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Santa Barbara

Boundaries of the Body: The Art of Anatomy in the Seventeenth-Century Netherlands

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy  
in History of Art and Architecture

by

Erin Mary Anne Travers

Committee in charge:

Professor Ann Jensen Adams, Chair

Professor Mark A. Meadow

Professor Lyle Massey, University of California, Irvine

September 2018

The dissertation of Erin M.A. Travers is approved.

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Ann Jensen Adams, Committee Chair

August 2018

Boundaries of the Body: The Art of Anatomy in the Seventeenth-Century Netherlands

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by

Erin M. A. Travers

## ACKNOWLEDGEMENTS

I first encountered Frederik Ruysch's anatomical preparations during a public lecture held at the Norton Simon Museum in Pasadena. As images of his works were projected onto the screens, I was captivated by the apparent contradictions these objects posed to my understanding of gender, decorum, and display in the Dutch Republic. My investigation of the social, cultural, and visual constructs that informed the disparate treatment of the body in this period has taken me to new countries, given me access to unique objects and experiences, necessitated my study of several languages, and has put me in contact with incredible colleges, many of whom I consider friends. For all of this and much more, I am extremely grateful.

I attended the lecture at the invitation of my advisor, Ann Jensen Adams, without whom this dissertation would not be possible. Throughout my studies at the University of California, Santa Barbara she has judiciously offered a guiding hand and fostered my independence as a scholar. I am appreciative of the time she has invested in me, the confidence she has shown in my capabilities, and her always-constructive critique. I am particularly grateful that she supported the organic development of this project, encouraging me to incorporate new materials as the research unfolded. I am also indebted to Mark A. Meadow, who shared with me his love of early-modern print culture and the history of collections. Thank you for challenging me with your sharp curiosity and good-humor. I have always enjoyed our conversations and hope for many more still to come. I connected with my third reader, Lyle Massey, over our shared enthusiasm for anatomical images, and I greatly appreciate her willingness to join my committee. Her work serves as an example of the seamless unification of the history of art with the history of science to which I aspire, and I am grateful for her guidance on this project. I carry the voices of these three scholars with me and know that they will continue to make contributions to my future research and projects in ways that they cannot imagine.

My dissertation has been generously supported by a series of grants and fellowships, which afforded me the time and space to conduct research and write. The Department of History of Art and Architecture and Graduate Division at UCSB have provided on-going funding throughout my studies and made possible advanced language study, conference travel, external specialized course work, and numerous research trips. I would not have been able to study in the United States without the Social Sciences and Humanities Research Council of Canada (SSHRC) Doctoral Fellowship, which covered my international tuition and supported my doctoral research for the first four years of my degree. After advancing to candidacy, I was awarded the Andrew Vincent White & Florence Wales White Graduate Student Scholarship in Medicine and Humanities from the University of California Humanities Research Institute (UCHRI) at UC Irvine. Following my sources, I traveled to the Harvey Cushing/John Hay Whitney Medical Library at Yale University as a Ferenc Gyorgyey Research Travel Grant recipient, and I am grateful to Melissa Grafe and Florence Gillich for their warm welcome and accommodation. Research conducted as a White Scholar and Gyorgyey Fellow resulted in the article "Jacob van der Gracht's *Anatomie* for

Artists”, which will be published in the 2018 edition of the *Netherlands Art History Yearbook*. Finally, I have had the supreme privilege and good fortune of being awarded the Kress Institutional Fellowship in Art History and spending the last two years of my PhD in residence at Leiden University. The access to Dutch archives and libraries and the opportunity for sustained language study afforded by this fellowship fundamentally altered and enriched the core of my dissertation.

This project has put me in touch with remarkable collections, institutions, archives, and scholars who have informed and facilitated my study and interpretation of these materials. My thanks to Stijn Bussels for welcoming me to Leiden University and facilitating my introduction to the scholarly community in the Netherlands. In particular, I appreciate the contributions of Eric Jan Sluijter, Thijs Weststeijn, and Eric Jorink, who met to review my first chapter during my residency. At the Bijzondere Collecties at the University of Amsterdam, I am grateful to Paul Dijkstra, who generously shared his photographs of anatomical images. I am also indebted to Martin Jan Bok and Pieter Bakker for sharing archival sources on Marten Sagemolen at an early stage in my research and Gijsbert van de Roemer for providing me with a copy of his Ruysch Catalogue database. At the Rijksmuseum, I am grateful to Erik Hinterding for sharing his expertise on drawings and watermark analysis. In Paris, I would like to thank Jean-François Vincent, Chloé Perrot, and Stephaie Charreaux of the BIU Santé for honoring my request to view Sagemolen’s drawings mere days after their attribution and for sharing resources to further my own research.

