberg, \textit{The History of Ophthalmology}, 326; Straub, "The First German Textbook," 105.

\textsuperscript{282} Hirschberg, \textit{The History of Ophthalmology}, 323.

\textsuperscript{283} The coat of arms belonging to the Duke of Saxony and Dresden is included as a full page woodcut in the treatise. For further information see: Hirschberg, \textit{The History of Ophthalmology}, 325.


\textsuperscript{285} Ibid.
Two prints from this treatise stand out for the representation of vision as it intersects with medical knowledge and embodied experience. These full-page woodcuts appear in the initial chapter, and both utilise moveable paper flaps to encourage physical contact with the body (Figure 3.2 and Figure 3.3). Given the centrality of ocular vision and the privileging of this sense over all others within the project, the mobilisation of the tactile through the use of techniques of the fugitive print is suggestive. These two prints struggle to reconcile the eye’s privileged status as a metaphor for agency, power and vision with its material reality as a fallible, fragile organ. Throughout the prints the cut fluctuates between privileging or not privileging the sense of sight in relation to the face, as well as between embodied experience and detached observation. The first of three issues I will address concerns the face as a factor in looking. In the first print the head is represented as viewed from above, a perspective that denies the observer full access to the face, preventing one from meeting the person’s gaze (Figure 3.2). Yet the eyes are visible and they look forward with some intensity. This is significant because the eyes offer viewers a means of access to the person who is the subject to the anatomical investigation.

The face is displaced in order to see the top of the head, which is cut open, and which, following the contours of the head, enables one to see inside. This is a reversal of usual conventions, wherein the anatomical interior is inaccessible, yet the face is typically thought of as the primary means of access to a person’s interior – revealing thought, mood, inclinations and insight. In effect observers are presented with a head to anatomise, rather than a face with which to empathise. This is significant because it suggests that the eye is embodied, and located in the body, and not the face. Throughout this process the face, distorted by foreshortening, remains visible at all times – no matter how far the dissection has progressed. I will examine the implications to representation, in which meaning is sustained through the unity and coherence of the body.

The second issue concerns the skill and dexterity required for a very particular type of cut that severs the eye from its bodily context. The cut that opens up the head is no longer present in the next print (Figure 3.3). The image has taken users as far as it can in
terms of revealing and elucidating the inner workings of the eye and the brain. In its place a very different form of cutting emerges – the surgical extirpation of the eye. In a single deft movement the eye is remade as a separate, heterogenous entity. In this section I will focus on the physical act of extraction, rather than on how the cut is represented. Extraction of the eye is about making the organ more visible, since it allows one to study the organ in three dimensions, to draw near, and even to pierce the milky white sphere and look inside.

However, it also denies a view of the eye’s context within the bodily assemblage, thereby developing on the trend of denying access to the face that emerged in relation to the first image. And while the eye is literally (and it is worth noting, quite forcefully) pulled out of the body, there is no suggestion of violence in the image and certainly no evidence of the spillage of blood. Thus, it reveals a different kind of knowledge to the viewer – the knowledge literally produced by the surgeon’s hands.

The final part is about the representational difficulties of imaging the type of cut employed in the extraction of the eye. Considering the visual presentation of the eye more carefully in relation to the same print, I will examine how extraction of the eye facilitates its remaking as a new, independent body. The entire anatomy of the eye (and indeed the experience of moving through its many layers) cannot simply be represented through one body, as this image proves. Instead a multitude of bodies are represented on the page. This approach to imaging the individual body part already had an established tradition, but here it is employed as a strategy for addressing the eye as opposed to the whole body. Crucially, by extracting the eye from the body the image turns away from embodiment but the generation of the eye – in effect its multiplication – brings about its animation which in turn leads to movement and the return of faciality. The parts of the eye laid out on the page seem to assume the form of a face with two eyes a nose and mouth. This is a representational problem brought about by how the act of extracting (scooping out) gets made into an image and, indeed, the challenges of making that act into an image. It is important to note that in this section I am concerned with the representational difficulties of imaging this extraction, rather than the physical act of removing the eye. It is the
representation of the cut and not the cut itself that must be addressed in order to fully comprehend its strategies.

Throughout the treatise, the viewer’s position is continually shifting, oscillating between distant observation and embodied experience. This is directly due to the process of cutting and how it works on vision itself. On the one hand, by imposing order and clearly defining each part, the cut works to bolster an ocularcentric privileging of vision and keeps viewers as disinterested observers. Observation denotes the acquisition of knowledge through looking at and studying an object closely over a prolonged period of time. This is because vision, unlike touch, extends beyond the body to make things known even if they are far away. The absence of context also contributes to the appearance of objectivity. Yet the use of moveable parts destabilises the position of observer, pushing it towards something more experiential.

An embodied vision of the eye
The viewer looks down on the top of a head in the first of the fugitive prints under consideration (Figure 3.2). A tangle of dark matted curls covers the majority of the head, although the hairline is receding around the temples. The tightly cropped view, coupled with the representation of a shallow spatial field denotes proximity and immediately implies that one is standing in the privileged position of a medical observer. One could even be standing in Bartisch’s own position — looking down upon the seated patient’s head, poised with scalpel in hand and about to make the first incision into the scalp. After all, the distance between the head represented on the printed page and the observer’s downcast eyes fixed upon the book (perhaps laid out before them on a table or in their lap) is roughly equidistant to that of the surgeon standing over a seated patient. Hence the observer is invited to re-enact Bartisch’s procedures for themselves by replicating the cuts he made into the head.

As if to further emphasise the proximity between the observer and the object of investigation, the subject’s distinctive physical features are rendered with great care and attention to detail. The ruff worn around the neck is in keeping with the fashion of the time, the eyes are aligned slightly asymmetrically (the left eye is positioned a fraction higher than the right one) and the nose is crooked. All of which denotes an ordinary individual in contemporary dress, as opposed to the kind of universalized anatomical model introduced by Vesalius’s *Fabrica*. This could be related to the fact that, unlike other anatomical atlases—such as those of Vesalius, Matteo Realdo Colombo or Charles Estienne—*On the Service of the Eyes* is primarily concerned with the representation of diseased or afflicted bodies. As a practitioner of ophthalmic medicine, Bartisch’s knowledge of anatomy would have been formed through examinations of atypical bodies such as the one represented in this print. However, the attention to detail and the inclusion of unique characteristics for the anatomical model could also form part of the image’s claim to represent truth. By drawing on the conventions of *autopsia*—literally to see with one’s own eyes—the image partakes in what Alexander Marr calls a ‘rhetoric of authenticity designed to convince the viewer that their subject and the process of dissection had been witnessed directly by the maker’.

Yet there are also limits to visual knowledge. Observers are reminded of this throughout the treatise as they find themselves confronted with the failing eye sight of a myriad of faces that cannot or will not see. Furthermore, despite the close physical proximity and the fact that the figure is represented as an ordinary person rather than a universal ideal, it still proves difficult for observers to empathise with the subject. This is a direct consequence of how the angle of the head prevents the face and eyes from being fully visible. After all, as Giles Deleuze and Felix Guattari describe, empathy usually manifests

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In the following excerpt, Deleuze and Guattari write that the face is something distinct from the head and does not constitute part of the body:

The head, even the human head, is not necessarily a face. The face is produced only when the head ceases to be a part of the body, when it ceases to be coded by the body, when it ceases to have a multidimensional, polyvocal corporeal code—when the body, head included, has been decoded and has to be overcoded by something we shall call the Face.

The ability of the face to provoke feelings of empathy from observers is rooted in what Deleuze and Guattari call the ‘white wall/black hole system.’ Thus by angling the face away from the observer Bartisch’s print strives to resist its contaminating influence. Recognition is limited so that the face does not ‘overcode’ the image and empathy—which could prove damaging to the aims of the anatomical print—is inhibited.

In fact the obfuscation of the face in Bartisch’s print is similar to how the cerebellum and rete mirabile are represented as seen from above in two woodcuts from Walther Ryff’s 1541 anatomical treatise, On the most sublime, elevated and noble of all creatures (Figure 3.4). Ryff’s prints are known to have been closely copied from Johannes Dryander’s 1536 treatise Anatomy of the human head, which is credited with being the first to represent the

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291 Ibid. 170.
292 Ibid., 167.
294 These woodcuts are attributed to the artist Hans Baldung-Grien (c. 1484-1545). See: Marr, “Walther Ryff,” 133.
295 In fact Ryff’s images are thought to have been derived from a number of other sources, including: Berengario da Carpi isagogae breves (1522); Johann Dryander Anatomia capitis humari (Marburg: Cervicornus, 1536); Andreas Vesalius’s Tabulae anatomicae sex (Venice, 1538) and Heinrich Vogtherr the Elder’s Anathomia (1538-9). For further information see: Marr, “Walther Ryff,” 133; Andrea Carlino, Books of the Body. Anatomical Ritual and Renaissance Learning, trans., John
head’s sequential dissection in print. However, Ryff’s prints depart from those of Dryander in that facial hair is added to the anatomical subjects and they are situated in an abstracted space, rather than on a dissection table. It has been suggested that the decision to remove the context of the dissecting table was intended to ‘render the images immediately legible, allowing them to function as didactic tools with minimal textual support.’ The ruff worn around the neck of the patient in Bartsch’s print could be argued to perform a similar function to the decontextualising abstract space of Ryff’s print on account of how: ‘the ruff is designed to set apart heads, producing decapitated bodies and disembodied heads in the process.’ However, there is also evidence that for Bartsch’s print the link between the head and the body has a vital role to play in the transmission of anatomical knowledge.

Bartsch’s print strategically maintains the face on a borderline between recognition and unfamiliarity. Even though the eyes are cast downwards and do not meet the viewer’s gaze, the subject in the print remains conscious. This is not the case in Ryff’s images, in which the subject’s heavy eyelids droop and slackened skin contributes to an overall impression of death. Besides, by locating the eye in the body and not the face, Bartsch’s image emphasises an embodied process of viewing and of momentary experience. This is signalled by the fact that a thumb and three fingers are represented holding an oddly shaped organic object – possibly a bulb of garlic – in the lower portion of Bartsch’s print. It is unclear whether the hand in question belongs to the person being dissected or the surgeon, who could be using the garlic like smelling salts in an attempt to arouse


Bert Watteeuw, "Framing the Face. Patterns of Presentation and Representation in Early Modern Dress and Portraiture," in Disembodied Heads in Medieval and Early Modern Culture, eds., Catrien Santing, Barbara Baert and Anita Traninger (Leiden and Boston: Brill, 2013), 245.
consciousness in the man. If the sense of smell is represented in this way, then the fingertips denote touch, and the eyes, ears and mouth represent the rest of the senses. Bringing the five senses together emphasises how sensory experience and the body is implicated in the acquisition of knowledge through anatomical practices.

The move towards accessing information about the body through direct experience of dissecting cadavers, not just by reading about anatomy in books, implicated all five of the senses. Some of these sensory experiences, such as smell, were no doubt unwelcomed by anatomical practitioners. English physician William Harvey (1578-1657) famously wrote of the nausea and loathing he experienced when dissecting bodies, on account of their overwhelming stench.299 This initial odour only worsened as the body was cut and organs like the stomach and intestines, often still containing undigested food, were opened up for investigation. Felix Platter (1536-1614), whose treatise The structure and function of the human body was published in the same year as On the Service of the Eyes, also recorded his disgust at dissecting a body.300 In a journal of his time as a student at Montpellier in 1554, Platter describes how the body was ‘decomposed and stank horribly’. Even his precautionary attempts to minimise the stench by dousing the lungs in vinegar before cutting into them does not seem to have helped matters.301 For better or worse, dissection impacted on all of the senses as Bartisch’s print seems to stress.

Yet even as vision is tied to embodied experience, the face cannot entirely disappear from view – to do so would be to risk undermining the production of clear, legible knowledge about the head’s anatomy. Rose Marie San Juan has written about a similar effect in relation to faciality and the turn of the skull in Vesalius’s prints.302 The upturned and

299 On Harvey’s repulsion to the anatomised body and in particular the smell, see: Thomas Edward Wright, William Harvey: A Life in Circulation, (Oxford: Oxford University Press, 2013), 50.
300 Felix Platter, De corporis humani structura et usu (Basel: Ex Officina Frobeniana, per Ambrosium Frobenium, 1583). Platter made considerable contributions to the study of the eye arguing that it was the retina, not the lens as had previously been argued, that was the primary component of vision. For a more detailed discussion of Platter’s work and influence on Kepler see: Mark A. Smith, From Sight to Light: The Passage from Ancient to Modern Optics (Chicago and London: University of Chicago Press, 2014), 352.
302 San Juan, “The Turn of the Skull,” 958-975.
inverted skulls found in some copies of Vesalius’s *Fabrica* strive to resist facialization by making it difficult for observers to decipher the face. As San Juan explains: ‘Any attempt to call up the face within the skull is undercut as the possibility of the emotive subject is turned into objective observation.’⁴ De-familiarizing the face in this way transforms it back into a head, divested of life and hence more like the matter of the body.⁴ But whereas in the *Fabrica*, the turn of the skull reaches its conclusion in an image of the reversed skull, which has ‘lost the possibility of being turned into a face,’⁵ in Bartisch’s print the face is always on the verge of invisibility but never fully disappears from view. As will become clear, the glimpse of recognisable facial features has an important role to play in the construction of clear verifiable knowledge about the head’s interior.

By carefully placing the tip of a finger underneath the part where the forehead overlaps the eyes, one is able to lift up the outermost layer of the print and reveal the internal anatomy. This first incision exposes a tangled web of veins and arteries directly beneath the surface of the skin, referred to in the accompanying textual description as the *pericranion* or the hard skin and coat covering the whole of the skull (Figure 3.5). The cut that makes this view of the inside of the head visible is dissimilar to the transection utilised in Charles Estienne’s 1545 *On the dissection of the parts of the human body*.⁶ This is because rather than cutting straight across the head, the cut adheres to the head’s curved contours, keeping everything separate and clearly defined. This is comparable to the cut in several prints of Ryff’s treatise, including one that depicts the scalp peeled away from the skull to reveal the epidermis, dermis and sub-cutaneous tissue (Figure 3.6).⁷ Skin hangs down like crumpled folds of fabric, partially obscuring the eyes, cheeks and the side of the head, but the exposed bone is perfectly intact — not even a speck of blood stains its pristine

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⁴ San Juan writes of this effect in relation to the turn of the skull in woodcuts for Vesalius’s *Fabrica*: ‘In other words, the mode of presentation empties out the face so that recognition, or presumed recognition increasingly fails to take place.’

⁵ Ibid., 974.

⁶ See for example the woodcut of a male anatomical figure displaying the dissection of the head from Charles Estienne, *De dissectione partium corporis humani libri tres* (Paris: Apud Simonem Colinaeum, 1545), 246.

⁷ Sadan, “Hans Baldung, called Grien,” 64.
surface. Moreover, the different cutting tools depicted in the foreground of the image expound exactly what kind of implement is required in order to make the cuts. Along with the scalpel used for slicing through skin, there is also a curved saw used for cutting through the bone of the skull without damaging the vulnerable hemispheres of the brain; these are still intact in the next image. As Rohan Sadan writes, “Baldung’s images advertise themselves as tools for learning about the human head, much as the tools depicted in them announce their efficacy in dissecting that head, and as the hand of the artist and his carving knife exhibit their success in producing the images themselves.”

For both Bartisch and Ryff, the cut is carefully orchestrated to define and produce boundaries between the various parts of the head. It keeps each part separate and avoids contamination by cutting around things, rather than slicing indiscriminately across them. The next layer of Bartisch’s print is also concerned with separating, although this time the hard white bone of the cranium, labelled C, is brought into visibility. Bone is often associated with permanence and wholeness due to the fact that it endures long after the rest of the body has decomposed, but during the early modern period it was also conceived of as unchanging – almost inorganic – as a result of its perceived dryness. Bone therefore represents an important threshold separating the exterior from the interior in Bartisch’s print. Although this threshold is easily breached by turning over the next flap, even without the bone the interior anatomy still retains the familiar contours of the head’s exterior – ensuring that the body’s insides remain perfectly contained.

Following on from this layer, the next flap labelled D shows the brain’s grey matter, criss-crossed with blood vessels. According to the textual description this represents the ‘first, inner, thin skin and coat, which is inside the head under the skull.’ Layer E delves further still, bringing the longitudinal cerebral fissure (the deep ridge between the left and right hemispheres of the brain) into visibility. This fissure is the first element in the brain’s

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308 Ibid.
anatomy to disrupt the carefully ordered layers because of the way it suggests the organ has greater depth than can be visualised effectually on the paper flap. The dark inky recess dividing left and right cerebral hemispheres seems to penetrate deep inside the brain, yet with one swift movement the observer can turn the flap over and the inky black crevice vanishes.

At this point the observer reaches the final layer and finds the position of the eyes inside the head. This final layer unsettles the otherwise carefully constructed order imposed by the cut as its complexity demands more dense annotation than any of the layers preceding it. Each heterogeneous organ, fold and fissure is individually labelled with an indexical letter, so that rather than appearing like a coherent, homogenous whole, the final layer shows the head to be a heterogeneous assemblage of different parts all jostling for attention. The challenge this presents to the cut’s attempts to impose order is evident from the effects of pigment in a hand coloured copy of the treatise held at the Wellcome Library (Figure 3.7). Red pigment has been hastily applied in many areas so that it runs and bleeds over the printed lines, seeping across boundaries and contaminating areas where it should not be found. In this way the pigment mimics the material it is intended to represent, threatening to transform into blood on the surface of the print. As Mieke Bal describes, the use of red to represent blood inevitably complicates the boundaries between body and image, since it is a ‘conjunction of icon, index and symbol.’ The red pigment certainly contributes to the disruption of order in this layer, but it also reintroduces some of the unpredictability and porousness of boundaries that are characteristic of embodied experience. Moreover, as seeing blood makes one wonder about the body it came from, seeing this pigment and how it was applied makes one wonder about the person who applied it. Are the smudges and stains the unintentional result of poor eyesight, failing health, or a shaky hand? Or was it a conscious decision to make the oozes and stains mimic the materiality of blood?