Here I must also include my friends and colleges at the University of California, Santa Barbara. Suzanne van de Meerendonk has always been generous in her knowledge of Dutch research institutes and archives. She has often lent her practiced ear to my language study and research quandaries, and keen eye to my drafts. She is joined in this by Maggie Bell and Rachel Johnson who have reviewed more than their share of my applications, and never made me feel as though I was imposing on their kindness. Diva Zumaya thank you for being my co-Chair and fellow AHGSA Conference organizer. I am grateful to also be part of an art history *familia* that extends beyond shared research interests, and whose communal support, companionship, and commiseration have filled the last seven years with warm memories and assurances of more to come.

Finally, I would like to extend my heartfelt thanks to my family, who are consistently supportive and encouraging. My parents, Geoff and Annemarie, instilled me with a passion for travel, and my father, in particular, took me to historic site upon historic site, always equipped with pages that detailed their stories. My mother taught me to write, and to this day she continues to help me find the words. My sister, Caitlin, has the ability to pull me out of myself and make sure I don’t get lost in the details of things, and I am grateful for the measured perspective and reassurance she constantly provides. My brother, Bryan, is never afraid to challenge me with wit and humor and keeps me on my toes. The most recent addition, my husband Seth, has listened intently from day one as I explored this topic, is always my first student for every lecture, and has only ever validated my professional choices. Thank you for the comfort and support you give every day, and for making home a constant amid so much change.

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Minor Field: Italian Renaissance Art

## ABSTRACT

Boundaries of the Body: The Art of Anatomy in the Seventeenth-Century Netherlands

by

Erin M.A. Travers

Investigating the contents of art treatises, anatomical atlases and collections in the seventeenth-century Netherlands, my dissertation argues that anatomists adapted artists' techniques and devices to proclaim the author's authority, mediate the perception of the viewer, and encourage disciplinary boundaries between art and medicine. Contrary to anatomists' written comments, which often dismiss the role of the artist, anatomical prints, drawings, and prepared specimens rely on pictorial practice to produce knowledge about the body. Through representative techniques, including *trompe l'oeil*, modeling, color, and drapery, viewers were convinced of anatomists' discoveries. Pamphlets exchanged between physicians such as Frederik Ruysch and Govard Bidloo indicate that the persuasive power of these images and objects was also a cause for concern, particularly in its ability to deceive the viewer, and thus undermine the anatomist's credibility. Introducing artists' voices to this debate, I contend that painters also placed limits on their engagement with anatomy. In his art theoretical treatise, for example, Samuel van Hoogstraten writes that Jacob van der Gracht's anatomical text for artists, "shows the way better for physicians, than for



painters.”<sup>1</sup> These comments indicate the shifting relationship between artists and anatomists at a moment when nature and artifice were viewed increasingly as separate entities.

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<sup>1</sup> Samuel van Hoogstraten, *Inleyding tot de hooge schoole der Schilderkonst* (Rotterdam: François van Hoogstraten, 1678), 52. Translation by Charles Ford, “Polyhymnia,” *Hoogstraten’s Visible World* (UCL, 1999-2015) <<http://www.ucl.ac.uk/grondt/Inleyding>> [29 September 2015]; Jacob van der Gracht, *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague: Jacob van der Gracht, 1634).