311 Mieke Bal, Quoting Caravaggio: Contemporary Art, Preposterous History (Chicago: University of Chicago Press, 1999), 100.
Further complications to the ocular order established by the cut occur in the narrow border of bone labelled A. Although the bone should provide a stable, impenetrable boundary separating the insides of the body from its exterior (found in the earlier layer), the borderline becomes blurred. This is because the bone is stained with red pigment/blood, which visually equates it with the fleshy, unstable matter it is meant to contain. And due to the imperfect alignment of the delicate paper flaps, the blood red outline is even visible before one has lifted the first layer, creating the impression that the head is unable to contain its insides, which, poorly concealed beneath the surface of the outermost layer, is poised to spill out. Hence, even as the cut struggles to maintain an abstracted view of the bodily interior, pigment moves to transform the image back into flesh. In this way the print keeps lapsing back into embodied experience, refusing to let vision take control. And though this conflict is more perceptible in the coloured copy, the pigment only draws attention to underlying tensions about how order is maintained in the print.

In this final layer one realises the important role of the face in securing meaning. The eyes, which are partially obscured by the angle of the head in the exterior view, become more visible inside the head. The two bulbous spheres, labelled L represent the eyes, showing how the external lenses, pupils and irises are connected to the brain via the optic nerves. Similarly, the narrow tubes labelled M connect the nose with the brain, again linking the external facial feature with the internal anatomy and associating external sensory perception with internal cognitive processes. What Bartisch’s print is displaying here is the relation between the face that presents itself to the world and the internal organs that produce the perception of the world. Therefore as the observer lifts up the paper flaps, they are not just revealing how the eyes are connected to the brain by the optic nerve, they are revealing how the eyes function – how images are formed, transferred to the brain and returned back through the expression of the eyes. Obfuscation of the face is clearly an intentional strategy of Bartisch’s image, designed to delimit the effects of empathy.\(^{312}\) It encourages the observer to interpret the eyes as being located in the body, not the face,

thus presenting an image of an embodied organ and an embodied mode of acquiring knowledge and engaging with the world. However, the image cannot fully get away from the face because to do so would be to risk destabilising the knowledge it seeks to produce.

*Exirpation of the eye from the body*

In the centre of second print an eye is suspended against abstract space – inverted and huge, cut apart from the rest of the body, its gaze focused downwards (Figure 3.3). The unblinking eye is transfixed by two figures directly beneath it – objects that are actually parts of its own anatomy. In fact the eye does not blink because it cannot blink. There is no soft fleshy lid enfolding it, and no eyelashes to protect it from dirt, debris or unwanted visual stimulation. To use Bartisch’s analogy, the eye, which is usually a ‘well protected castle, fortress or city’, is without its portcullis, the ‘true guards and gate keepers to protect and keep safe the eyes from harm and refuse’.\(^{313}\) This is because all of the outward layers have been removed in order to display the interior muscles and the workings of the eye. Unlike the first print that goes to great efforts to keep the relationship between inside and outside visible throughout all stages of the dissection, in this print that strategy has been abandoned. Instead the eye is completely detached from the rest of the body.

In order to make this view possible a cut is necessary. A violent wrenching cut that gouges the eye out of the body, separating it from its organic context. This cut relies upon the expert knowledge of the surgeon in order to remove the organ cleanly and entirely from the head. In the following passage, Bartisch describes the operation, known as extirpation:

> Then take one of the instruments as they are illustrated here and choose the one which is most appropriate for your hand. The instrument should be sharp like a pair of scissors. Press it with a quick movement beneath the upper lid and push it toward the bone and the dura, then move it

quickly around the entire eye so that it is severed from the adjacent tissue first at the posterior pole.\textsuperscript{314}

This is understood to be the first detailed written account of the surgical removal of the eye.\textsuperscript{315} But extirpation was such a painful and potentially dangerous procedure that many surgeons refused to perform it at all, declaring it: ‘inhuman except under the greatest and most urgent necessity.’\textsuperscript{316}

The eye’s extirpation, however, is a useful metaphor for thinking about how the acquisition of knowledge becomes separated from the body. Vision effectively takes over from embodied experience as cutting the eye out of the head enables one to examine it more closely and from different angles. But cutting around the eye does not simply facilitate a better view of this organ it also brings about its transformation. This is because unlike the body’s other organs, the eye’s material objectivity (made visible under the anatomist’s knife) conflicts with its status as a metaphor, posing a challenge to representation.\textsuperscript{317} Sergei Lobanov-Rostovsky writes: ‘Anatomized, the eye vanished beneath the knife, rendering up its physiology only as evidence of its essential non-materiality.'\textsuperscript{318} I will propose that the print seeks to ally anxiety about the destruction of the eye-metaphor by stressing its transformation into medical knowledge and by turning the eye back into a face by the way the various parts are laid out on the page. Cut, severed and pierced by the surgeon’s scalpel, the eye may no longer be capable of accessing knowledge for itself, but it becomes akin to the instruments utilised in the production of medical knowledge.

\textsuperscript{314} Translation of Bartisch’s description as given in Hirschberg, \textit{The History of Ophthalmology}, 339.
\textsuperscript{315} James Guthrie, \textit{Lectures on Operative Surgery of the Eye} (London: Burgess and Hill, 1830), 191. The first treatise to mention extirpation of the eye is believed to have been Johannes Lange, \textit{Medicinalium epistolatarum miscellanea, varia ac rara cum eruditione} (Basel: Joannem Oporinum, 1554). However, Lange did not describe the procedure in detail meaning that \textit{On the Service of the Eyes} contains the earliest known recorded description of the removal of the eye as a treatment for the most severe cases of ocular diseases. For more information see: Evan H Black, Frank A Nesi and Christopher J Calva, \textit{Smith and Nesi’s Ophthalmic Plastic and Reconstructive Surgery} (New York: Springer, 2012), 1106.
\textsuperscript{316} Black, Nesi and Calva, \textit{Ophthalmic Plastic and Reconstructive Surgery}, 1106.
\textsuperscript{318} Ibid., 198.
Given the procedure of extirpation, one might expect to find signs of violence to the eye in Bartsch’s print. Sources suggest that an assistant would have had to be present throughout the surgery in order to syringe cold water onto the wound and wash away substantial amounts of blood.\textsuperscript{319} In Bartsch’s print, however, the act of cutting the eye out of the body seems to leave no obvious remnants. In fact the page remains curiously untarnished, aside from the natural yellowing that occurs as a result of the passage of time. The point where the optic nerve is cut, separating it from the other organs of the head and brain, is delineated by a crisp horizontal line that appears almost inorganic due to its precision. Rather than portraying the eye as a fragmented part, torn from a larger assemblage, the cleanness of this cut seems to strive to portray the eye as an autonomous, individuated whole. In effect, it suggests that the eye is an object worthy of study in its own right.

In fact Bartsch’s presentation of the extirpated eye is comparable to the meticulous presentation of the surgeon’s instruments towards the end of the treatise. These show tweezers for the removal of eyelashes, eyelid clamps for the treatment of ptosis, and finely pointed needles for cataract surgery, all of which were fastidiously recorded on the woodblock and transferred onto the treatise’s pages (Figure 3.8). And though it was usual for medical treatises to include illustrations of surgical instruments, the attention to detail lavished upon seemingly superfluous details such as the carving on handles is certainly due to the fact Bartsch designed many of the tools depicted in the treatise.\textsuperscript{320} In contrast to some of the images of anatomical organs that are copied from Vesalius, the descriptions of the surgical apparatus are all original prints made after Bartsch’s own drawings.\textsuperscript{321} Indeed, one of Bartsch’s twelve requisites for anyone aspiring to enter the field of eye surgery was

\textsuperscript{319} Black, Nesi and Calva, \textit{Ophthalmic Plastic and Reconstructive Surgery}, 1106.
\textsuperscript{321} Tower, “Notes of the Life,” 61.
the ability to draw, so that they could design instruments. He even espouses that the ability to design and innovate instruments is at least as important to an ophthalmologist as having good vision and ‘fine, subtle, healthy hands.’

Amongst the many prints illustrating the surgeon’s tools for On the Service of the Eyes, one stands out in particular for the remarkable way in which the cutting apparatus come to resemble the extirpated organ (Figure 3.8). At the centre of this print there is the same curved implement, commonly referred to as an evisceration spoon, which Bartisch clutches in his portrait. This razor-edged spoon was Bartisch’s favoured instrument for the extirpation of the eye, although it was criticised later by eye surgeons. The figures on either side of this instrument also represent the spoon as seen from two other angles, hence giving the observer an impression of the object’s three-dimensionality. Below these is a knife with an elaborately carved leaf pattern adorning its handle, the blade of which curves upwards and tapers to a sharp point.

The presentation of the evisceration spoon and the knife resembles the representation of the eye in Bartisch’s print. Like the eye, the instruments float in an indeterminate white space devoid of context. This de-contextualisation maintains a critical distance between each part by emphasising their clearly delineated outlines – effectively the white space framing each object acts like another form of cut by separating and dividing things. It also ensures that an objective distance is maintained between observer and object of study represented on the printed page, even while facilitating recognition. In her discussion of the ‘physiognomic’ mode of picturing, Bronwen Wilson explains how space can bring things into proximity (by making them recognisable) while simultaneously maintaining an objective distance by separating them from their natural context.

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323 It seems that the choice of cutting instrument was very much a matter of personal preference for surgeons. See: Guthrie, Lectures on Operative Surgery, 191. Guthrie writes: ‘Hildanus, having occasion to extirpate an eye, discovered inconveniences arising for the spoon of Bartisch, by trying it on animals, and invented a slightly curved knife with a blunt extremity, which he used with great success. We find however, Job à Meékren, a Dutch surgeon, a hundred years afterwards, using the spoon of Bartisch, in preference to the knife of Hildanus’ (191).
Describing how the diverse collection of natural history specimens and curiosities from Ulisse Aldrovandi’s museum in Bologna was represented in a printed encyclopaedia Wilson writes:

…each specimen is typically surrounded by blank space and depicted from a vantage point that reveals its most distinctive shape, thereby enabling viewers to grasp the thing before them, to see all at once—a kind of gestalt that distances the object from the viewing subject.325

Bartisch’s print separates and decontextualises the eye and the instruments in a similar way to how Wilson describes the specimens in the encyclopaedic images. Both are perfectly contained in the sense that there are no frayed nerve endings or trailing sinews that could point to the fact that the eye was previously part of a larger system, and the instruments do not exceed the image’s frame, which is determined by the length of the knife and the height of the evisceration spoon. Moreover, the fact that the spoon is duplicated, like the eye, in order to show it from several different angles at once and to facilitate recognition, also contributes to the ‘physiognomic’ mode of representation that Wilson describes.

*On the Service of the Eyes* was not the only treatise to visually conflate the eye with the tools of its anatomisation. Valverde’s 1556 treatise *Anatomy of the Human Body* includes an engraving of the wide array of instruments utilised in the dissection of bodies and the articulation of bones for teaching practices (Figure 3.9). The image, which represents the instruments seemingly haphazardly placed on a wooden dissection bench, almost as if they have just been laid down by the anatomist, is derived from Vesalius’s *Fabrica*. Several of the objects in the foreground, including the jagged blade of the saw, overhang the frontal ledge of the board they are strewn across. In addition to this, there are various other implements used for cutting, including: razors, knives, needles and scissors. There are also bundles of thread, a mallet and straws used for inflating body parts. Many of the tools were not made explicitly for the purposes of dissection, as is discussed by

325 Ibid., 97.
Vesalius. They were ordinary objects specially adapted for the task. The presentation of these tools therefore fulfilled the practical function of familiarising medical students with the tools needed for dissection and the proper means of adapting the instruments. Moreover, as Sachiko Kusukawa points out, picturing the instruments in this way also emphasised the fact that the surgeon had used them with his own hands in order to cut into the body and acquire knowledge through touch.

Although Valverde’s print is derived from a woodcut in Vesalius’s Fabrica, it departs from this source by presenting the anatomy of the eye, which is also from Vesalius, in the upper portion of the same engraving. In fact Vesalius’s images of the eye are also the source of Bartisch’s woodcut of the extirpated eye. I raise Valverde’s engraving (as opposed to Vesalius’s woodcut) as a comparison with Bartisch’s print because of how Valverde brings the extricated eye and the apparatus required to perform the operation together in the same image. In doing so, it stresses that the tools the anatomist works with, including his hands and eyes, are crucial to the production of anatomical knowledge. Yet Bartisch’s print goes even further. It does this by visually equating the shape and appearance of the extirpated eye with the instruments utilised in its extraction. In short, the instrument of dissection and the dissected body part begin to resemble each other.

Of course some degree of correspondence is to be expected between the curved outline of the spoon and the contours of the eye. After all it was designed to slide seamlessly around and behind the organ before detaching it from its bodily connections and scooping it out of the socket. But the way that the presentation of the evisceration spoon mimics that of the eye may have held greater significance for sixteenth century observers. As Michel Foucault describes in The Order of Things, resemblance was fundamental to the

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327 Ibid. Vesalius explains the appearance and function of each tool represented in the woodcut.
329 For the image of the instruments see Vesalius, Fabrica, 235. For the eye see Vesalius, Fabrica, 644.
organisation and production of knowledge. A complex web of resemblances ‘organized
the play of symbols, made possible knowledge of things visible and invisible, and controlled
the art of representing them.

Foucault identifies four principal forms of resemblance: convenientia, aemulatio,
analogy, and sympathy. The first form of resemblance arises out of the convenient
adjacency of two things whose edges touch and boundaries intermingle, leading to ‘a
resemblance that is the visible effect of that proximity. And this is precisely how
resemblance arises between the evisceration spoon and the eye – out of necessity and
contact. Firstly, it is necessary for the shape of the tool to be sympathetic to the curving
contours of the organ it cuts. This is in order for it to efficiently scoop the eye out of its
socket and detach the optic nerve from its connection to the brain. But the fact that the two
come into such close contact with one another and intermingle inside the body also
produces resemblance. Moreover, once cut, the eye adopts the form imposed on it by the
spoon, further strengthening their visual resemblance. Thus the extirpated eye is made
by the cutting spoon as much as the cutting spoon is made in order to extirpate eye, which is
why one cannot look at one image without recalling the other.

The philosopher of science Michael Polanyi has also written about the close
relationship between the body and the instruments it employs: ‘We use instruments as an
extension of our hands and they may also serve as an extension of our sense. We
assimilate them to our body by pouring ourselves into them.’ This description of the close
correlation between body and tools can be useful for thinking about the way the two are
visually conflated in Bartisch’s print. However, Polanyi’s description of the tool’s assimilation
into the body also implies a bias, by suggesting that the body/instrument relationship always

330 Michel Foucault, The Order of Things: An Archaeology of the Human Sciences (London and New
331 Ibid.
332 Ibid., 20-28
333 Ibid., 20.
334 Michael Polanyi, The Study of Man: The Lindsay Memorial Lectures 1958 (New York: Routledge,
2013), 31.
favours the body. He writes: ‘our body is more than a mere instrument.’\textsuperscript{335} This overlooks the potential for the dialogue to work both ways – for the body to become assimilated into the tool. In Bartisch’s print the intermingling of body/instrument certainly works both ways – the instrument begins to resemble the body and the body begins to resemble the instrument.

Cut from the body, the eye is certainly stripped of its agency – it cannot see and therefore it cannot uncover knowledge for itself. This marks a dramatic contrast with the observer’s eyes that are granted a privileged view of the organ’s anatomy. Yet, in spite of how the extirpated eye can no longer see, it can be used by others as an instrument for uncovering knowledge. While the presentation of the eye mirrors that of the knives, clamps, and syringes depicted on subsequent pages of the treatise, extirpation allows the surgeon/observer to see what they would otherwise not be able to see and is thus privileged in other ways. For instance, the eye’s power to perceive the world through vision could be thought of as having been reconstituted as the power of the surgeon’s instrument, which allows the surgeon to see what they otherwise could not see with their own eyes. To borrow a phrase from Carla Mazzio, the eyes are remade ‘as vehicles of making meaning.’\textsuperscript{336} In addition, the instruments also equate the eye with progress and technology, anticipating how vision would come to be associated with the rational mind and the increasing predominance of ocular forms of knowledge that coincided with the advent of modern science in the seventeenth century.

Furthermore, the fact that the representation of the eye calls up the instruments used to extract it from the body ensures that the instruments of cutting are psychically present even where they are visually absent. In this way the instruments extend space and time for the print, reminding viewers that with the view of the eye they are privy to a process of cutting that occurs over time. This enables viewers to recognise what the eye was before

\textsuperscript{335} Ibid.
it was cut, how it was transformed by the cut and what the cut produces. Likewise, when the
observer reaches the prints at the end of the treatise depicting the cutting spoon, they are
reminded of the shape and presentation of the extirpated eye, and the process of cutting is
once more brought into focus.

Throughout this section, my discussion of the surgeon’s instruments has focused on
their relation to tactility. But they also impose distance between the observer and the object
of investigation by mediating between the two and preventing direct contact with the skin.
Unlike other senses, such as hearing, sight and smell, which all extend the body beyond its
boundaries, touch usually: ‘insists on the corporeal because it relies upon contiguity or
proximity for its operations.’ The surgical instruments enable touch to extend beyond the
body’s boundaries, bringing order and containing the contaminating potentials of the sense
of touch in the process. However, unlike the surgical instruments there is more to the eye
than its surfaces and by cutting the eye out of the body, stripping away the protective outer
lid in the process, new possibilities for animation – free from the constraints of bodily
limitations – begin to emerge. It moves away from the physical and towards a new status as
metaphor, although precisely what the eye comes to represent as a result of this move
remains to be seen.

*The eye re-animated*

While the extirpation of the eye initially appears to strip it of any physical contextualisation
and remove the potential for movement within the bodily assemblage, cutting the eye from
the head also reveals the muscles that enable its movement. This leads to the question of
whether the image is really as still as it initially appears. Could the act of cutting the eye out
of the body and its assemblage of nerve endings and muscles, which together enable
animation, produce a different kind of movement for the eye and the image? Movement,
which is independent of the rest of the body, ultimately leads to the eye adopting new

meanings and transforming itself in the process into something other than organic matter. Part of this potential is evidently related to the use of moveable paper flaps, but the careful arrangement of anatomised eyes around the print also set into motion a series of exchanges across the printed page, with the potential to reanimate the individual part and re-contextualise it. Movement is the subject as well as an outcome of the print, since the view afforded of the eye, stripped of skin, makes it possible to observe seven of the eye’s muscles. In the passage that follows Bartisch makes it clear that the physical mechanics of the eye’s movements are a key concern of the image:

This is one muscle, which pulls the eye up, the second which pulls the eye down, the third which pulls the eye superiorly to the side and the fourth which pulls the eye inferiorly to the side. Besides this there are still two other muscles. One which pulls the eye to the inner canthus and the other which pulls the eye to the outer canthus. If one however properly observes and looks at the situation, then one finds under these six still one more muscle which surrounds the optic nerve. This muscle turns and rotates the eye around a circle.338

These muscles work together, to pull the eye from side to side and enable it to rotate in its socket, hence expanding its field of vision. This is intriguing since by stripping the eye of its bodily context the muscles responsible for broadening its field of vision are brought into visibility and instead of perceiving the eye as having a fixed view, it becomes clear that the eye is capable of seeing far more than it initially appeared – perhaps even being capable of turning towards the objects in the peripheries of its field of vision and examining itself repeated in various stages of anatomisation.

If the first cut – the extirpation of the eye using the sharp-edged spoon – decontextualised the eye by removing it from the body, then the second cut in this image works to reanimate the eye while at the same time expanding the field of vision by bringing

additional content into visibility. The most immediate and striking way in which the image is animated is of course the use of moveable paper flaps overlaid on top of the largest eye in the centre of the image (Figure 3.10). The large unblinking eye is made up of six layers in total, beginning with the outermost view of the muscles and fatty tissue surrounding the optic nerve. Lifting the first layer reveals the outer white coat and skin, the next two layers represent the thin coats and skin called sclera and cornea, next the retina, and finally the posterior humor, middle humor, anterior humor and the crystalline lens. And while the eye itself cannot blink, with each turn of a leaf the image blinks, momentarily interrupting representational coherence in order to bring additional information into visibility.

This is comparable to Anna Morandi’s wax model of the sense of sight, where the gaps in between each model of the eye play an important role in animating the image (Figure 3.11). Morandi’s wax model represents a single eye at different moments, but in a cyclical continuum of time, a continuum that is interrupted not only by changing directions but also by the shifting location of the eye within its organic setting of the body. Much like the blinking of an eye or the spaces between each frame in a motion film, each gap is a physical space that disrupts viewing while also making animation possible though the combination of interval and still image. By contrast, Bartsch’s print is more about a kind of back and forth movement, between outside and inside. It is the spaces between each layer that creates animation, causing the image to blink with each subsequent layer that is turned over in order to bring new visual information into view.

While Morandi’s model emphasises how sight extends beyond the body’s limits, Bartsch’s print can never quite get away from the bodily. This is because the use of layered paper flaps inevitably brings tactility and the body back into the image by inviting observers to do more than merely observe, and to physically interact with the paper flaps. The print brings the conflicts and convergences between vision and touch, knowing and experiencing

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340 Ibid.
341 Ibid.
to the surface of the print in a way that other representations, including Morandi’s wax model of the eye, do not. Moreover, while the eye in the wax model has seemingly gained the potential to move independently as a body, Bartisch’s print suggests a different kind of transformation. Detached from bodily assemblage and apparently autonomous, the eye is not in the process of becoming another body – it is in the process of becoming something else instead, a concept perhaps rather than a body.

But the lifting and replacing of the paper flaps is not the only way in which the image is animated. As Rose Marie San Juan argues, animation was a key concern for images during the early modern period and particularly for anatomical prints where paradoxes of mobility and immobility are at their core. Attempts to constrain the eye and stabilise sight are also central to securing meaning in the print since in order to bring knowledge into visibility an animated body first had to be made still. The eye’s extirpation from the body can be seen as part of how this was achieved, but the lifeless body then needs to be reanimated in order to convey medical knowledge about living bodies. This drive towards reanimation is seen in Vesalius’s muscle men and the apparently complicit poses of the female models from Estienne’s treatise, and both have the added effect of removing the anatomical image from the bloody realities and imprecise boundaries of a body on the dissection table. In Bartisch’s print the arrangement of the accessory figures encircling the central eye has an equally crucial role in reanimating the image, since movement is carefully orchestrated through the interplay and exchange of gazes.

Each of these anatomised eyes is looking at one another (Figure 3.3). The exchange begins with the central unblinking eye ball looking downwards only for its stare to be met by a smaller anatomised part of itself; a move which returns the outward gaze of the central eye and effectively reverses its direction from outwards to inwards-looking. The next movement involves the objects in the periphery of the central eye’s vision, these are the six smaller objects printed around the margins of the page. The first two of these smaller

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342 Ibid., 41.
343 Ibid.
objects are located at the very top of the sheet and hang downwards just like the central eye, with their large black pupils fixed on some distant object. Directly beneath these are a further four eyes, each in various stages of anatomisation, and orientated in the opposite direction to the central eye and the two flanking it at the top of the page. The eye on the left is the only one of these four to have its pupil still intact and could therefore be interpreted as the only one of the counter orientated eyes to return the gaze of the top two. Nevertheless, the lower two eye balls, labelled five and six, blindly point in the direction of their keen-sighted counterparts. The fourth accessory figure is hardly recognisable as an eye at all; the process of anatomisation is so far progressed for this figure that all that remains of it is a hollow shell of muscle and tissue, just perceptibly of the same shape and size as the other eyes arranged around it. All six of these accessory figures are turned inwards on themselves in the same way that the larger central eye’s vision is locked on a part of its own anatomy; in a literal manifestation of the meaning of the word autopsy, the eyes actually see for themselves. By looking outwards into the world and finding an image of itself, the eye confounds the common belief that its one shortcoming is its inability to see itself.344

Moreover, animation is not only about the eye’s potential for movement within space as characterised by the cyclical movement of the eyes’ gaze from outwards to inwards, since movement also occurs in time as well. This is because it is the same eye, repeated numerous times but at different stages of its own anatomisation — in different temporal moments — that is represented in the print. The exchange of looks across the surface of the print therefore breaks down what would otherwise be a very linear mode of engaging with the image, beginning with the figure labelled ‘1’ in the top left of the print and reading down the page from left to right. This first figure represents the most intact version of the anatomised eye and shows the inferior position of the entire eye and the three inferior muscles responsible for pulling it in different directions. The second figure is almost identical to the first, but layer by layer the outward sheaths and muscles are stripped away until the eye is no longer recognisable by the tenth and final figure wherein nothing is left save a

344 Lobanov-Rostovsky, “Taming the Basilisk,” 198.
small part labelled the ‘posterior humor with the crystalline.’ But rather than following this linear progression from entire eye to constituent part, the lines of vision emanating from the eye’s pupils lead the user to move more freely around the printed page, unmaking and remaking the eye in a continual process. The movement of time is hence not fixed in one direction; stages can be skipped over meaning the print’s user leaps forward in time and the cuts that progressively reduce the eye’s material substance can be undone – essentially reversing the flow of time in doing so. This is a characteristic that the accessory figures printed around the central eye share with the images printed on the moveable paper flaps concealed within it. Like the information contained within the moveable sheets, there is a prescribed order for reading them, and yet the order imposed by the indexical letters and numbers is in opposition to the image’s invitation to take up a more intuitive mode of looking.

If one follows the pupil’s line of vision, then the linear mode of reading the image is disrupted and transformed into a cyclical process of looking with no clear end point. This is because animation is tied to the cut and how it works to reverse direction, and even to undo extrication. As the observer reaches the final figure the whole process can be reversed by retracing one’s movements and returning to the starting point, ready to repeat the whole process again. The cut thus animates the image, not only by enabling the user to move from outside to inside, but also by revealing that the eye is capable of movement independent from the rest of the body. Although the muscles activating the eye have been detached from the body, the act of looking itself finds a new potential for animation.

This process of animation enables the eye to move independently of the body and by doing so it emerges as its own separate, independent entity. Derrida writes that the single eye, or the eye of the Cyclops as he refers to it, ‘gives rise to heterogeneous representations’ and cannot be described as an object. It thus presents a challenge to

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345 San Juan, “Dying Not to See,” 49.
representation, which ceases to be able to secure and stabilise the meanings it produces.\textsuperscript{347} Indeed, as one tries to break out of the cyclical process of viewing each part in turn and take in the image as a whole a different kind of movement occurs. This movement transforms what were eleven separate but interconnected views of the same eye into a single coherent image, as a face emerges out of the white wall of the printed page. The pair of eyes hanging down on either side at the top of the print is the black holes cut into the white wall through which a face begins to take shape, with the larger central eye being transformed into a nose and the assortment of fragmented parts beneath it taking on the appearance of a toothy grin.

That the larger central eye is key to this transformation should not be surprising considering it is the same eye that was held aloft as a symbol of male agency and dominion over knowledge in the Wittenberg fugitive sheet (Figure 3.12). In fact the eye is often conceived of as masculine in early modern anatomies based on a Platonic model of vision whereby the eye emits a ‘visual pneuma’, transforming the air into an optical instrument and illuminating the objects of its vision. This is due to the fact that: ‘The eye imposes form on the visible world, much as the male endows the flesh with spiritual fire in classical theories of the act of sexual generation.’\textsuperscript{348} Since Bartisch was informed by Galen’s theory of vision, which was itself based on the Platonic model, the eye can be conceived of as masculine in this print too. Rival theories based on Aristotle’s conception of the eye as a passive receiver did challenge Plato’s model, but the eye’s ideological power – concentrated in the gaze – has continued to be linked with a form of male agency. A claim to agency that is implicitly linked with the eye taking on a new role as metaphor, not flesh in Bartisch’s print.

This transformation from individuated parts into an assemblage resembling a face cannot be fully realised however – the third and fourth figures flanking either side of the central eye have no place within the face system, they only interrupt it. Yet this push and pull between faciality and fragmentation of coherent meaning is what creates movement for


\textsuperscript{348} Lobanov-Rostovsky, “Taming the Basilisk,” 199.
the image and it is only through movement and animation that the eye can take on its new status. Its position in visibility is not fixed, but as Deleuze and Guattari write: ‘The abstract machine crops up where you least expect it’ and ‘produces faces according to the changeable combinations of its cogwheels.’ 349 Faces appear everywhere, even when the surface they project themselves onto bears no resemblance to a face whatsoever and although as the face emerges the print’s user is reminded of the physical context from which the eye has been extracted, faciality does not serve to re-contextualise the parts within the whole. On the contrary, the face is separate from the body, separate even from the head: ‘The face is produced only when the head ceases to be a part of the body, when it ceases to be coded by the body...’ 350 The face deterritorializes by removing the head from the rest of the organism and by enabling it to signify on its own terms. 351 This deterritorialization of the eye begins with its extirpation from the head but the cut is ultimately about producing something new as opposed to extracting it.

Another kind of cut enables the eye to take on new interpretations. This occurs when the observer interrupts the cyclical process of viewing and sees the eye as an independent entity instead of a fragmented part. However, while the eye’s potential for animation and movement proves to extend beyond the constraints of its place within the bodily assemblage, it can never quite fully disassociate itself from bodily experience. The fugitive sheet format implicitly entails bringing the body back into the image in order to physically interact with the moveable components of the print. Hence despite the apparent desire to move away from the bodily, in the pursuit of the transformation of the eye into something else the experiential, physical body can never be fully left behind. Even as the treatise seeks to privilege vision, which is a detached mode of engaging with the world since it allows one to observe from a distance without physical contact, it never quite achieves its goal of extricating the other senses, particularly touch, from the process of unfolding knowledge.

349 Deleuze and Guattari, A Thousand Plateaus, 187.
350 Ibid., 188.
351 Ibid., 190.
Vision can never fully detach itself from experience. Even as the eye is remade as something else, the eye’s claim to power is threatened by revealing its complexity as both a perceiving subject and an object of study.\(^{352}\) The use of flap prints in *On the Service of the Eyes* is testimony to this unease regarding the reliability of vision. Although the optical (the cut that seeks to separate matter and impose discreet boundaries between forms) strives to triumph over physical experience and create an objective image, the tactile elements are always counteracting distance and inviting direct physical contact. The cuts that separate and distinguish between forms seek to privilege an ocular mode of acquiring knowledge, but the observer makes their own cuts into the prints and these offer different points of access. Both strategies might be concerned with the production of meaning, but the notion of the boundaries of knowledge is different. The optical approach endeavours to produce a subjective image, the boundaries of which are clearly defined and stable. Eyes, although unable to turn inwards on themselves and see their own interior workings, are nonetheless windows onto the interior self, revealing the soul, and capable of inner seeing that is distanced from the physical body. Touch on the other hand, is related to the emergence of empiricism and a means by which to ascertain the validity of what one thinks one sees. The nature of the knowledge produced through touch is less rigidly defined and therefore open to broader ways of defining knowledge. The way these two senses interconnect in the prints is central to the concept of the fugitive print, and interestingly, the biological workings of the eye (vision) through cutting (touch) become the beginnings of a formation for the notion of self.

\(^{352}\) Lobanov-Rostovsky, “Taming the Basilisk,” 199.
Chapter 4

Productive Cuts in Johann Remmelin's *Mirrors of the microcosm*

A profusion of fragmented body parts, allegorical symbols and decorative flourishes all vie for attention on the printed page in the first of Johann Remmelin's (1583-1632) fugitive sheets from the triptych *Mirrors of the microcosm*, the first authorised copy of which was published in 1619 (Figure 4.1).\(^{353}\) Initially, it is difficult to discern what, if any, relation these allegorical and symbolic forms have to anatomical dissection. For rather than bringing clarity to the printed image, they only seem to detract from the display of bodies and body parts. But in spite of this incongruous mixture of things, the print entitled *First Vision* should not be disregarded as a disorganised jumble of randomly selected parts.\(^{354}\) There are efforts to instil order through the cut. For example, the two main anatomical figures – based on Albrecht Dürer's 1504 engraving of Adam and Eve – have both suffered amputations, leaving them with only one arm and one leg apiece (Figure 4.13). Yet they have their heads and most of their limbs still intact. The organs scattered across the printed page are not missing from the central figures, they are reproduced from them. This fragmentation and doubling continues with a series of incisions that ruthlessly cut the figures in the *Second* and *Third Visions* – slicing across the torsos, separating the breasts and running straight down the breastbone (Figure 4.2 and Figure 4.3). These incisions mark the body in ways that recall how a butcher's chart diagrammatically carves up bodies into flanks of meat.

The chapter will focus on the three fugitive sheets that form Johann Remmelin's *Mirrors of the microcosm*. The prints are amongst the last fugitive sheets to have been produced in early modern Europe, though I will not keep to the distinction usually drawn between these and earlier fugitive sheets. Nor is it for chronological reasons that I have

\(^{353}\) The *Visio Prima* is the first sheet from Johann Remmelin, *Catoptrum microcosmicum* (Augsburg: Davidis Francki, 1619).

chosen to examine them in the final chapter. Rather, Remmelin’s prints offer an opportunity
to take up more fully the different challenges that the cut poses to representation. They
engage with and utilise the cut in ways that bring into relation many of the themes already
addressed in my thesis. These range from the division of the body into discreet parts, which I
will argue is actually carefully orchestrated to privilege certain organs and therefore certain
forms of knowledge over others, to the crucial issue of spatialization in the animation of the
body. I propose that there are four main ways in which the cut can be seen to work across
the three prints for the Mirrors of the microcosm. The images are produced through ways of
deploying the cut not yet addressed in this thesis.

That the series draws on the metaphor of the mirror is not surprising as it is a well-
known convention of late sixteenth century and early seventeenth century publications. So
too is the idea, stemming from ancient Greek philosophy, that the body of man acted as a
kind of microcosm or ‘little world’ that mirrored the universe. Yet the analogy between the
parts of man/woman and the universe as a whole started to shift by the end of the sixteenth
century, with the idea that ‘the inner experience of human nature supplies a direct route to
the knowledge of reality.’ Consequently, the Mirrors of the microcosm triptych have been
associated with Hermeticism, the spiritual and philosophical tradition that during the
seventeenth century brought renewed interest to the microcosm/macrocosm analogy.
However, while the title suggests a clearly defined organising principle, the presentation of
the body’s organs alongside allegorical, religious and mythological figures proves to be
anything but coherent. The cut, both of the body and of the print, encourages users to touch
the print and begins to unravel the link between microcosm and macrocosm. Even the
concept of a ‘vision’ suggests a production of knowledge in which the body is brought to a
level of visibility that always eludes total clarity and retains the presence of the invisible.

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355 Herbert Grabes, The Mutable Glass: Mirror-Imagery in Titles and Texts of the Middle Ages and
356 Jarmo Pulkkinen, “The Role of Metaphors in William Harvey’s Thought,” in Philosophies of
Technology: Francis Bacon and His Contemporaries, eds., Claus Zittel et al. (Leiden: Brill, 2008),
266-7.
The majority of the anatomical prints I have addressed thus far in the thesis have been woodcuts, a form of relief print entailing the gouging out of neutral spaces. By contrast, *Mirrors of the microcosm* utilises two different intaglio printing methods to inscribe its knowledge – engraving and etching. This is a significant distinction because with an intaglio print the black pools of ink that collect in the valleys scored into the metal plate and absorbed into the paper are a visual record of the printmaker’s labour in the act of cutting. In effect, they stain the pristine white page like blood on the body. Moreover, the diverse range of surgical incisions and extirpated organs that proliferate across the ‘visions’ are replicated by an equally wide range of cuts made by the printmaker and repeated by the prints’ users as they open up the paper bodies and peer inside. The main figures and the accessory organs surrounding them are printed using the techniques of engraving, requiring the printmaker to literally carve the image out of a metal plate using a sharp steel burin to produce lines that are ‘deliberate and measured’ and gradually taper to a fine point.357 By contrast, the smaller accessory figures representing the internal organs are printed on a separate sheet of paper, which is cut out and pasted onto the design. These interior accessory figures exhibit more subtle distinctions and variation in line style, all of which is characteristic of etching.358 Etching is accomplished by applying a layer of resin to a metal plate before a design is drawn onto it using a fine needle point. It therefore requires less physical effort in terms of the pressure applied by the printmaker, which offers an advantage over the woodcut for depicting the intricate patterns of veins, arteries, bones and organs inside the body. The subtle differences discernible between the engraved lines used for printing the external view of the main figures, with their precisely tapered ends and uniform spacing, contrast with the more freely drawn etched lines used for printing the interior organs.359 Accordingly, the two intaglio techniques can be seen to thematise the differences

358 Ibid.
359 Ibid.
between the external and internal bodies. While the exterior of the body/print is ordered and contained, the internal components are more unruly.