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## INTRODUCTION

### Art and Anatomy in the Seventeenth-Century Netherlands

#### i. Introduction

In his youth, the sixteenth-century Flemish painter Aert Mijtens (c. 1541-1602) removed a corpse from the gallows in order to “learn and understand the anatomy of the human body.”<sup>2</sup> The incident, which involves a humorous story of Mijtens chasing his non-committal accomplice, is recounted in Karel van Mander’s (1548-1606) *Het Schilderboek* (Haarlem, 1604) and is one of the few written accounts of a northern artist attempting anatomical study. Notably absent from Van Mander’s biographies is the figure of the artist-anatomist, particularly in contrast to sixteenth-century Italian artists, such as Leonardo da Vinci (1452-1519), Michelangelo Buonarroti (1475-1564), or Antonio Pollaiuolo (1433-1498), whom Giorgio Vasari (1522-1574) tells us worked with cadavers.<sup>3</sup> Yet, Van Mander encourages anatomical study in his didactic poem *Den Grondt der Edel vry Schilder-const* (Haarlem,

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<sup>2</sup> “Het welk hy verontschuldighde met zijnen leer-lust die hy hadde om de leden der Menschen lichamen te verstaen.” (Karel van Mander, *Het Schilderboek* (Haarlem: Paschier van Wesbusch, 1604) reprint in *Karel van Mander the Lives of the illustrious Netherlandish and German painters, from the first edition of the Schilderboek* [1603-1604], Hessel Miedema trans. and ed. [Doornspijk: Davaco, 1994], vol. 1, fol. 263v). All translations mine unless otherwise stated.

<sup>3</sup> Giorgio Vasari, *Le vite de' piu eccellenti pittori, scultori, et architettori* (Florence, 1568), G. Milanesi, *Le Opere di Giorgio Vasari con nuove annotazioni e commenti* (Florence: Sansoni, 1973), vol. 3, 295; vol. 4, 34-35 and vol. 7, 146, 268-269; Van Mander also briefly mentions the Parisian draughtsman Toussaint Dubreuil (c. 1561-1602), “who was outstandingly clever and knowledgeable especially regarding drawing and nudes; for he had practiced a long time in anatomy with a barber.” [...die uytnemende fraey en verstandigh was, besonder van teyckenen, en naeckten: want hadde hem by een Barbier langhe gheoeffent in Anatomie.] (Van Mander *Het Schilderboek*, f. 295v, trans. Miedema, *Karel van Mander*, 441). We are told that Netherlandish painters often used Dubreuil’s drawings, but Van Mander does not create a direct link between the study of human cadavers and the painting practices of Dutch artists. Even in the case of Jan Stephan van Calcar (c. 1499-1546), who is identified as the draughtsman of Andreas Vesalius’s “valuable book,” Van Mander describes the artist as working in the Italian manner to such an extent that his works are indistinguishable from those of Titian (Van Mander, *Het Schilderboek*, f. 218r, trans. Miedema, *Karel van Mander*, 130).

1604), writing, “It will prove very helpful for the art of drawing to understand well (through flayed corpses) where muscles begin and end,” advice that art theorists such as Samuel van Hoogstraten (1627-1678) and Willem Goeree (1635-1711) repeat.<sup>4</sup> The painter, Philips Angel (1616-1683) also recommends study of the body’s muscles but laments that artists in Leiden do not “have a free dissection place at their disposal for the propagation of this knowledgeable science.”<sup>5</sup> These statements hint at the role of anatomy in the training of seventeenth-century Dutch artists but do not indicate methods for learning about this subject, the extent of artists’ engagement, or how it could inform their pictorial products.

In contrast to artists’ written comments concerning a lack of anatomical access, in the first half of the seventeenth century the painter and engraver Jacob van der Gracht (1593-1651) published his *Anatomie der wtterlicke deelen van het Menschelick Lichaem* (The Hague, 1634; Rotterdam, 1660), which is the subject of my first chapter. Among the earliest printed anatomical manuals that specifically address artists, Van der Gracht’s work adapts images from medical books already in circulation and tailors them to the needs of painters, engravers, and sculptors. Later in the century, both Van Hoogstraten and Goeree follow Van der Gracht’s example, signaling the changing expectations for anatomical knowledge among artists in this period, which is addressed in chapter two. Through an analysis of the ways in