Significantly, the use of copper plates simplified the process of making revisions. The impressionable surface of the copper plate provides the opportunity for repeated marking, erasing, re-working and adding to the image. Woodcuts could also be reworked but these interventions typically revealed themselves on the image, as seen in the plates for the second and third books of Charles Estienne’s *On the dissection of the parts of the human body.*\(^{360}\) By contrast, the surfaces of Remmelin’s engravings show little visible evidence of changes over the years. Yet they have undergone considerable change, imposed by various publishers or printers and, of course, at the hands of the prints’ users.

The complex history of amendments to the ‘visions’ and their frequent reprinting is by now well-documented. The three broadsides initially appeared on the print market in 1613, but they were printed without title, author or accompanying explanatory text.\(^{361}\) This rescinded the function of the indexical letters, meticulously inscribed onto each body part or organ. However, as Kenneth F. Russell points out, some clues as to the prints’ provenance can be found on the roundels of the stone pillars upon which the anatomical models precariously stand.\(^{362}\) On the pillar occupied by the male anatomical model is a portrait of a well-dressed and fashionably coiffured man. This is now widely accepted by historians to be a portrait of the author Johann Remmelin, a physician and mathematician from Ulm (1583-1632).\(^{363}\) Remmelin’s characteristic beard and hairline are recognisable from the portrait sometimes included as a frontispiece to the 1619 edition of the triptych. Three inscriptions that point to the prints’ authorship are also included in the *First Vision*. Firstly, directly beneath the portrait the words ‘I:R: Inventor’ are illusionistically inscribed onto the marble

363 For information on the life and works of Remmelin see: Russell, *A Bibliography of Johann Remmelin*. 
base. Below this is another inscription: ‘L.K: Sculptor’. It is likely that this refers to Lucas Kilian, who was responsible for cutting and perhaps designing the plates. On the corresponding plinth, occupied by the female model, there is a coat of arms and a third inscription: ‘Stephan Michelspacher. Exculit.’ This refers to the publisher, Stephen Michael Spacher of Ulm in Augsburg, though many early attempts to categorise the prints often mistakenly ascribed authorship to Michael Spacher.\textsuperscript{364}

Early twentieth century scholars tended to argue that the 1613 edition of the prints was published by Michael Spacher without Remmelin’s consent. However, as Karl Schadelbauer points out, the author and publisher appeared to have been on amicable terms in 1615 when Michael Spacher dedicated a book to Remmelin.\textsuperscript{365} It is on this basis that W.D McDaniel concludes that the publisher should no longer be seen as the ‘villain of the piece.’\textsuperscript{366} In fact it was not unusual for authors to withhold their names from a publication until the second edition, when its success had been proven.\textsuperscript{367}

The prints were republished in 1619 under Remmelin’s name. Writing in the preface, Remmelin claimed that it had never been his intention to publish the prints. He even describes his surprise at having learnt of their entering onto the print market without his prior consent:

…but it so happened that the general talk of it among his friends caused the work to be wrested away from him for inspection and circulation, until, through their persuasion and at their expense, it began to be published, without his knowledge, and so to be enjoyed like an unripe fruit; but when he discovered that it abounded in defects, and teemed with numerous intolerable errors made by the engraver and printer, he again, albeit

\textsuperscript{364} Choulant, \textit{History and Bibliography}, 232.
\textsuperscript{366} Ibid.
\textsuperscript{367} Ibid.
unwillingly, took up the work which he had designed 14 years earlier, revised it, and thus offered it in another dress.\textsuperscript{368}

Despite Remmelin’s protestations that the 1613 edition was published without his prior knowledge and that numerous corrections were required, very few alterations were made to the anatomical content of the 1619 edition. There are nonetheless intriguing changes between the two editions, and these mostly concern the addition of small, allegorical texts or images. The majority of figures representing the internal anatomy remained unchanged. In fact the ‘unauthorised’ prints were being used in Leiden University anatomy theatre by 1618, a year before Remmelin amended the prints, suggesting that their usefulness was already acknowledged.\textsuperscript{369}

To complicate matters further, many different editions of the prints were in circulation from the time they first appeared anonymously on the print market in 1613, to the last known restrikes of those plates published in Verona by a book dealer in 1754.\textsuperscript{370} The layout of the uncut plates illustrating the internal organs and other ornamental designs used in the layered paper flaps are known from this eighteenth century edition. Numerous editions of the prints were available by the end of the seventeenth century, each with their own slight variations and translated from Latin into Dutch, German, French and English. However, these translations do not all derive from the same set of plates. For example, whereas the German translation is a restrike, printed from the original plates, which were modified in 1619, the Dutch translation of 1667 is a copy, based on the design of the initial ‘unauthorised’ 1613

\textsuperscript{368} Translation of Remmelin’s text as given in Mc Daniel, "The Affiar of the ‘1613’ Printing," 433.

\textsuperscript{369} Tim Huisman, \textit{The Finger of God: Anatomical Practice in Seventeenth Century Leiden} (Leiden: Primavera Pers, 2009), 38-48. Huisman notes that on 12 August 1618 the university was presented with a bill by the Leiden book and print seller, Govert Basson. This bill was for a large collection of prints and some books bought for the anatomical theatre, including three prints with anatomical volvelles by Remmelin/Kilian and their accompanying book \textit{Mirrors of the microcosm}, which was published in Ulm, 1613.

\textsuperscript{370} The 1754 edition was published under the title: \textit{Archangeli Piccolomini Anatome integra, revisa, tabulis explanata et iconibus mirificam humani corporis fabricam, ad ipsum naturae archetypum exprimentialibus, cum praefatione et emendation Joann. Fantoni, Veronae, summib. Gabrieles Julii de Ferraris}. It was misleadingly claimed by the book dealer to be the work of the anatomist Piccolhomini, posthumously published with revisions by Fantoni (1675-1758), an anatomist born in Turin who was a professor and royal body physician. For further information see Choulant, \textit{History and Bibliography}, 233.
prints but made using a set of newly engraved plates. Amongst the many English editions there are numerous deviations. The English translation of 1670 used the same plates that had been engraved for the Dutch edition. These were translated by John Ireton and published and sold by Joseph Moxon in his shop in Westminster. Later English editions were also made using another set of re-engraved plates. These were subject to additional transformations and corrections by the surgeon Clopton Havers when, in 1695, he attempted to bring the anatomical content ‘up to date’. In fact, as scholars have pointed out, the ‘visions’ never reflected the most up to date anatomical knowledge. Even when they were first printed much of their content had already been superseded or discredited. It was no doubt their use of complex, multi-layered paper flaps and the animated nature of the prints that gave them currency in the print market.

At this point, it is important to clarify that unless otherwise stated, my study is based on the 1619 edition of the *Mirrors of the microcosm* held in the Wellcome Library in London. Amongst the few known surviving copies of the triptych dispersed across various collections no two are exactly alike. The technology of print might have allowed for an element of multiple copies to be produced but these objects were still pieced together by hand and so each one has variations. Moreover, through time, parts have been lost or damaged, and in some cases they may even have been intentionally destroyed or defaced. Each copy of the print, whether made from an impression produced by the original copper plates cut by Lucas Kilian, or from restrikes made later as part of a separate publishing venture, exists in a different state. This is partly related to the complicated early history of how the prints found their way into the print market, but it is also due to the intervention of users, and the damage and transformations that occurred over time. While I have tried to avoid generalising the prints, I am conscious of the potential problems that can arise when

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371 See for example the copy of A survey of the microcosme, or, The anatomy of the bodies of man and woman (London: 1695), held at the Wellcome Library, London. Havers’s amended version of the *Mirrors of the microcosm* was published in London and his name was added to those of the authors Michelspacher and Remmelin on the title page.


373 Johann Remmelin, Catoptrum microcosmicum suis aere incisis visionibus splendens, cum historia, et pinace, de novo prodit (Augsburg: Davidis Francki, 1619), held in the Wellcome Library, London.
describing objects that have been pieced together by hand and deployed extensively in diverse ways.

In the scholarly literature, these prints tend to be differentiated from other anatomical prints. It has even been suggested that they represent the demise of the fugitive sheet because of the seemingly baffling array of Christian, mythological and allegorical signs and symbols, all indelibly scored into their surface. Amongst the many interpretations of these prints, some have dealt with allegorical motifs, including those pertaining to Christian notions of original sin, while others have linked them to alchemy and Kabbalistic mysticism. Lyle Massey argues that the prints should be distinguished from other flap anatomies because they mix anatomical content with a renewed interest in Jewish mystical thought in Basel, where Remmelin trained as a physician. However, other interpretations of the same elements have attributed them to more conventional moralizing functions. For example, Peter Mitchel argues that memento mori emblems proliferate, from the microchristus included in the Second Vision to the serpent coiling itself around the skull in order to offer up an apple to ‘Eve’ in the Third Vision. For Mitchel these devices are intended to convey how ‘the conceptual character of anatomy need not be in conflict with a soteriological perspective on Man.’ It has been suggested that the ‘myriad other visual and textual reference that appear in the Catoptrum’ threatens to undermine any claims for the print’s status as a successor of Vesalius’s ‘modern’ anatomy. However, Remmelin’s project was very different to that of Vesalius, even if it did appropriate some of its images and strategies.

Art historians also point to the sheer complexity of their design as one means of differentiating them from the fugitive sheets printed in the sixteenth century, describing them with erudite knowledge of alchemical and Kabbalistic principles as opposed to an overarching allegory.

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374 Lyle Massey argues that Remmelin’s prints exploit this interest, writing that: ‘[Remmelin’s prints] fabricate recondite associations between dissection and alchemy and Kabbalistic (Jewish mystical) references.’ See: Lyle Massey, “The Alchemical Womb: Johann Remmelin’s Catoptrum microcosmicum,” in The Visual Culture of Secrecy, eds., Timothy McCall, Sean Roberts and Giancarlo Fiorenza (Kirksville: Truman State University Press, 2013), 221.


376 Ibid., 136.

377 Massey, “The Alchemical Womb,” 211. Massey goes on to argue that although the varied references appear haphazard they are actually arranged in order to provide evidence of the author’s erudite knowledge of alchemical and Kabbalistic principles as opposed to an overarching allegory.
as ‘some of the most intricate interactive prints extant.’

For unlike any of the other known fugitive sheets, Remmelin’s prints contain over a hundred highly complex, multi-faceted layered paper flaps. Individual figures contain up to sixteen different flaps constituting as many as ten layers. Some of the internal organs, including the heart, are not fixed to the print but are placed loosely inside the paper assemblage – enabling users to remove individual parts in order to inspect them more closely. A number of the organs are even printed double-sided, presenting users not only with a sense of spatiality for the body, but also for each of the individual parts that make up the whole.

Given the complexity of the prints, it is unlikely that they could have been pieced together after purchase by users. In most fugitive sheets all of the flaps are hinged in one place – at the thorax – meaning that assemblies, while often imperfect or divergent, could nonetheless be carried out by untrained hands. Remmelin’s prints have some flaps that can be lifted upwards just like earlier fugitive sheets, but others can be pulled downwards or folded outwards. As Suzanne Karr Schmidt points out, this would have made these prints even challenging for the printer or publisher to assemble without detailed written or verbal instructions from the author. This in turn has led to speculation that the prints must have been pieced together by a specialist team of workers who had a guide or perhaps even a pre-assembled manikin to work from. Though it seems unlikely that the prints were assembled after purchase by users, this does not rule out the possibilities of misuse, misappropriation and reshaping of the prints. Many copies of the ‘visions’ have had pigment applied by hand, all bear evidence of use through damage to the paper flaps and some even appear to have been intentionally defaced.

The first section of this chapter will explore how symmetry and binaries work with the cut in order to produce meaning, while at the same time how these come under threat from the spatialization of the print. Though the print depicts a surface teeming with disjointed body parts and organs extracted from their proper location, the cut strives to define these

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379 Karr Schmidt, *Altered and Adorned*, 88
according to their resemblances and oppositions. Fundamental to arguments about how meaning is fixed for the print is the apparent opposition between the Hebrew symbol for God, the Tetragrammaton, and the serpent-haired creature emblazoned on a shield obscuring the female genitals. This has attracted considerable scholarly attention, yet the user's interaction with the flaps they are printed onto warrants further attention. Ultimately, the spatialization of the body and of the print reveals how things are not as they initially appear. As it will be shown, the print conceals a number of surprising secrets intentionally hidden between its layers that complicate surface appearances.

In the second section, I will explore how, just like Medusa's head, the body in Remmelin's print is reconceptualised by the cut, transformed into something new and, crucially, something productive. Not only is the cut able to transform an object of disgust and horror – the dead body – into a source of power and knowledge, it also offers a way for the body and the print to reproduce. Of course, it is well known how in its application in printing technologies the cut made it possible to reproduce multiple copies from one matrix – thus facilitating the distribution and spread of anatomical knowledge. But in Remmelin's print, through the myth of Medusa the cut takes on another kind of reproductive potential, making it a fitting choice of subject to be overlaid on the pregnant belly of the truncated torso in the foreground of the print.

It is not only the allegorical or mythological accessory figures that are implicated in the cut's attempts to organise the body, and in the third section I will examine how the senses are also central to this effort. In effect the separation of the senses from the body and their isolation within discreet organs is about translating embodied experience into something that can be visually codified, labelled, defined and thereby stabilised. Moreover close scrutiny of the print reveals how the organs are not haphazardly placed as it might first

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appear, but are actually carefully positioned in order to convey a hierarchical ordering of the senses. But while the cut seeks to transform experiential knowledge into something more akin to visual information of the printed page, the more unruly aspects of the senses – particularly touch – prove difficult to contain. This raises the problem of how to present the senses. On the one hand, they offer a direct means of access to the external world, enabling one to perceive and understand. Yet the more disruptive aspects of the senses suggest the need to distance them from the ‘rational’ male body, as it was thought of during this period.

The fourth section compares the anatomisation of Adam and Eve from the Second and Third Visions respectively. I will examine how reproduction and generation are visualised through the cut. This is achieved very differently than other anatomical prints I have looked at so far. For one there is a remarkable sense of correlation between the male and female anatomies as a consequence of how the cut is utilised to bring clarity and orderliness to the image. Yet, although the figures mirror one another in terms of their gestures and bearing, this has been interpreted very differently for Eve than for her male counterpart. Of course, as Michael Baxandall rightly stresses: ‘We may miss very much by not sharing these people’s sense of close relation between movement of the body and movement of the soul and mind.’

It is well known that during this period great significance was attached to gestural codes and bodily comportment, with humility and self-restraint being emphasised for women. But when scholars define Eve’s posture as ‘highly immodest’ or state that: ‘Her sins, particularly her pride, are revealed in her stance’ it is perhaps more a reflection on what one expects to find, rather than what is actually represented on the surface of the printed page. Actually the male and female bodies are

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381 Michael Baxandall, Painting and Experience in Fifteenth Century Italy (Oxford: Oxford University Press, 1988), 60.
383 Cregan, “Bodies Acted ‘To Teach Man’,” 127.
differentiated by the way the symbols of knowledge and sin work; it is this relation that is at stake in the two prints.

Finally, in my conclusion to this chapter I will consider how the ‘slipperiness’ and the mutability of the three prints that constitute Remmelin’s triptych has impacted upon their afterlife. Unusually, the prints were still being reproduced almost a century after their first inception. Moreover they reached beyond Europe, ultimately finding themselves adapted to new purposes and new visual cultures.

Symmetry vs spatialization
In the First Vision there is a strong symmetry to the organisation of the main figures, the accessory organs and the allegories that surround them, perhaps even a hierarchy (Figure 4.1). At the top of the print manicules draw attention inwards, towards a huge disembodied eye and an ear. Between these is a heavenly apparition; two angels, both dressed in fine robes hold aloft a floral wreath. A sword and martyr’s palm are tied together in the centre of the garland and the words of Sanctus, from the Eucharistic liturgy, form a ring. A pair of banderoles unfurls ceremoniously on either side of the angels, drawing the user’s eye downwards where the symmetry continues. Male and female figures face one another across the page, the diminutive king’s sceptre and the sexton’s shovel at the very bottom of the print mirror one another in terms of their verticality, even the internal organs – severed from their bodily context and distributed across the printed page – are aligned to complement and reflect one another. The figure labelled ‘Facies 11’, representing a membranous tissue known as the mesentery, and ‘Facies 13’, the diaphragm, perhaps best encapsulate the correspondence between the internal bodily parts. Although they have very different functions within the body, their shape and outline share a strong visual resemblance and for this reason the two are aligned, roughly level with one another, on opposite sides of the print. Moreover, as if to further accentuate how an invisible line of symmetry bisects the

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384 The words are: Sanctus, Sanctus, Sanctus, Deus Zebaoth.
print, the limbless decapitated torso in the bottom centre has a cut running straight down the middle of its swollen belly.

As a consequence of this striking symmetry, much of the scholarly literature focuses on the surface of the *First Vision* – on the reflections and oppositions that, it is argued, are strategic to instilling order and therefore producing meaning for the print. It is argued that there is a carefully devised schema conceived in terms of oppositions: male and female, part and whole, sacred and profane. As already outlined in the first chapter of this thesis, David Hillman and Carla Mazzio argue that it is precisely these kinds of dichotomies that hold the threat of representational collapse at bay. Yet the cut’s relation to the mirror metaphor is complex and problematic. On the one hand, cutting is the means by which symmetry is produced for the print. The careful, deliberate work of the engraver scoring the organs, allegories and texts onto the copper plate with precision produces the effect of balance. On the other hand, the insertion of layers *underneath* the print’s surface, which are made visible by lifting an incision in the top layer, disrupts that carefully orchestrated order.

Yet as users penetrate beneath the surface of the print, meanings shift, new symmetries obscure old ones, and cracks in the mirror metaphor are revealed. This is not only because peeling back the layers reveals the overriding similarities between man and woman (as already discussed in relation to the fugitive prints made after Heinrich Vogtherr in Chapter One). Arguably, the effect is even more pronounced in Remmelin’s print because in addition to the spatialization of the main anatomical figures, some of the allegorical figures and the internal organs also contain layers. In order to show how the layering of the print complicates a coherent idea of the microcosm/macrocosm, one must begin with the dichotomies within the level of the surface.

David Hillman and Carla Mazzio, "Introduction: Individual Parts," in *The Body in Parts: Fantasies of Corporeality in Early Modern Europe*, ed. David Hillman and Carla Mazzio (New York and London: Routledge, 1997), xvii. Hillman and Mazzio write: ‘But if the order of meaning is threatened by this severed head, it is also created and in many ways stabilized by it... Medusa appears to embody, to take upon herself, almost literally, anxieties about both textual and medical dismemberment; Perseus-like, Remmelin has “decapitated” the torso at the foot of his illustration and placed the head of Medusa, in the manner of a shield, as an apotropaic device to guard against the threat of symbolic and corporeal disfiguration’ (xvii).
One aspect that is fundamental to many of the arguments about how meaning is secured in the *First Vision* is the apparent opposition between two unusual features located at the top centre and the bottom centre of the print. At the top is the cloud encircled by a host of winged faces (Figure 4.4). This contains the Tetragrammaton – the Hebrew name of God, usually transliterated as ‘Yahweh’. Appropriately, many of the putti face inwards towards the word of God, but a few lift their little faces upwards to meet the gaze of the print’s user. The mouths of these putti are wide open as if in song and it is tempting to imagine them reciting the words of Psalm 34:8 that are printed around them: ‘Oh taste and see that the Lord is good.’ This heavenly apparition certainly forms a striking visual contrast with the monstrous, flame-eared, serpent-haired creature that obscures the genitals of the truncated female torso at the bottom of the print (Figure 4.5). There continues to be ongoing debate over the precise identification of this creature. Some scholars claim it represents the devil, citing how it was a commonplace convention in late medieval and early modern visual culture to cover the male and female genitalia with an image of this kind. Others have described it as Medusa’s head. I will return to this issue but for now I will simply refer to it as a ‘monstrous head’. Like the host of heavenly faces enclosing the word of God...

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387 This is written in Hebrew characters on the 1619 edition of the print. Significantly though, the Psalm is absent from earlier editions of the *First Vision*. See for example the 1613 copy of the *Mirrors of the microcosm* held at the Art Institute of Chicago, which does not feature the banderoles with the inscription from Psalm 34:8. The 1613 print is reproduced in Karr Schmidt, *Altered and Adorned* 83. The *First Vision from the Wellcome Collection’s edition of An exact survey of the microcosmus or little world...Set forth by Michael Spaher of Tyrol; And English’d by John Ireton; And lastly perused and corrected, by several rare anatomists* (London: Joseph Moxon, 1670), is based on a copy of the original 1613 design and therefore this does not include the banderoles either. For further information on the changes that took place between the 1613 and 1619 editions of the *Mirrors of the microcosm* see: Andrea Carlino, ”Paper Bodies: A catalogue of anatomical fugitive sheets, 1538-1687,” *Medical History*. Supplement, 19 (1999): 112.
388 Traub, “Gendering Mortality,” 84. See also Massey, “The Alchemical Womb,” 219. Massey interprets Medusa’s *head as a devil’s head* but adopts a different approach to that of Traub, based on Remmelin and Michelspacher’s known interest in alchemical knowledge and Paracelsian concepts of disease. Massey stresses how the devil/Medusa alludes to the ‘demonic aspects of medicine in respect to gender’ and argues for it being representative of a broader ‘aggressive sexual antithesis’ at work across the three prints for the *Mirrors of the microcosm*. See also: Valerie Traub, ”History in the Present Tense: Feminist Theories, Spatialized Epistemologies, and Early Modern Embodiment,” in *Mapping Gendered Routes and Spaces in the Early Modern World*, ed., Merry E. Wiesner-Hanks (Farnham, Surrey, England; Burlington, VT: Ashgate, 2015), 15-54. Traub writes: ‘Such gendered imagery exploited anxieties about the partitioning of all human bodies in the pursuit of science, while assigning the sins of the flesh and the recalcitrance and opacity of bodily matter to a specifically female body’ (22).
above it, this creature is also depicted with its mouth wide open; though it seems more likely to be emitting a tortured groan than chanting beatific verse. As a point of comparison it serves to further highlight how striking the overall visual contrast is between the celestial cloud above and the monstrous head below.

Scholarly attention has tended to focus on how the opposition of the cloud-encircled Tetragrammaton and the monstrous head could play a crucial role in fixing meaning for this print. It has been proposed that knowledge of the female body is defined by the monstrous head as something unruly, potentially even dangerous or corrupting. As Hillman and Mazzio write, ‘the “unnameable” body part always potentially threatens the symbolic order of the Name of the Father, the order of meaning itself.’ Kate Cregan notes how the inscription of the words *invidia* (envy) *orge* (anger) *neamias* (a young man/wilfulness) *diabole* (slander) on and around the monstrous head could denote the four deadly sins of Christianity. This, she concludes, makes an explicit connection between women’s sexual organs and death by conveying the message that while the female body is the ‘gate to terrestrial life’ it is also potentially the gateway to ‘eternal damnation.’ Valerie Traub adopts a similar argument when she concludes that the head serves to equate the female body with sin and transgression by fixing woman’s body as: ‘the mortal site of primal sin and worldly knowledge.’ This is in pronounced contrast to the word of God directly above it, which can be seen as offering direct access to spiritual knowing and therefore to salvation. The assumption in both cases is that the monstrous head was appropriated by Remmelin for Christian moralising purposes and that it only takes on meaning in the print through its contrast with the Tetragrammaton.

In fact, the emphasis on the binary opposition of the Tetragrammaton and the monstrous head as a strategy for ‘fixing’ sin and transgression on the female body overlooks a key aspect of the print’s design – the transient properties of the flaps on which they are

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390 Cregan, “Bodies Acted ‘To Teach Man’,” 113.
391 Ibid., 113-4.
392 Traub, “Gendering Mortality,” 84.
printed. Traub writes, ‘we need to scrutinize how spatialization might offer provocations to, as well as offer possibilities for, feminist theories and practices of reading and analysis.’

And I would extend this to incorporate not only feminist practices, but any attempt to interrogate how meaning is secured and undermined by the cut.

Provocatively, the print’s users are invited to dissect the very word that defines God. Lifting the first layer of the Tetragrammaton, labelled K, reveals an etching of a plump cherub in keeping with the heavenly apparition that preceded it. The angelic subject is turned to address the viewer in three quarter profile and a cascade of golden hair falls over their shoulders, from behind which two feathery wings emerge. The next layer represents an older, bearded man garbed in a bishop’s mitre and fine robes. It has been suggested that this is meant to represent Hermes Trismegistus, which would make it an explicit link between anatomical knowledge and the ancient spiritual, mystical tradition of Hermeticism.

However, the likeness between this image and the portrait of Hermes Trismegistus on the floor of the cathedral at Siena attributed to Giovanni di Maestro Stefano, 1488, is debatable. The next and final layer is by far the most surprising of all. Buried deep beneath the Tetragrammaton, the heavenly apparitions are substituted with a nightmarish impression of the devil’s face (Figure 4.6). At this point the apparent balance of oppositions between godliness and monstrousness can no longer be argued to function. After all how can the Tetragrammaton really claim to counter the monstrous head directly beneath it if an image of the devil can be found concealed between its layers?

Further complicating the interpretation of the head is the fact that it predates many of the moralistic and allegorical inscriptions added to the plates in 1619. Though in the scholarly literature the head covering the female genitals is often aligned with the Psalms inscribed on the banderoles, the little allegorical scenes inside the roundels on the marble

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395 Ibid.
396 In some copies this final image is absent from the design. A Latin inscription is sometimes substituted in its place or added in as an additional layer. For further information see: Massey, “The Alchemical Womb,” 221.
plinths, the king clutching his sceptre and the skull beside the shovel, these were all later additions. And, as a result of its placement on a delicate paper flap on the external layer of the print, the head is absent from a number of editions of the *First Vision*. Surely if it is intended to fix meanings, it would be secured on an area of the print less susceptible to damage or removal. Ultimately, the fact that the head predates many of the other moralising inscriptions, combined with how its opposition to the Tetragrammaton is undermined by the print’s spatialization, suggests a different strategy. A possibility might be the productive as well as destructive potential of the act of cutting itself. This reading, as I will show, works with the cut, not in spite of it.

Finally, although the cut disrupts the binaries of good/evil, divine/corrupting, male/female by spatializing the print, a new form of symmetry emerges as users dissect the paper bodies on display. Lifting the layers of the two main anatomical figures, represented as Adam and Eve has unexpected consequences. All of the flaps hinge on one side of the body – the side closest to the centre of the print – with the result that as one turns them over a new kind of symmetry is produced (Figure 4.7 and Figure 4.8). The figures’ faces are represented in profile so the overturned flaps form a mirror image that stares back at the body they are derived from – in effect they scrutinize one another. And, though the reverse of the flap is not printed with any anatomical features, the faint outline of features on the front, including the face, the contours of musculature – even the fig leaf concealing Adam’s genitals – are just visible through the thin, porous paper. It is as if the figures have turned their attention away from the outward appearance of things, in order to look inside themselves. One could argue that as a consequence of this the focus of the print is re-orientated so that the two anatomical figures, not the Tetragrammaton and the monstrous head, become the new locus of symmetry within the *First Vision*. But unlike the symmetry of

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397 For example, the 1613 copy of the *Mirrors of the microcosm* held at the Art Institute of Chicago has no flaps at all covering the genitals of the female torso. The Medusa’s head flap and the fabric may have been removed, but it is also conceivable that for some reason they might never have been affixed. For a detailed discussion of this particular copy of Remmelin’s prints see: Karr Schmidt, “Altered and Adorned,” 82-92, 101-104.
the mirror, the multiple layers contained with the body not only reflect the body, they replicate it over and over again – and each time it adopts a slightly different form.

**Reproduction through the cut**

On all sides, through the fields, along the highways,

He saw the forms of men and beasts, made stone

By one look at Medusa’s face. He also

Had seen that face, but only in reflection

From the bronze shield his left hand bore; he struck

While snakes and Gorgon both lay slunk in slumber…

If the monstrous head at the bottom of the *First Vision* is indeed Medusa’s head, then it raises issues about vision and visibility in relation to the cut and to the female anatomy in particular (Figure 4.5). One glimpse of Medusa’s head was said to turn its victims into stone. And as the extract above reveals, Perseus was only able to defeat Medusa using the highly polished surface of his shield as a mirror to mediate and deflect vision. In this way Medusa’s head is like the eye in Bartisch’s prints; encapsulating the struggles between striving to see and the ultimate impossibility of seeing, or knowing one’s own interior first hand. But perhaps even more significantly, the cut that decapitates Medusa’s head is, according to legend a productive cut as her severed head goes on to become an emblem of knowledge and power. First, it is utilised by the hero Perseus who holds it up to turn his enemies to stone, then later Athena, the goddess of wisdom and warfare, fixes it to her aegis. Significantly for my own argument, the cut does not represent the end of the narrative or the expiration of Medusa’s powers, which makes it comparable to how the anatomist’s cuts work on the dead body. In both cases the cut transforms something monstrous – an object of fear and disgust – into an

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emblem of knowledge and power. Moreover, as I intend to show, it is also through the cut
that Medusa’s head and anatomical knowledge are able to reproduce.

Visual analysis certainly seems to support the interpretation that the head obscuring
the genitals of the pregnant torso represents Medusa. The creature’s hair is comprised of a
mass of writhing, coiling snakes and the Latin inscription directly beneath it is taken from a
passage in Book II of Ovid’s *Metamorphoses*. In English the text reads: ‘Pallor spreads over
her face, and all her body shrivels.’ Although this is from the story of Hermes and the
sisters Herse and Aglauros, not the myth of Medusa, there are nonetheless significant
parallels between the two mythological narratives. Both involve envious women and the
power to transform flesh into stone, suggesting a strong link with the mythological gorgon.
Furthermore, the way the creature is depicted with eyes wide open and mouth agape,
suggests it is recoiling in horror from the threat of a cut. Yet it is not the blade brandished by
Perseus that confronts Medusa in the *First Vision*; rather it is the print’s user who wields the
power to dismember.

Various suggestions abound as to why Medusa’s head is positioned over the
pregnant torso’s genitals, but most attribute it to a kind of warning about the dangers of
seeing too much. Though, it remains unclear whether Medusa’s head is intended to
protect the male viewer against the dangers of confronting the potentially corrupting female
body, as it was in the myth of Perseus and the gorgon, or to protect the female body from
the penetrating male gaze. Hillman and Mazzio comment on the remarkable way in which it
seems to prefigure the influential analysis of Medusa’s head as a castration symbol in

Sigmund Freud’s essay ‘Medusa’s Head’, written in 1922 and published posthumously in

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401 The second inscription, written in Greek, also alludes to the envious nature of women. The line is taken from Pindar’s *Nemean Ode 8* and translated reads: ‘Words are a dainty morsel for the envious,
and envy always clings to the noble, and has no quarrel with worse men.’ Translation as given in
Freud succinctly encapsulated his analysis in the equation ‘To decapitate = to castrate.’ In Freud’s opinion, Medusa’s decapitation was synonymous with a fear of castration that arises out of the horror, imagined to be experienced, when: ‘a boy, who has hitherto been unwilling to believe the threat of castration, catches sight of the female genitals, surrounded by hair, and essentially those of his mother.’ Freud’s analysis is based around a fear of castration, yet he wrote that Medusa’s head also contained the possibility of mitigating that horror. This was tied to the way the numerous coiled snakes constituting Medusa’s hair could be read as multiple phaluses, hence transforming Medusa from a threatening castration symbol to a reassuring penis symbol. Traub describes the Medusa’s head in Remmelin’s print in a similar way to Freud when she writes that it is intended to compensate for the male viewer’s ‘dread of the female genital interior.’

Another interpretation is that Medusa’s head is merely intended to obfuscate the female genitals, hence preserving male desire by not showing too much. However, this relegates it to the same function as the illusionistic fabric ties layered over the breasts and around the hips to prevent the ‘doors’ of the torso’s belly from curling upwards and prematurely bringing the ‘secrets of women’ into visibility. Even if Medusa’s head was intended to form part of a strategy aimed at containing the interior body then this strategy is fundamentally flawed because far from concealing the female sexual organs, Medusa suggestively evokes the opening of the vagina. As Cregan points out, the outline of the flap into which Medusa’s head is printed follows the contours of the labia majora, the inner tracery can be likened to the labia minora, and the teardrop shape inscribed with the word

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403 Sigmund Freud, "Medusa’s Head (1940 [1922])," in The Complete Psychological Works Of Sigmund Freud, Vol 18: Beyond the Pleasure Principal, Group Psychology and Other Works (1920-1922), trans., James Strachey (London: Hogarth Press and The Institute of Psycho-Analysis, 1955), 273-5. Hillman and Mazzio draw on Freud’s psychoanalytic reading when they argue that Medusa’s head is intended to ward off the body’s potential disintegration into parts and the collapse of representational meaning that is always present in medical anatomies – see Hillman and Mazzio, "Introduction: Individual Parts," xvi-xvii.
404 Freud, "Medusa’s Head," 273.
405 Ibid., 273-274.
406 Ibid.
408 Katherine Eggert, Disknowledge, 178.
invidia could be seen as the clitoris. The open mouth can even be compared with the vaginal opening.\(^4^{10}\) In effect, it replicates what it hides.

Even more intriguingly, the tapered top of the flap bearing Medusa’s head points towards a perpendicular incision that runs straight down the centre of the pregnant torso’s belly, splitting the umbilicus in two. This in turn recalls the kind of precise surgical cut that would have been performed in a caesarean operation, as shown in a woodcut from the 1549 edition of Alessandro Benedetti’s *De Re Medica* (Figure 4.9). The woodcut represents a mythological scene, recounted in Ovid’s *Metamorphoses*, in which Apollo extracts his son Asclepius, the god of medicine, from the abdomen of Coronis. Nevertheless, there are records of caesarean sections being performed during the sixteenth and seventeenth centuries.\(^4^{11}\) As the first woodcut for Book II of Charles Estienne’s *On the dissection of the parts of the human body* makes evident, the mother was unlikely to survive a caesarean operation (Figure 4.10). This is why it was usually performed only after she had already died, or when the mother’s death seemed inevitable.

It is fitting that Medusa should be aligned with the caesarean cut since in some versions of the myth blood from her sides is said to have been given to Asclepius. According to the legend: ‘That drawn from the left [possessed] the power to raise the dead, while that from the right could destroy whoever drank it.’\(^4^{12}\) Lisa Rosenthal describes how the power of Medusa’s head is intrinsically linked to the ambiguities stemming from the fact it has both this deadly and procreative potency.\(^4^{13}\) She writes: ‘Not only does she petrify all who gaze at

\(^4^{10}\) Cregan, “Bodies Acted ‘To Teach Man,’” 114.

\(^4^{11}\) The procedure was more commonly known as a caesarean operation up until the end of the sixteenth century. The term ‘caesarean section’ seems to have been first introduced by Jacques Guillemeau, though he advised against the operation except for post-mortem. For the English translation see: J. Guillemeau, *The Happy Delivery of Women*, trans., A. Hatfield (London: A. Hatfield, 1612). For further information on the history and development of the caesarian section see: Thomas F. Baskett, “François Rousset and the first text on caesarean section: a commentary by Thomas F Baskett,” in *Caesarean Birth: The Work of François Rousset in Renaissance France—A New Treatise on Hysterotomotokie Or Caesarian Childbirth*, ed., Thomas Baskett, trans., Ronald Cyr (Cambridge: Cambridge University Press, 2010), 1-16.