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<sup>4</sup> “Sijn werck can brenghen en ter rechter maten/ Noch comt grootlijcx de teycken-const te baten/ Wel te verstaen (met dooden te sien villen)/ Waer Muschels beginnen/ oft eynden willen.” (Karel van Mander, *Den grondt der edel vry schilder-const* [Haarlem: Paschier van Wesbusch, 1604], 2:18; trans. mine); “...maer datmen in een werkend beelt voornamentlijk de bewegingen der Spieren te recht waerneeme, en de vleezige opzwellingen en inkrimpingen op zijn behoorlijke plaets stelle.” (Samuel van Hoogstraten, *Inleyding tot de Hooge Schoole der Schilderkonst. Anders de Zichtbaere Werelt* (Rotterdam 1678), 53; Charles Ford trans. (University College London, 1999-2016) <<http://www.ucl.ac.uk/grondt/Inleyding>> [6 June 2016]); “...en kend wat form en treck de muskelen hebben (...) waar een muskel begint, waar hy eindigd...” (Willem Goeree, *Natuurlyk en Schilderkonstig Ontwerp der Menschkunde* [Amsterdam: By Wilhelmus Goeree, 1682], 14).

<sup>5</sup> “...dat de Geesten soo veel vryheyt niet in dese Stadt ghegeven is, datse een vrye Ontleding-plaets tot voort-plantinghe van dese *Konstighe wetenschap* en hebben tot haer ghebruyck...” (Philips Angel, *Lof der schilder-konst* [Leiden: Willem Christiaens, 1642], in Michael Hoyle and Hessel Miedema trans. and eds., “Praise of Painting,” *Simiolus: Netherlands Quarterly for the History of Art*, vol. 24 no. 2/3 [1996], 52).



which these images functioned and were used, I assess the particular concerns of artists and identify the limitations they place on the study of the body. In contrast to the assumption among modern scholars that Dutch artists participated in the practical inspection of the cadaver, I find that this profession favored prints, drawings, and plaster casts as tools of study. These media align with known studio practices, but the attention given to the integration of anatomical study into artists' training at this particular moment is significant. I interpret this shift as the conscious aim among artists to affiliate their profession with the rising reputations of physicians and the changing standards of knowledge that resulted. This project simultaneously expands and nuances our understanding of seventeenth-century Dutch studio practice, changing expectations of artists' education and practice, and the formation and differentiation of professional identities.

Approaching this subject from the perspective of medical practitioners, I juxtapose the contents of art literature with anatomical images that artists produced for physicians and surgeons. I investigate how anatomical images construct and, in turn, invoke a pictorial tradition that encouraged the viewer to interpret the subject through a familiar framework of representation, from anatomy books to still life paintings. In my third chapter, which analyzes the drawings Martin Sagemolen (c. 1620-1669) executed for Johannes van Horne (1621-1670), I explore how a work's medium informed its content and use, particularly when these draughts were examined alongside objects found in Van Horne's anatomical collection. In contrast to printed works, I suggest that the relatively narrow and specialized audience of Sagemolen's drawings afforded their maker greater freedom for experimentation and led to new innovations. In contrast, published figures included in anatomical atlases, catalogues, and pamphlets, such as those of Frederik Ruysch (1638-

1731) and Govard Bidloo (1649-1713), which are examined in chapter four, frequently use format, shading, *trompe l'oeil*, and visual cues to enhance the veracity of their subject and communicate with the viewer. I argue that the repeated use of these representational strategies offered a means for disseminating knowledge within networks of medical professionals while simultaneously restricting the lay viewer.<sup>6</sup>

My interpretation takes into consideration the spaces in which these images were viewed, from anatomical collections to the pages of printed books, and investigates how these settings informed the viewer's interpretation of their contents. Comparing a range of media, I find that anatomists constructed a prescribed context of viewing designed to maintain the author's guiding hand once the volumes left his realm of control, an approach that is most prevalent in printed works. As an effective means of disseminating ideas, print could bring either commendation or condemnation and physicians sought to use text and image to secure their reputations and careers. As a result of both professions' efforts, distance was created between practitioners of art and medicine. This dissertation draws attention to the contribution each field made to the other, the reasons behind these exchanges, and the eventual occlusion that resulted.