\(^4^{13}\) Lisa Rosenthal, *Gender, Politics, and Allegory in the Art of Rubens* (Cambridge: Cambridge University Press, 2005), 182.
her, but she gives rise to new life forms as well.\footnote{Ibid.} Even more significantly, in Ovid’s 
*Metamorphoses* the moment Perseus decapitates the gorgon her spilt blood gives rise to new life. As the following extract describes, Perseus: ‘Severed the head, and from that mother’s bleeding // Were born the swift-winged Pegasus and his brother.’\footnote{Humphries, *Ovid Metamorphoses*, 106.} This is significant because the cut did not simply neutralise Medusa’s threat by killing her; just like the caesarean cut depicted on the pregnant torso in Remmelin’s print, for Medusa the cut also presents a portal through which new life is able to come into the world. Cutting thereby has a similar (albeit unnatural) procreative potential for the gorgon as it does for the pregnant torso. And it is this aspect of the myth that also strongly associates it with the remaking of the anatomical body; in both cases the cut has a productive, rather than a destructive effect. Although, paradoxically of course the destruction of bodily integrity is necessitated in order to enable it to produce anything.

In terms of the anatomical print therefore, Medusa’s head gives rise to new forms of *knowledge*. Its prominent position in the centre of the print draws attention to the body’s transformation from organic material into knowledge, thereby offering an allegory of how the fragmentation of the body and the end of life does not have to be synonymous with the death of knowledge. Moreover, just as Medusa’s spilled blood spawned two offspring in the form of Pegasus the winged horse and Chrysaor the giant, two offspring are also the result of the caesarean incision in the print. On either side of the truncated torso billowing banderoles spiral outwards, like spurts of blood. These recall the ribbon-like streams of blood red pigment that issue forth from Medusa’s severed neck in Caravaggio’s painting of Medusa (c. 1570/1610) which is now in the Uffizi (Figure 4.11). Caravaggio represents Medusa caught between life and death, at the precise moment the head is being cut from the body. Remmelin’s print, however, represents Medusa at the moment the cut remakes her head as something productive. And from her spilled blood, represented by the banderoles, the main male and female anatomical models appear to materialise. Their
missing limbs are not the result of some trauma that obliterated all evidence of them; on the contrary it is merely that they are not yet fully formed. The process of materialisation for the male and female anatomical models that are the result of Medusa’s spilled blood is not yet complete in the First Vision. But in the subsequent prints Adam and Eve will step down from their stone plinths, fully formed, to become the central focus of the second and third ‘visions’.

Separating the senses
Before turning to address the second and third ‘visions’, I would like to return to the surface of the First Vision one more time (Figure 4.1). After all, before one turns the page it is first necessary to replace all the flaps to their proper locations and thus return the image to its original condition. Pamela Smith and Benjamin Schmidt observe how: ‘One of the most important components of reform in the early modern period was a new valorization of sensory-derived knowledge.’ So perhaps it is for this reason that the organs responsible for external sensory perception – the eye, ear, nose and tongue – are afforded such prominent positions in the First Vision. These external sensory organs were thought to be responsible for perceiving their surroundings and transmitting information to the internal senses (imagination, memory, reason and common sense), thereby enabling the soul to know the world. But cut from their natural location in the bodily assemblage and dispersed across the printed page, the capacity of these organs to perceive the world is questionable, unless one factors in the allegorical component. Instead I intend to show how they are implicated in the cut’s efforts to organise the body and bring order to the image.

I will begin by addressing the eye, which is afforded an important position above the male figure at the very top of the print. The eye stares out of the page – its glassy pupil confronting the print’s user and reflecting their gaze. It stands erect, supported by the five

muscles that are labelled P and annotated in the accompanying text, but the optic nerve has been cut – effectively severing the link between the eye and brain.\textsuperscript{418} The implication is that if the eye does see then it does so of its own volition, independent of the bodily assemblage. The eye’s independence is further stressed by the way it retains a sense of wholeness and unity due to the fact that the eyelid, eyelashes and even a bushy eyebrow all remain intact. The negative space of the page, long since discoloured by the passage of time, further serves to separate the eye from the other organs surrounding it, also contributing to a sense of autonomy for the individual organ.

This autonomous eye may already be familiar to users, since it is based on a woodcut in Vesalius’s \textit{Fabrica}.\textsuperscript{419} In fact Vesalius’s autonomous eye appears in numerous other prints of the period, including two fugitive sheets that I have already discussed. It is the same eye that was held aloft by the ‘anatomised anatomist’, Vesalius, in the sheet illustrating the male anatomy for the 1573 Wittenberg triptych of fugitive sheets. It also appeared in George Bartsch’s 1583 treatise \textit{On the Service of the Eyes}, proving that while in medical terms Vesalius’s contribution to knowledge about the eye was limited, his images remained influential.\textsuperscript{420} This is despite the fact that Vesalius was unable to depart from ancient theories and to correctly deduce the situation of the lens.\textsuperscript{421} It was not until 1619 when the Jesuit priest, Christophorus Scheiner (1575-1650), successfully demonstrated how the optic nerve had been wrongly located in previous anatomies and the radius of the cornea was actually smaller than the radius of the sclera.\textsuperscript{422} After this a new vision of the eye, different than Vesalius’s, began to emerge, though it took time for it to be adopted in anatomical images as Remmelin’s prints prove.

\begin{footnotes}
\footnote{418}{For an English translation of the anatomical descriptions see: Remmelin, \textit{A survey of the microcosme}, (1695).}
\footnote{419}{Andreas Vesalius, \textit{De humani corporis fabrica libri septem} (Basel: Ioannis Oporini, 1543), 643-644.}
\footnote{420}{Vesalius’s anatomy of the eye owed much to ancient Galenic teachings and was largely based on animal as opposed to human dissections. See: Jean J. De Laey, "The Eye of Vesalius," \textit{Acta Ophthalmologica}, 89 (2011): 297.}
\footnote{421}{De Laey, "The Eye of Vesalius," 300.}
\footnote{422}{Ibid.}
\end{footnotes}
Significantly this autonomous eye retains a potential for movement in spite of how it has been separated from the body. But this movement is not the same as the left to right, up and down movement that the eye’s five muscles are capable of producing within the bodily assemblage. On the contrary, the disembodied eye is imbued with a new form of movement that enables it to move from exterior to interior and vice versa. As with Bartisch’s multi-layered anatomy of the eye, Remmelin’s *First Vision* conveys a sense of the organ’s spatialization, which is made possible by the insertion of layers within the print. An incision in the top layer allows the eye to be opened up revealing a series of paper flaps pasted one on top of the other. With each layer the user’s prying hand lifts the eye and the image as a whole ‘blinks’. By this I mean that one image is removed from visibility in order for a new one to emerge in its place. One begins with a staring pupil framed by a border of splayed eyelashes and a bushy eyebrow, but lifting the first layer makes the image ‘blink’ and the eye rotate on its socket. The black pupil no longer stares out to confront the viewer’s own eyes; instead stripped of its fleshy clothing the eye self-consciously averts its gaze upwards. It is almost as if in order to be seen it must first cease to see for itself. The next layer peels back another ‘tunic’ of the eye, but this time when the image blinks it reveals a net of veins that sprawl, web-like, beneath the eye’s spherical, opaque, white surface. In the final layer the eye is reduced to a collection of muscles, rendering the optical organ barely recognisable.

A disembodied, partially dissected ear forms a counterpart to the eye on the opposite side of the page. Like the eye, it has also been cut from its bodily context and now floats incongruously above the female figure’s head – mirroring the shape and outline of her ear. However, the presentation of the ear in the particular copy held at the Wellcome Library does differ from that of the eye in a significant way; there are no layers pasted within the

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ear. As a substitute, a small group of parts forming the internal anatomy of the ear are shown alongside the main figure. These include the cochlea and a collection of minuscule bones represented directly beneath the auditory organ from which they originate. It is interesting that the ear does not contain the same complex layering of flaps as the eye. Combined with the fact that the ear is represented on the left hand side of the cloud enclosed by angels (as opposed to being on the favoured right hand side of God, like the eye) denotes a certain privileging of the ocular above the auditory. Nonetheless the ear still inhabits a conspicuous location within the *First Vision*.

Beneath the eye and the ear, in the very centre of the page, is a figure labelled ‘Facies 12’. At first it is difficult to discern precisely what is represented by this figure, but the shape of a head begins to emerge. It is distorted almost beyond recognition due to the dramatic foreshortening imposed by the observer’s awkward perspective — looking upwards, through the thorax into the anatomised head. Two flared nostrils, represented as if seen from below, attract the observer’s attention and facilitate the journey towards recognition. It is then that two black eye sockets seem to emerge on either side of the nose. It is not without apprehension that one notes how acutely the anatomised head is titled back on the seven cervical vertebrae of the neck bone, how the lower part of the jaw has been forcibly ripped open in order to allow visual access to the tongue and the roof of the mouth, and how the overall impression is of a skull screaming in agony. There is however, some attempt to counteract the extreme violence imposed on this figure through the handling of the flayed skin, labelled A. The edges of the skin are neat and tidy. There is a notable absence of blood. In fact the skin appears more akin to the fabric that was theatrically pushed aside in

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424 This is not necessarily the case for all editions of the *First Vision*. For instance, a copy of the later German translation *Kleiner welt Spiegel* (Ulm, 1661) held at Columbia University’s Augustus C. Long Health Sciences Library contains one layer pasted underneath the exterior view of the partially dissected ear. Although this is a later edition, most of the flaps appear to be identical with those of the 1619 edition. A digital copy of the treatise can be viewed online: Remmelin, Johann. *Kleiner welt spiegel, das ist, abbildung göttlicher schöpfung an dess menschen leib : mit beygesetzer schriftlicher Erklärung: so wo zu Gottes Weisheit, als dess menschen selbst erkanntnuss dienend* (Ulm: Gedruckt durch Johann Schultes Buchtrucker, 1661). Internet Archive <https://archive.org/details/ldpd_11497246_000> [accessed 5 January 2016].
order to reveal the anatomised Venus in Charles Estienne's *On the dissection of the parts of the human body*.\(^{425}\)

Cregan has suggested that this anatomised head implicitly belongs to the male body since the female anatomy was only of interest in terms of its reproductive capacities.\(^{426}\) She argues that the primary reason for the unusual vantage point, which permits the view up through the jawbone, is related to the fact that the anatomised head 'rising out of the torso which is fixed on the earth and wedded to corporeal decay...appears to be trying to do just what the Psalm exhorts.'\(^{427}\) For above it, banderoles encircling the angels bear the words from Psalm 34:8: ‘Oh taste and see that the Lord is good!’\(^{428}\) However, as Cregan herself admits, the words of the Psalm were only added to the print in 1619 when Remmelin made his amendments to the design.\(^{429}\) The anatomised head craning upwards therefore predates the didactic inscription and for this reason it is worth interrogating its function within the carefully mapped arrangement of sensory organs more closely.

Actually the figure, defined in the accompanying text as the gaping mouth and heart, is closely related to the pregnant torso beneath it.\(^{430}\) And, as will be shown, there is good reason for this counterintuitive move to define the head in terms of the female body, which is to do with how the senses are defined in the image. Though Remmelin's dissected head is closely modelled on a print in Dryander's 1537 treatise *Anatomy of the human head*, some substantial changes were made in order to re-establish its connection with the body in the *First Vision* (Figure 4.12). The cartilages of the trachea and the two main arteries that carry blood to the head and neck were added, establishing a physical link between the head and the partly anatomised heart represented beneath it. The effect is that the veins, arteries, cartilage and organs appear as if they have been freshly torn from the torso below them.

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\(^{425}\) Estienne, *De dissectione*, 271.

\(^{426}\) Cregan, "Bodies Acted 'To Teach Man,'" 231.

\(^{427}\) Ibid., 115.

\(^{428}\) The words of Psalm 34:8 are written in Hebrew characters and only appear on 1619 editions of the *First Vision*. English translation as given by Cregan, "Bodies Acted 'To Teach Man,'" 115.

\(^{429}\) Ibid.

\(^{430}\) "Facies 12' is defined in the accompanying textual description as: *Os didactum & Cor*. See: Remmelin, *Catoptrum microcosmicum*, 8.
After all, they are exactly the same proportion as the torso, which is much larger than the two main anatomical figures on either side of it. The internal anatomy is also deliberately aligned so that the heart is just slightly closer to the torso’s left breast; it occupies the same location as it does inside the body.

The unusual perspective into the head is also significant, since it offers an unrestricted view of the nasal cavities, windpipe and tongue. Almost to emphasise that such a violent opening of the head and jaw is necessary, the tongue is repeated again to the left of this accessory figure. In the earlier 1613 edition of the print, the tongue is labelled ‘Facies 14’ and is dramatically enlarged, making it approximately equal in size to the eye and ear at the top of the print. This denotes that the tongue may have originally been intended to form part of a strategic alignment of sensory organs. According to Carla Mazzio, the senses were often defined by specific organs, medium and objects. The eye, for example, was associated with air and celestial objects. So if the eye represents sight and the ear represents hearing, the tongue surely represents the sense of taste as well as speech. In fact speech was often characterised as a ‘sixth sense’ during the period. A fact that takes on greater significance when one realises that the accessory figure directly opposite the tongue represents the larynx – the organ responsible for speech. Taken as a group the eye, ear, nose, tongue and larynx seem to form an inverted triangle. And although the tongue diminished considerably in terms of its size between the 1613 an the 1619 editions of the print, the addition of the banderoles unfurling above the heads of anatomical models further accentuate the deliberate placement of the sensory organs within this configuration.

Extricating these organs from the body, the cut strives to separate and distinguish between the senses by turning embodied experience into something that can be categorised, labelled and visually defined. They become metonymic signifiers for the senses.

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431 In the 1619 edition of the First Vision the tongue is considerably smaller and labelled ‘Facies 24’.
433 Ibid.
434 Ibid., 75.
they facilitate. Vision, for instance, can be isolated within the eye, a concentrated site where ‘meaning is invested and apparently stabilised.’\(^{435}\) Even more significantly, these metonymic organs are not only arranged according to their location within the head (the eye and ear are approximately level with one another while the tongue and nasal cavities are positioned beneath them) but also form a hierarchy. At the top of this hierarchy is vision, strategically positioned above the male figure on the right hand side of God represented by the Tetragrammaton; at the bottom is taste. Perhaps it is because unlike vision and hearing, taste requires physical contact with outside stimuli that it is relegated to this lower position.

Yet not all the senses can be restricted to a specific organ in this way. Touch proves to be the most difficult sense to define. It resists the cut’s attempts to delimit boundaries or to contain the sense within a specific bodily locale. Nevertheless, it is tempting to interpret the hand and foot, located in the lower portion of the print in close proximity to the figures, as metonyms for touch – thereby neatly completing the set of senses in the *First Vision*. Both are represented partially anatomised, but it is not the nerves as the sensitive receptors of touch that are displayed on the flayed hand. Instead the ligaments responsible for the hand’s dexterous movements are made visible by the removal of the skin. The same is true of the foot emerging from behind the female model’s one intact leg. It has likewise been stripped of flesh in order to reveal the ligaments trailing downwards and transgressing the boundary of the body by spilling out onto the plinth.

In fact it is unusual to find hands or feet employed as metonyms for touch during the early modern period. Since touch cannot be easily confined to one particular type of organ, or indeed to any one particular location on the body, it is not easily defined by metonymical or allegorical schema.\(^{436}\) Early modern anatomists agreed that touch was dispersed throughout the whole body, as Helkiah Crooke writes in his 1615 treatise *Microcosmographia*: ‘al other Senses are restryned within some small Organ about the

brayne, but the Touching is diffused through the whole body. This notion is reiterated by Robert Burton in the *Anatomy of Melancholy*: ‘This sense is exquisite in men, and by his nerves dispersed all over the body.’

Touch can therefore be seen to resist the logic of synecdoche and metonymy, the very analogies that the microcosm/macrocosm system depends on. This makes touch the most threatening sense to intellectual and ethical systems, according to Carla Mazzio. It also makes it closely affiliated with the act of anatomisation, in terms of its directness, corporeality and slipperiness. However, by failing to confine touch to a single bodily site, the cut also reveals how touch works in favour of pluralities of interpretations. It not only destabilises the microcosm/macrocosm concept, it also complicates the division between inside and outside, part and whole by undermining the possibility of categorisation.

Ultimately, despite how neatly the cut seeks to separate and contain the senses, all of them harbour the potential to destabilise boundaries. After all, as Susan Stewart explains, while the senses brought one into contact with the outside, they also blurred the boundaries distinguishing man/woman from the world around them:

> Here the relation between external objects – that is, material forms and living organisms – and the phenomena of our immediate awareness of the world – color, shape, sound, smell, tactile feelings – is both distinguished and blurred.

It is for this reason that the truncated pregnant torso is found at the apex of the triangular arrangement of sensory organs. Linking the more unruly senses of taste, touch and speech with the female body is a way of visualising their disruptive qualities, while

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439 Mazzio, "The Senses Divided," 89.
disassociating these problematic qualities from the rational male body and intellect. Yet the changes made between the 1613 and 1619 editions of the print imply that there was anxiety about linking sensory perception with the female body. Reducing the size of the tongue and adding the carefully chosen words of the Psalm may seem like insignificant changes, but they alter how the senses are framed in the print. The relation of the senses to the pregnant female body becomes more opaque in the later print, although it does not disappear entirely. The push and pull between separating the senses and accurately describing embodied experience remains a point of tension for the image. In a way the sensory organs could be seen to allegorise the anatomical project as a whole. Like the senses, particularly touch, dissection also seeks to reveal relationships between the bodily interior, the exterior surface and movement, while simultaneously struggling to maintain the boundaries between interior and exterior.

Anatomising Adam and Eve
In the Second Vision, Adam is at a moment of change and is the first to step down from his stone pedestal ‘like Pygmalion’s unnamed creation…in the familiar gesture of art becoming life’ (Figure 4.2). The fabric tied around his torso threatens to loosen and slip from the body, his limbs are imbued with movement, fingers are splayed, and muscles are tensed. With one foot resting on a skull, it seems almost as if Adam is poised to spring forwards out of the printed page. This is reminiscent of the movement of the female anatomical figure in a woodcut for Jacopo Berengario da Carpi’s Anatomy, first printed in 1522 (Figure 4.14). However, Adam’s theatrical gesture of revelation goes much further than Carpi’s by offering users the opportunity to peel back flesh by lifting the paper flaps that conceal the body’s interior. Eve quickly follows her male counterpart in the Third Vision, continuing the logic of symmetry of the first print. In fact if the two prints could be viewed side by side – with the Second Vision on the left and the Third Vision on the right – it would almost appear as if a

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443 See the woodcuts on pages 22r and 22v in Jacopo Berengario da Carpi, *Isagoge breves: per lucide ac uberime, in anatomiam humani corporis* (Bologna: Benedictus Hector, 1523).
mirror was placed between them. The figures’ gestures, their confident beckoning stance, the allegorical tableaus – even the choice of bodily organs – all are deliberately chosen to reflect and emphasise their similitude. Yet in the very bottom corner of the two prints lurks a crucial point of distinction – the human skulls entwined by serpents that Adam and Eve rest their feet on.

Cutting intersects in a number of interesting ways for these prints, but the inscriptions of the skull and serpent have attracted the most attention with regards to how they stabilise gender boundaries. These are often interpreted as familiar memento mori devices and the argument is that because the female anatomy is associated with Eve’s transgression, the Third Vision defines women as sinful and corrupt. Overlooked are the very different ways in which Catholic and Protestant theologies conceptualised the physical experiences of pregnancy and childbirth. Protestant women in particular may have found other, more constructive, ways of relating their own bodily experiences to the narrative of the fall. It also disregards the challenge presented by the similitude between the Second and Third Vision to the representation of reproduction and generation in the prints. It is my intention to problematize the ways the skull and the serpent have been used to define gender. While these undoubtedly have an important role to play, I will also examine how nature and allegory might be used to offer an alternative to a binary conception of sexual reproduction.

While in many anatomical prints the reproductive organs and pregnancy are crucial tools of inscribing difference and defining the female body, this strategy is not employed in the Third Vision. Both the Second and Third Visions are arranged so that the anatomy of the brain occupies a prominent position above the central figure. Organs belonging to the digestive tract, the lowest order of organs according to early modern texts, are situated further down. With one hand Adam gestures towards the male urogenital organs, comprising the kidneys, the bladder, the ‘seed bladders’ and the entrance of the ureters, all

445 For the Second Vision these are represented by the liver and gall bladder, while the stomach and a portion of the guts occupy an equivalent position in the Third Vision.
of which are labelled 'Facies 9'. With his other hand Adam beckons the print's users to examine two accessory figures illustrating the ventricles of the dissected heart. Eve performs an almost identical gesture in the Third Vision; one hand invites users to pry into the internal anatomy of the heart, while the other points towards the bladder, ureters, womb and kidneys – the female urogenital organs that are labelled 'Facies 14'. The internal organs, then, do not act as markers of sexual difference, but rather as evidence of parallels between male and female anatomies. The parallels continue, first because 'Facies 10' in the Second Vision shows a part of the female anatomy – the womb – and second because 'Facies 3', in the Third Vision shows an interior view of a dissected womb that resembles a penis. It is important to remember that in many ways gender boundaries were less rigidly defined than they are today. The 'single sex model', brought to attention by Thomas Laqueur, proposes that sexual difference was constructed around how the female anatomy differed from the dominant male body, though this has been questioned by some scholars. As I will show the mirroring of the male and female bodies through the cut in the Second and Third Vision offers a different way of conceptualising gender and reproduction. Sexual difference is not shown to stem from the anatomy of man and woman, which in the prints appear as analogous. This is not the same as the single sex model because while the alignment of the two bodies shows how they are similar to one another, it is the inscription of religious, mystical and allegorical motifs on the surface of the prints that produces gender difference and thematises reproduction.

446 These are represented in Facies 13 and 14 of the Second Vision and Facies 16 and 17 of the Third Vision.

Foremost amongst these are the serpent and the skull that define the anatomical models as the biblical figures of Adam and Eve. In many ways it is appropriate for the anatomical figures to adopt the guises of the first man and woman since, according to Genesis, God formed Eve by opening up and extracting part of Adam’s body: ‘he took one of his ribs…made he a woman…’. Seventeenth century English polymath Thomas Browne even proposes that God’s fashioning of woman represents the first ever surgical procedure. Metaphors of crafts and crafting also made links between the biblical story of creation and the sexual act of procreation. God is described in the book of Genesis as fashioning Adam out of a lump of earth: ‘shaping human beings in the same way a potter might shape clay and building Eve from a rib as a carpenter might build a house.’ Early modern conceptions about generation posited that man’s ‘seed’, acted on the woman’s menstrual blood in a similar way, fashioning passive matter into human form. As Kathleen Crowther-Heyek writes: ‘In the creation of a child in the womb, sixteenth-century authors saw an echo of the original divine act of creation.’ Though the craft metaphor uses the example of a potter or carpenter, it could work just as easily with the figure of the printmaker, labouring fastidiously to produce meaning through the inscription of lines and shapes on the surface of the wooden block or, in this case, the copper plate. Indeed, the analogy between God’s divine act of creation and the sexual act of reproduction was most fully developed and exploited in anatomical imagery. Numerous anatomical illustrations of the period, including Vesalius’s Fabrica and several fugitive sheets I have discussed in earlier chapters, use Adam and Eve to illustrate sexual difference.

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448 Gen. 2:21-2 (King James Bible).
449 Philip C. Almond, Adam and Eve in Seventeenth-Century Thought (Cambridge: Cambridge University Press, 1999), 144.
451 Ibid., 908.
452 Guldenmundt’s fugitive sheets were amongst the earliest to incorporate the attributes of Adam and Eve into their design in 1539. Though they are now lost, Guldenmundt’s woodcuts are thought to have been the original prints upon which a number of copies were based, including Jean Ruelle’s 1539 woodcut of ‘Adam’, where the apple has been removed from the design, and Cornelius Bos’s engravings of 1539-40. Thomas Geminus adapted the male and female figures from the middle of the Epitome by ascribing the attributes of Adam and Eve to the anatomical figures in his compendium, plagiarised from Vesalius’s Fabrica. A serpent and apple were added to the skull of Vesalius’s original
But instead of the generative aspects of the creation myth, the final two ‘visions’
invoke mankind’s fall. Eve is not pregnant in Remmelin’s print, nor is there any imagery that
overtly associates the Third Vision with the themes of conception or pregnancy (Figure 4.3).
Instead, the serpent that winds within the empty spaces of the skull has an important role to
play in the construction of gender difference. In the Second Vision the skull is presented so
that the top of the cranium faces outwards and the hollow eye sockets are visible. The
serpent’s head emerges from a hollow on the opposite side only to be dealt a fatal blow by a
diminutive crucifix that impales it, spewing forth four ribbon-like jets of blood that form a gory
crown around its head. The serpent’s eye looks upward, its forked tongue flicks outwards as
if it is caught in the final throes of death. By contrast, in the Third Vision Eve rests her foot on
a skull that is inverted in order to show the unfamiliar posterior view. The eye-sockets and
nasal cavities one expects to find are replaced by the foramen magnum (the hole in the base
of the skull through which the spinal cord passes) and the dark shadowy cavities that mottle
the skull’s surface suggest that it is empty inside, though it is not empty in terms of its
symbolism of death and sin. Even more significantly, the serpent that moves sinuously
through the crevices of the skull in the Third Vision is very much alive. It winds its long
slithering body through the foramen magnum and emerges on the other side of the skull –
perhaps through an eye socket – to present Eve with a branch bearing fruit from the tree of
knowledge.

This would appear to serve an explicitly moralistic function, equating the ‘sins of the
flesh and the recalcitrance and opacity of bodily matter to a specifically female body.’ Indeed, the lengthy passage in Latin, inserted at the very bottom of the First Vision makes
efforts to frame the triptych in terms of these differences, as the following lines exemplify:

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453 The image is described in the text as showing the Exterior & inferior calvariae su perficies (the exterior and lower surface of the skull).
O God, you alone remained before chaos, before all bodies of things, you, who do not have a limit. Illustrate [these things]. With the light land, the image of your divine mind came into being, from your immeasurable goodness. Nevertheless, the better spouse, having been taken by the trick of an evil demon, was soon led astray by his stupid wife. Behold! He neglected your divine precept, and the deplorable man bore the pernicious loss forever. Clearly, having been mocked you immediately lost the human race of Adam by the seductive speech of a serpent. Although God forbade it, eating the sorrowful fruit you caused pale death to come into the empty world. Our life fleeing just like the grass, like the smoke of fire – changes that you cause to be suddenly undone.  

The mottos inscribed in the upper register of both the Second and Third Visions fit this vanitas theme, as they assert the fleetingness of life and the triviality of earthly pursuits. In the upper left of the Second Vision, in an elaborate frame featuring a reclining cherub, hangs a tablet engraved with the motto: 'Man is like a breath, his days are passing like a shadow.' Directly above the cherub is another inscription in Latin, which reads 'From the moment we are born, we begin to die.' In the Third Vision the cherub is substituted for a lifeless skeleton with its bony arm hanging limply over the frame. The skeleton's face is directed towards an inscription declaring: 'The end depends upon the beginning.' While the inscription on the corresponding tablet reads: 'Our days are like a passing shadow, and there is no abiding.'

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455 Translation as given in Massey, "The Alchemical Womb." 219.
456 The Latin inscription is: HOMO vanitati similis factus est dies eius sicut umbra praetereunt which comes from Ps. 144:4 (King James Bible). See also: Massey, "The Alchemical Womb: Johann Remmelin's Catoptrum microcosmicum," 215.
457 The Latin inscription is: Nascentes morimur. The phrase comes from a first century AD poem on astrology. For further information see: Mitchell, The Purple Island and Anatomy, 541.
459 The Latin inscription is: Dies nostri quasi umbra super terram et nulla est mora which comes from 1 Chron. 29:15 (King James Bible). See: Ibid.
Nonetheless, reading the skull, the serpent and the apple as keeping to the *memento mori* theme risks oversimplifying the prints.⁴⁶⁰ After all, the narrative of the fall was also linked with generation. This late medieval notion was fully developed during the sixteenth century partly because Lutheran theology stressed the 'redemptive power of reproduction itself.'⁴⁶¹ Luther wrote that by enduring the pains of labour inflicted as a penance for Eve's transgressions, women should find spiritual comfort. Indeed, some Lutheran devotional texts even compared the sufferings of childbirth to those of Christ on the cross, suggesting that: 'The pain of childbirth was not simply a punishment for Eve’s sin, but a path to holiness.'⁴⁶² This offers a very different way of interpreting the skulls and suggests a possible equivalency, not a contrast, between the microchristus of the second print and the apple of the *Third Vision*. The implication is that Protestant observers may have inferred very different meaning from their Catholic counterparts.

A pair of anatomical prints from Leonhard Thurneisser von Thurn’s treatise (1531-1596) on the usefulness of urine as a medical diagnostic tool offers an interesting comparison with the skull and serpent in Remmelin’s *Visions* (Figure 4.16 and Figure 4.17).⁴⁶³ Thurneisser, who was, like Remmelin, a known adherent of Paracelsian medicine and Hermeticism, draws on the same strategy of using Adam and Eve as the anatomical models and paper flaps to bring the interior of the body into visibility.⁴⁶⁴ A human skull is also located beside Adam’s foot in Thurneisser’s print while the serpent and the apple are implicitly linked with Eve. However, this print makes the connection between the female sex

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⁴⁶² Crowther-Heyek, “Be Fruitful and Multiply,” 927.

⁴⁶³ Leonard Thurneisser von Thurn, *Confirmatio concertationis*, (Berlin: Im Grauwen Closter, 1576), 28r, 35r.

and the cause of humankind’s downfall much more explicit than Remmelin’s print by depicting the snake coiled tightly around Eve’s wrist (Figure 4.17). With its forked tongue flickering near her ear, the print indicates that it was woman who first fell victim to the devil’s corrupting influence and is to blame for leading man astray. In the Third Vision, Eve’s relation to the serpent is more ambiguous. She is yet to take the fruit from the serpent. In fact she does not even acknowledge the serpent’s presence, suggesting that this represents the moment before the fall and the inevitability of expulsion from the Garden of Eden. If sin is inscribed on the female body in the Third Vision then this is not necessarily achieved by the visible incisions made by the printer on the surface of the metal plate, but by the knowledge that the print’s users bring to their reading of the image.

Furthermore, unlike Thurneisser’s print, in the Visions spatialization produces new productive potentials for the skull. An incision runs around the circumference of the skull in both the Second and Third Visions, enabling users to lift up the outer layer of bone and to dissect the skeletal specimen. Unexpectedly, inside what looked like an empty skull one finds multiple layers representing the anatomy of the brain (Figure 4.15). The cut thereby transforms the skull from ‘a traditionally iconic memento mori into physiology . . . ’ The cut reveals living veins, arteries and tissue concealed within the skull and brings them back to life, pointing to the anatomist’s incisions as productive. But it is not life in the same sense as the living body. The cut offers the skull a new life as anatomical knowledge. This contrasts dramatically with how the skull is mobilised in Thurneisser’s print. Here the trajectory of the figure’s arm and the handle of the shovel are carefully aligned to draw attention down, away from the figure’s living head, towards the ground at his feet and the empty eye sockets of the lifeless skull. The fact that Adam appears ready to dig his own grave further emphasises the body’s fragility and the inevitable fleetingness of life. In Thurneisser’s prints, lifting the flaps pasted over the torsos of Adam and Eve also presents an image of death (Figure 4.18 and

Figure 4.19). For instead of revealing veins flowing with blood, living muscles and organs *in situ* within the body, there are only dry bones.

Whereas in Thurneisser’s treatise the cut opens up the body to reveal death, in Remmelin’s print death (the skull) is cut open to reveal life. Therefore, while Thurneisser’s prints may incorporate many of the same motifs as Remmelin’s, including the skull, the apple and the serpent that associate the central anatomical figures with Adam and Eve, the two reveal radically different approaches to cutting into the body. By enabling users to lift up the outer layer of bone and to dissect the skull, Remmelin’s prints remake what is usually considered to be an emblem of death into a *productive* source of knowledge about the human anatomy. Hence rather than offering the traditional idea that death ultimately claims us all and that the pursuit of earthly gains is meaningless, the figure of death itself has become a tool for the production of anatomical knowledge.

Finally, two other elements of the *Second and Third Visions* are worth examining. The first of these is the rare ornamental plant that grows out of the earth between Adam’s legs and conceals his genitals. The second is a phoenix that rises on a plume of elaborately engraved smoke from a volcanic mound in the earth between Eve’s legs and conceals her genitals. Both of these curious devices are printed on delicate paper flaps, serving to simultaneously anchor down the many layers hidden beneath them and to prevent users from seeing too much too soon. An inscription on the banderole surrounding the flower states: ‘As the colchicum plant is already rotten by the time it flowers / So you, man, must rot like the grass.’[^466] This has led to the argument that the metaphor of corruption ‘inherent in the generative organs’ implied by the use of Medusa’s head in the *First Vision* is continued in relation to the figure of Adam.[^467] But the colchicum plant could also be seen as a metaphor for the productive potential of the anatomised body. The colchicum plant flowers during the

[^466]: The Latin inscription is: *Ut colchicum florescit marcidum sic & HOMO graminis instar, putris.* Translation as given in Cregan, “Bodies Acted ’To Teach Man’,” 119.

[^467]: Ibid.
autumn, just as the rest of its leaves appear to be withering and dying. Thus it offers a parallel to the inert, lifeless bodies that become productive though anatomical investigation. But the link between the male sexual organs and nature could also offer a novel way of conceiving of reproduction outside of the binary of male/female sexuality and more as a coherent system. The flower between Adam’s legs appears ready to bloom. Its petals are just beginning to peel themselves open so that the stamen – the pollen producing part of the flower – is visible. Not only does this make the flower highly suggestive of the anatomical parts it conceals, but the partially opened petals invite the print’s users to peel them open and bring male sexual organs into visibility.

The theme of rebirth is continued in the third sheet depicting the female anatomy. Just as the colchicum plant evokes the theme of life in death, so too does the firebird emerging from its nest of flames. With wings outstretched and beak open, the phoenix looks as if it could at any moment rise up out of the scorching flames and take flight. In a similar mode to the male anatomical sheet, again a banderole relates how man, like the phoenix lives even as he burns in smoke and ash. Massey interprets the phoenix as associating productive knowledge with the male body, whereas the female body’s reproductive power needs to be controlled by the implicitly male phoenix. However, it could also be interpreted as medical knowledge of the body being brought to life through death. This certainly seems

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468 The colchicum plant is an autumn crocus traditionally used in treatment of gout. It flowers in late autumn when rest of plant is withering. It is this peculiar attribute of the flower that led Massey to suggest that it ‘seems to bring together medicine and salvation’: See Massey, “The Alchemical Womb,” 225.

469 The potential for generation to be reimagined outside of the binary of male/female sexual difference is, according to Eggert, a defining characteristic of alchemical thought, to which Remmelin has been linked. See: Eggert, Disknowledge, 181. She writes: ‘Because alchemy’s ways of imagining sexual generation are so diverse, however – indeed, as I have argued, alchemy represents the very act of choosing how to regard human reproduction – alchemy may be used as a way to figure the process of knowledge making involved in determining how, exactly, we imagine the perfect woman and the perfect mode of reproduction... On the one hand, as in the anatomy books, alchemy applied to the female body may signify a choice to remain permanently in the state of seeing only her most pleasing aspects, never obliged to know more. On the other, as in the more adventurous alchemical theory... alchemy may also signify a choice to radically reimagine the female role in reproduction along nonpatriarchal lines (181).


471 Ibid., 225.
to be implied by the skull. Knowledge blooms from the dissected cadaver even as the cut reduces that body to parts and the flesh becomes corrupted by the forces of time and decay.