Exploring the contradiction found in the texts and images of artists and anatomists, I use early-modern anatomical images and objects as evidence for the interactions that occurred between these professions, through which we can perceive the changing boundaries of these fields in the seventeenth-century Netherlands. I argue that artists and anatomists drew upon

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<sup>6</sup> This distinction draws on the demarcation between "members" and "strangers" within early-modern scientific communities made by Steven Shapin and Simon Schaffer in *Leviathan and the Air-Pump: Hobbes, Boyle, and the experimental life: including a translation of Thomas Hobbes, Dialogus physicus de natura aeris by Simon Schaffer* (Princeton: Princeton University Press, 1985), 4-5.

one another's expertise to strengthen their respective reputation and authority and, at the same time, reinforce the growing distinctions between their professions. Though these fields are often viewed in opposition, this study identifies a shared visual and verbal language of artists and anatomists and teases out how these components were put to distinct functions in service of each profession's unique aims. At their core, both disciplines were invested in the power of representational materials to persuade their audiences and make claims concerning knowledge of the body. For painters, preference is shown for the display of skill and wit, while for physicians, images operated as communicative vehicles for theories of the body's structure and operation. The approaches of both fields function within a period language of credibility that uses text and image to support the particular ambitions of their makers.

## ii. Painters and Physicians

In the early modern period, the boundaries between art and science were permeable and renegotiated constantly, permitting practitioners of art and medicine in the seventeenth-century Netherlands to come into contact with one another in multiple contexts.<sup>7</sup> Physicians,

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<sup>7</sup> The modern concept of "science" is a product of the nineteenth century and does not have a direct equivalent in the early modern period, though it is connected to *scientia*, *historia*, natural philosophy, and natural history. *Scientia*, refers to certain knowledge that can be demonstrated and emphasizes universals. Ranking below *scientia*, *historia* is descriptive and resulted from particularized examples. As a form of *historia*, natural history is concerned with describing and recording natural bodies and is based in experience and observation. This field has its roots in antiquity but emerged as an independent discipline in the seventeenth century and included a range of subjects, including the animal, vegetal, and mineral worlds. Natural philosophy similarly encompassed a wide range of disciplines, including those studied by natural historians, and can be "defined quite broadly as the study of natural bodies" (Ann Blair, "Natural Philosophy," *The Cambridge History of Science: Early Modern Science*, David C. Lindberg et al. eds. (Cambridge: Cambridge University Press, 2006), 365). In contrast to natural history, natural philosophy sought to explain the phenomena encountered in the natural world. Natural history and natural philosophy were not static entities in the early modern period and underwent several transformations. See: Andrew Cunningham and Perry Williams, "De-centralizing the 'big picture': *The Origins of Modern Science* and the modern origins of science," *British Journal for the History of Science*, vol. 26 issue 4 (1993), 407-432; Gianna Pomata and Nancy G. Siraisi, *Historia: Empiricism and Erudition in Early Modern Europe* (Cambridge, Mass.: The MIT Press, 2005); Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: The University of Chicago Press, 2006); Sachiko Kusukawa. *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-Century Human Anatomy and Medical Botany* (Chicago; London: University of Chicago Press, 2012), 21-22; Katharine Park and Lorraine Daston, "Introduction: The Age of the New," *The Cambridge History of Science: Early Modern Science*, David C. Lindberg et al. eds. (Cambridge: Cambridge

such as Nicolaes Tulp (1593-1674) and Franciscus Sylvius de la Boë (1614-1672) were notable collectors and patrons of the arts.<sup>8</sup> Bidloo and his artist Gerard de Lairesse (1641-1711) may have been introduced through the silk merchant Philip de Flines (c. 1620-c. 1655), or as a result of their affiliation with the literary society *Nil Volentibus Arduum*.<sup>9</sup> Jan Swammerdam (1637-1680), Arent Cant (1695-1723), and Ruysch are known to have undertaken pictorial training and produced anatomical images themselves, though Ruysch's efforts in this regard were criticized by his opponents.<sup>10</sup> Ruysch also had familial connections with the Post family through his marriage to the daughter of Pieter Post (1608-1669), Maria (1643-1720). Their daughters Rachel (1664-1750) and Anna (1666-1754) were also trained as painters. Rachel, who became famous for her still lifes, married the portrait painter Juriaen Pool (c. 1665-1745), who produced two portraits of his father-in-law and a double portrait of the heads of the surgeon's guild that featured a prepared heart [Fig. 1].<sup>11</sup>

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University Press, 2006), 1-17; Blair, "Natural Philosophy," 365-406; Paula Findlen, "Natural History," *The Cambridge History of Science: Early Modern Science*, David C. Lindberg et al. eds. (Cambridge: Cambridge University Press, 2006), 435-468.