Motifs inscribed on the surface of the two prints undoubtedly form part of a strategy to mark moral and sexual difference. However, they also speak of the productive potentials the act of cutting has in anatomical study. The inclusion of the serpent, the apple and the proliferation of Latin scriptures can of course be linked with an attempt to define and maintain boundaries, but they also reveal an anxiety about the destabilising of a gendered male identity under the anatomist’s knife. The anxiety is not just that male and female bodies come to resemble one another through dissection. As Sawday writes, the violated anatomical body offered up for visual consumption was frequently conceived of as feminine, regardless of its actual gender.\footnote{Sawday, \textit{The Body Emblazoned}, 11-15; Traub, “Gendering Mortality,” 54-5.} It was the male body that therefore came under particular threat from the cut and not only because it was subjected to observation and penetration at the hands of the (implicitly) male anatomist, but also because the anatomical body is a productive body and this affiliates it with female characteristics. This anxiety could also explain the use of Vesalius’s likeness for the male figure in the 1573 Wittenberg fugitive sheet discussed in Chapter One. It was not necessarily about anatomising the anatomist but reasserting an active role for the male body in spite of its apparent passivity as it is subjected to the user’s prying investigations.

Intriguingly, in Remmelin’s \textit{Second Vision} the \textit{colchicum} flower that obscures the male genitals blurs these boundaries even further because women’s menstrual periods were frequently described as ‘flowers’ in recognition of the blood’s potential to produce ‘fruit’ – a term used to mean an unborn child.\footnote{Crowther, \textit{Adam and Eve in the Protestant Reformation}, 154.} This also unites two seemingly incompatible aspects that have recurred throughout a number of anatomical prints – the conflation of mythological and Christian narratives. The separation of part from whole is of course central to many ancient Greek myths, particularly the myth of Marsyas, but the story of Genesis is also one of separation, or anatomisation as a means of production.
Disobedient bodies
Throughout this thesis I have argued for the cut working between what are often conflicting positions. These conflicts are related to the aim to inscribe and secure fixed meanings, whilst conversely allowing for flexibility and movement based on the foresight that anatomical knowledge is not a fixed position but a process of ongoing discoveries. The order that is frequently imposed on the body to denote gendered or cultural identities in spite of the destruction of these tropes under the anatomist’s knife are similarly conflicted with the production of an animated image. But I would like to conclude with an anecdote about the unruliness of the three ‘visions’ that reveals something of how the cut works across early modern prints more generally.

In order to fully open up Adam’s or Eve’s body from the second and third ‘visions’, the prints’ users must perform a delicate operation that requires practice, patience and dexterity. First the ‘modesty’ flaps – the fabric, the colchicum or the phoenix that offer ‘additional cover for the prudish or squeamish viewer’ – must be folded downwards.474 The torso underneath is divided straight down the centre so that it can be opened outwards like the shutters on an altarpiece, and an additional two flaps covering the breasts open outwards above these. But the flaps do not stay in place when folded back; particularly those flaps that are double in thickness due to a paper reinforcement having been adhered to their reverse side. These double-sided flaps might benefit from producing a more spatialized representation of the bodily interior, but they are also heavier and more awkward to manipulate. As a consequence, it requires both hands to nimbly try to pry back the flaps of the torso and hold them in place as one examines the interior cavities of the body. In order to access the very first of the seven interior layers, one already finds oneself using the thumbs and index fingers of both hands. To burrow deeper inside the body, the user must contort their fingers into ever more complex arrangements, holding the already opened flaps in place whilst attempting to reveal more of the subsequent layers.

474 Karr Schmidt, Altered and Adorned, 85.
With both hands engaged in the delicate act of manipulating the paper body, irksome organs refuse to remain in place and the whole body threatens to collapse in on itself at any moment. Inevitably of course, at some point in the process this is exactly what happens – one’s finger slips and the disobedient paper flaps tumble back into their original positions, concealing the interior body from view once again. Perhaps in this moment the print’s user comes closer than ever to the experience of dissecting a real cadaver. What I am trying to suggest here is that the handling of these prints is crucial to the formation of meanings and that the delicate paper flaps they are printed onto are more permeable and transitory than has usually been suggested. This is evident not only in how tricky they can be to handle, but also in more general terms of the prints’ slipperiness.

The ‘slipperiness’ that characterises how the cut produces bodies of knowledge extends also to the afterlife of Remmelin’s prints and how the *Mirrors of the microcosm* went on to be altered and amended right into the eighteenth century. Perhaps the most dramatic of these transformations occurred in 1690, when the prints were translated into Japanese by Motoki Ryoi (1628-1697) and the engravings re-made as woodcuts by Takei Rippo (Figure 4.20). Gone are the allegorical, Christian and mythological attributes. Instead the figures are isolated on an otherwise empty page. What interpretations and cultural biases new audiences in Japan brought to the prints is worthy of its own investigation and is unfortunately beyond the scope of my present research project. Even so, their dramatic transformation is testament to how printed images were part of what has been described as ‘a dynamic ecology of use and reuse, leading to transformation and destruction as well as to preservation.’ Moreover, the various transformations that the prints experienced are

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reminders of how uncovering self-knowledge through an investigation of the bodily interior is a journey that accumulates over time, the outcomes of which can be varied and divergent.

Rather than trying to pin down and confine their meanings, an exploration of early modern anatomical print should perhaps strive to be more like the contemporaneous conception of touch – endeavouring to bring elements into discourse with one another and resisting classification, rather than striving to keep things separate. Of course, this is also exactly how the cut functions across the anatomical prints I have addressed in this thesis. Though it undoubtedly serves to divide, separate and clarify individuated organs/areas/bodies, just as one would assume a cut should work, it also brings disparate elements together. It is this ambiguous and at times contradictory function of the cut that makes it such a remarkable, fertile line of enquiry.
Conclusion: Cut and Paste Technologies

Early modern anatomical images adopted different approaches to representing the body as they responded to new medical research, religious and cultural debates, and emerging printing technologies. The prints I have examined engage with cutting as something more than a means for anatomists to excavate the body with a scalpel, or for printers to record received information with a chisel or burin on a woodblock or copper plate. The process of cutting is crucial to the active role of the user of the print, to the interpretation of the image, and even to its future possibilities. Above all cutting is the means through which knowledge is assembled, explored and animated in anatomical print. Knowledge is not a singular concept and could take many different forms, as the examples in my four chapters show, ranging from medical information about the body’s interior organs and mechanisms, instruction on how to treat diseased body parts, to insights about the self as both body and soul. Throughout this thesis, I have strived to pay attention to the materiality of print in order to argue that the medium and the way that it is handled by its users have implications for the image. This has meant paying close attention to the cuts scored on the print’s surface, irregularities and deviations between different versions, and the marks left behind by users. Drawing on the works of theorists and philosophers has enabled me to question assumptions about print itself, especially attempts to define audiences and to categorise their social status.

My thesis contributes to a growing, though still relatively underexplored area of enquiry regarding how knowledge was constructed and disseminated through diverse forms of printed material during this period. The prints I have addressed do not fit easily into the pre-existing categories of art history or the history of medicine. They do not belong to the same ‘canon’ of scholarly treatise as Vesalius’s Fabrica, and, though innovative in terms of their technological and representational strategies, often, the medical information they contained was already outdated or superseded by the time they entered the market. Fugitive
sheets in particular have been overlooked in the past. Many lay tucked away, forgotten about, at the bottoms of drawers in archives, or were dismissed as curiosities. This is now beginning to change as objects and images that seem strange within our notions of the modern are beginning to receive more attention. The painstaking work of cataloguing the numerous editions and copies of interactive prints dispersed across libraries and collections worldwide has proved invaluable.\footnote{Andrea Carlino, "Paper Bodies: A catalogue of anatomical fugitive sheets, 1538-1687," \textit{Medical History. Supplement}, 19 (1999): 336-48; Suzanne Karr Schmidt, "Catalogue A: European Single-Sheet Interactive Prints 1450-1700," in \textit{Art—A User's Guide: Interactive and Sculptural Printmaking in the Renaissance} \texttt{<http://www.interactive-prints.org/A.pdf>} [accessed 24 August 2015]; Le Roy Crummer, "A Check List of Anatomical Books Illustrated with Cuts with Superimposed Flaps," \textit{Bulletin of the Medical Library Association}, 20 (1932): 131-139.} Prints with moving parts have been included in several high profile exhibitions recently.\footnote{Previously overlooked prints, like fugitive sheets, have been included in a number of high profile exhibitions in recent years, which have had a positive impact in terms of bringing them to wider interest. For example: \textit{Prints and the Pursuit of Knowledge in Early Modern Europe} was exhibited in the Arthur M. Sackler Museum between 6th September 2011 - 10th December 2011, and in the Mary and Leigh Bloch Museum of Art, Evanston between 17th January 2012 - 8th April 2012. \textit{Altered and Adorned: Using Renaissance Prints in Daily Life} was on between 30th April, 2011 - 10th July 2011 and \textit{Animated Anatomies} was held in the Perkins Gallery, Duke University, Durham, North Carolina between 6th April - 17th July 2011 and in the History of Medicine Gallery in the Medical Centre and Archives Library between 13th April and 17th July 2011.} By resituating this previously marginalised form of print in terms of my wider discussion about the body's reconceptualization in anatomical images, I have sought to show how cutting (and layering), which is a physical as well as a representational tool in fugitive prints, was implicated in prints associated with the medical profession.

This project has by no means exhausted the wealth of archival material relating to early modern prints that used cutting in innovative ways. As I have shown, it was not only in prints with moving parts that cutting was used to bring the image into new forms of visibility. Nor was the cut's efficacy limited to anatomical images. Bodies made visible to European eyes for the first time as a result of travel, trade and exploration, bodies fashioned in response to the religious upheavals of the Reformation and Counter Reformation, bodies encountered in the public spaces of cities, were all recorded and produced through the cut. It is, of course, acknowledged that print had an important role to play in shaping perceptions about these bodies, but how cutting specifically operates in terms of bringing them into
visibility or rendering aspects of them invisible still remains to be explored. There were also many other broadsides and treatises that employed prints with moving parts in order to inform, delight and surprise readers. It would not have been feasible for this project to include every variation of print with moving parts that were produced during the sixteenth and seventeenth centuries. But a few examples that suggest the diverse applications for images overlaid with paper flaps are Marco Aurelio Severino’s 1645 treatise on blood, Francesco Minniti’s 1690 treatise on medical astronomy and Johannes Schenk von Grafenberg’s book of ‘monstrous births’ published in Frankfurt in 1609.480

Anatomical images continued to use cutting as a means to access knowledge through the body as well as a physical tool for imaging the body. However, unlike later prints, the ones I have examined are the products of the ‘pre-disciplinary organization of knowledge.’481 Boundaries between disciplines had not yet been established and this is evident both in terms of what the image gives visibility to, and the ways that viewers interact with it. As Lorraine Daston and Peter Galison write, the ideal of objectivity that emerged later ‘attempts to eliminate the mediating presence of the observer.’482 Later medical works also reconceptualised a divide between body and mind. René Descartes was not the first to suggest this division, but his declaration in Discourses on the Method, ‘I think therefore I am’ is well-known, as are the images in the 1664 edition of the Treatise of Man for presenting a radically new image of the body as machine.483 It is therefore intriguing to find that in an


earlier edition of the treatise several engravings feature paper flaps. One of these represents
the heart, with two flaps that open upwards to reveal the left and right ventricles of the heart
– allowing one to delve deeper inside the internal organ (Figure 5.1).\textsuperscript{484} Le Roy Crummer
writes that the extraordinary attention to detail in this engraving distinguishes it from other
fugitive sheets: ‘the finest detail of the mitral and tricuspid valve is represented, marked out
exactly as in a class demonstration of the same organ today, by large pins inserted through
all of the valvular orifices indicating the direction of the blood stream.’\textsuperscript{485} The fact that even
the most mundane details, such as the anatomist’s pins, are recorded with extraordinary
precision demonstrates the ideals of scientific objectivity that began to emerge during the
seventeenth century: ‘The phenomena never sleep and neither should the observer; neither
fatigue nor carelessness excuse a lapse in attention that smears a measurement or omits a
detail; the vastness and variety of nature require that observations be endlessly repeated.’\textsuperscript{486}
But it is not only the drive to record every detail, no matter how banal, which distinguishes
Descartes’s engraving from the anatomical prints I have examined in this thesis. It is also
that the heart is represented as a medical specimen rather than an embodied organ.
Separated from the rest of the body and pinned into position by the anatomist’s implements,
the heart in Descartes’s image is represented as an object of ‘scientific’ scrutiny, as opposed
to the multifaceted entity that appears in the prints I have discussed.

Jonathan Sawday describes anatomy theatres as ‘stage sets within which the human
body was broken down before an admiring audience, into its constituent parts.’\textsuperscript{487} The prints
I have examined, however, reveal anxieties about reducing the body to a collection of parts.

\textit{Objects of Knowledge in the Early Modern Low Countries}, eds., Sven Dupré and Christoph Lüthy
(Berlin: Lit, 2011), 217-60. Zittel writes that in fact the notion of man as a machine is ‘primarily an
iconographic idea invented by post-Cartesians, who simplified and reinterpreted Descartes’ text, and
that this idea is developed and established far less by the actual words of the treatise than by the
images, which were added later’ (217).
484 There are two engravings that feature moveable paper flaps in Schuyt’s edition of Descartes, \textit{De
homme} (1664). The first represents the heart and lungs, the second shows the brain with the pineal
gland printed on a moveable flap. See: Wilkin, "Figuring the Dead Descartes," 47-48; Le Roy
485 Ibid. He also declares: ‘For delicacy, accuracy and attention to detail, this is probably the finest
example of superimposed flap to be found in medical literature.’
Not only were there various attempts to reassert the embodied nature of the organs on display, but the mode of acquiring knowledge about them was invariably regarded as unmitigatingly physical. In early examples of fugitive sheets the internal organs are duplicated around the central seated figure, asserting their connection to the whole body at the same time as displaying its individual parts. Charles Estienne’s *On the dissection of the human body* adopts a different strategy, but the spilling out of internal organs and the blurring of this interior with the exterior space of the bedchamber also ensures that one cannot think of the part without considering its function in the living, mutable body. In Bartisch’s representation of the eye the extirpated organ takes on a new form of agency as it is imbued with the potential for movement outside of the body, and in Remmelin’s three prints, the organs of sensory cognition occupy a surprisingly prominent place.

As much as the body under dissection reasserted its presence, the technology of print itself reasserted its materiality. Together they sought to bring into visibility new opportunities for the user of the print. And it seems that these opportunities continue to be produced with ongoing changes in technologies. Numerous fugitive prints that I discussed in this thesis have recently been digitised as part of the Duke University Libraries Digital Collections.\(^{488}\) This includes the 1559 print depicting two figures—a man and a woman—seated on a stone bench, which I briefly discussed in relation to the attempt to privilege the ‘normative’ male body over the female body (Figure 1.8). In the print the man dips his hand in a basin of water, presumably in order to make the veins of his arm stand out ready for bloodletting, while the woman holds up a placard emblazoned with the words of the familiar Delphic maxim ‘Nosce te ipsum. Know thyself’.\(^{489}\) And it is precisely the differences in the

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\(^{488}\) These include copies of Heinrich Vogtherr’s 1538-9 prints that were published in Strasbourg, the male and female prints from the 1573 Wittenberg triptych (without the skeleton) and the print entitled *Interiorum corporis humani partium viva delineation* that was printed in London, c. 1559. See the website: “Anatomical Fugitive Sheets – David M. Rubenstein Rare Book & Manuscript Library”, in *Duke University Libraries Digital Collections* <http://library.duke.edu/digitalcollections/rubenstein_fugitivesheets/> [accessed 2016 January 10]

\(^{489}\) Another distinction is that the two leaves of letterpress text which accompany the Wellcome Library edition are not reproduced with the image on the Duke University Libraries Digital webpage.
ways users are encouraged to 'know thyself' that is telling (compare Figure 1.8 and Figure 5.2).

In the digital copy, users are able to lift and replace the flaps covering the figures' torsos by clicking on predetermined areas of the image. This allows one to look inside the man's and the woman's bodies, bringing the interior organs into full visibility. But the act of lifting becomes the most invisible part of the process. I have described how bringing the body's interior spaces into visibility can be fraught with difficulties when handling the physical object. It can be difficult to pry apart delicate cut-out paper organs that have somehow become entangled with one another and, even when one has succeeded in lifting a layer, the flaps often refuse to stay put. In the digital version, a simple click of a button or tap on a screen can send one or multiple layers (depending on what level of the image one chooses to select) flying — instantaneously lifting themselves upwards to reveal previously hidden visual information. Moreover, unlike in the physical copy of the print, in the digital version the overturned flaps have a semi-transparent quality. An advantage of this is that even as one covers up parts of the print with the overturned flaps, the image underneath is still visible at all stages of the paper dissection. But the user's interaction with the digital image is predetermined and strictly delimited, making the outcome the same every time. As has emerged in this thesis, the physical experience of handling fugitive sheets 'in the flesh' is entirely different. Describing the challenges a reader faces when using digital copies of early English printed books William Sherman writes:

Their emphasis on “interactivity” notwithstanding, they have not yet imagined us doing much with or to books beyond turning their pages and have not yet found ways to preserve our marks — much less to improve them or to educate us about the markings of those who turned pages before us.\(^{490}\)

Sherman makes an important point about the limitations of the current technology and how important it is to make different possibilities more open to users. Of course, I am not suggesting that projects of digitalization cannot be useful. On the contrary, it can bring access to images and allow one to verify information quickly and easily through comparisons. In this way, the digital archive works much like print did for early modern users. However, even though in the physical archive one is sometimes required to wear gloves or, in the case of prints with moving parts, to use a plastic tool to gently lift and fold back paper flaps, the experience of interacting with print is defined by its directness, physicality, and above all unpredictability. This is in danger of being lost in the virtual encounter. It has been claimed that: ‘The computer, through its possibilities for interactivity, ‘play’ and the creativity of hypertext, is now rapidly undoing that idealization of stability, and returning us to a kind of textuality which may have more in common with the pre-print era.'

It remains to be seen what new opportunities users will find, regardless of the ‘withdrawal of the body’, to insinuate themselves in the image, and, as Michel de Certeau writes, to be ‘transported into it’ and pluralize themselves in it for ‘pleasure and appropriation.’

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