<sup>8</sup> On this genre see Julie Hansen, *Galleries of Life and Death: The Anatomy Lesson in Dutch Art, 1603-1773*, PhD diss. (Stanford University, 1996); Pamela H. Smith, "Science and Taste: Painting, Passions, and the New Philosophy in Seventeenth-Century Leiden," *Isis: A Journal of the History of Science Society*, vol. 90 no. 3 (Sep. 1999), 421-461.

<sup>9</sup> Lyckle de Vries, *Gerard de Lairesse: An Artist between Stage and Studio* (Amsterdam: Amsterdam University Press, 1998), 7, 123-124.

<sup>10</sup> "And as is common in this art, I included my name, but our Bidloo rebuked this; consequently, to have added the name to my depicted figure appeared to him to be a great disgrace!" ["En gelykerwys men gewoon is in die konst, heb ik 'er myn naam bygevoegt, maar dit bestraft onze Bidloo; derhalven de naam by die van my afgebeelde figuur bygevoegt te hebben, shynt hem een grote schande te zyn!"] (Frederik Ruysch, "Antwoort van Frederik Ruysch op het Boekje van Govert Bidloo," *Alle Werken*, 456-457); see also, Govard Bidloo, *Vindiciae quarundam dilineationum anatomicarum contra ineptas anima adversiones Frederik Ruyschii* (Lugd Batavorum apud Jordanum Luchtmans, 1697), 47.

<sup>11</sup> Luuc Kooijmans, *Death Defied: The Anatomy Lessons of Frederik Ruysch*, Diane Webb trans. (Leiden; Boston: Brill, 2011), 17, 169-170; Julie Hansen, "Resurrecting Death: Anatomical Art in the Cabinet of Dr. Frederik Ruysch," *The Art Bulletin*, vol. 78 no. 4 (Dec. 1996), 663-679.

In their roles as instructors and producers of images, painters, engravers, and draughtsmen were frequently in the employ of medical professionals. At times, this patron-client relationship even placed artists in contact with the anatomized body, particularly when producing guild portraits, drawings, or prints for anatomical publications.<sup>12</sup>

However, when it comes to artists' independent study of anatomy, sources are divided concerning the best means by which this might be accomplished and the degree of knowledge required. For example, J. de Ville (n.d.), a self-identified painter and amateur mathematician, published a short dialogue between painting and architecture, in which he writes that anatomy will not be addressed given that Vesalius treats the subject sufficiently.<sup>13</sup> Thirteen years later, Angel recognized the necessity of learning the body's composition and movements but suggests that anatomical study is not the only means by which this can be achieved and even implies that a painter's efforts can be better spent on "other endeavors" in service to his profession.<sup>14</sup>

Though public dissections became popular during this period and we may assume that artists were able to attend, there is little supporting evidence of their presence. In some cases, this may be the result of practical considerations, given that it is unlikely annual

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<sup>12</sup> See Hansen, *Galleries of Life and Death*; Norbert Middelkoop and Jeroen Jurtjens, "Kunsthistorische aspecten van de vier Delftse anatomische lessen," in *De Snijkunst Verbeeld: Delftse Anatomische Lessen nader Belich*, H.L. Houtzager and Michiel Jonker eds. (Delft: Reinier de Graaf Groep; Zwolle: Waanders Uitgevers, 2002), 65-99.

<sup>13</sup> "I may not attempt to speak about anatomy / because we can get enough of this from Vesalius..." [Aengaende de Annatomije mach ick niet eens spreken / want wy die van Vesalius genoeg become connen ...] (J. de Ville, *T'samen-spreekinghe / Betreffende de Architecture ende Schilder-konst* [Gouda: Pieter Rammaseyn, 1628], 5).

<sup>14</sup> "Likewise P.F. de Grebber, who is greatly experienced and excels many others, by way of the numerous examinations and marvelously close observations he has made in this matter, noting all the particulars, which he observes very keenly in all figures, how they alter through movement, which he achieved through much labor and after spending several of his best years on it, which knowledge he might easily have gained by anatomizing, employing that time instead on other matters in the service of art." Angel, *Lof der schilder-konst*, 53, trans. Hoyle and Miedema, "Praise of Painting," 248.

public dissections in the university anatomy theater provided optimal viewing conditions for members of this profession. Typically, these events took place annually during the winter months when seasonal low temperatures would help stave off putrefaction. However, dissections were not held consistently due to challenges obtaining suitable bodies at this time of year.<sup>15</sup> During these demonstrations professors and students of medicine were typically awarded seats closest to the body, followed by city officials and lay members of the audience who paid a fifteen *stuyver* entrance fee to stand at the rear of the theater.<sup>16</sup> These spaces of dissection proliferated throughout the Netherlands over the course of the seventeenth century. However, in the first half of the century this experience would not have been readily available to painters in all cities and, presumably, this would have also informed their preferred course of training.<sup>17</sup> Given these constraints, printed texts, such as that of Van der Gracht, offered painters more consistently available examples of the body's muscles and bones after which they could study.

One of the earliest period references connecting painters with the dissection of cadavers comes from the correspondence of the first professor of anatomy at Leiden University, Pieter Pauw (1564-1617). He writes in a letter to Jan Janszn Orlers (1570-1646), “tomorrow (Saturday) I begin the second anatomy. Please convey this information to Goltzius or someone else.”<sup>18</sup> The “Goltzius” referred to here is typically understood as the printmaker

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<sup>15</sup> This is discussed in more detail in chapter three; Kooijmans, *Death Defied*, 159.

<sup>16</sup> Tim Huisman, *The Finger of God: Anatomical Practice in 17<sup>th</sup>-Century Leiden* (Leiden: Primavera Pers, 2009), 33.

<sup>17</sup> Huib J. Zuidervaart, “Het in 1658 opgerichte theatrum anatomicum te Middelburg: Een medisch-wetenschappelijk en cultureel convergentiepunt in een vroege stedelijke context,” in *Archief: mededelingen van het Koninklijk Zeeuwsch Genootschap der Wetenschappen* (2009), 78.

<sup>18</sup> Quoted in Claudia Swan, *Art, Science, and Witchcraft in Early Modern Holland: Jacques de Gheyn II (1565-1629)* (New York: Cambridge University Press, 2005), 56 note 93.

and painter Hendrick Goltzius (1558-1617). However, as Claudia Swan acknowledges, no record survives of Goltzius visiting an anatomical demonstration.<sup>19</sup> The possibility of artists attending a dissection in a *dood kamer* is also mentioned in Goeree's *Natuurlyk en Schilderkonstig Ontwerp der Menschkunde* (Amsterdam, 1682) but we should be mindful that the author speaks as a member of the book trade and not as a professional artist.<sup>20</sup> From the painters' ranks I have encountered only Sagemolen as a confirmed example of an artist-anatomist.<sup>21</sup> Notably, in an annotation on one of his anatomical drawings Sagemolen observes the reluctance among members of his own profession to engage directly with anatomical subjects.<sup>22</sup>

In part, this disinclination may be tied to a concern with excessive study resulting in an overworked product. In *Het Schilderboek*, Van Mander addresses the subject of the human form and juxtaposes the approaches of northern artists with their southern counterparts. He explains that the body is typically seen as a specialty of the Italians, a stereotype that he encourages his countrymen to challenge.<sup>23</sup> Van Mander distinguishes between the northern

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<sup>19</sup> Swan, *Art, Science, and Witchcraft*, 56.

<sup>20</sup> Goeree, *Menschkunde*, 8-9; this is quoted in full in chapter two.

<sup>21</sup> Jacob van der Gracht also claims to have conducted dissections but the images he provides do not support this statement, as is explored in my first chapter.

<sup>22</sup> “With this anatomy, I have endeavored to satisfy, to the best of my abilities, three sorts of artists (*konsteneren*). First and foremost the very learned gentleman Johannes van Horne: after that also the anatomical artists, and also *liefhebbers* of the same: then after that the blunt and dull painters, who are eager for knowledge but want to take no hand in the matter. There after, and thirdly, the high soaring and most [...] engravers and stone hewers.” [In dese antomye hebbe ic gelic ic uit beter en weet drierley konsteneren sucken te voldoen / Voren erst, en vor alle, den hogen geleerden Min heren Johannes van hooren: darna den oc / den antomichen konsteneren – als oc allen liffhebberen der selven: daer na dan den bootten en / stumpen schilders welck wel weetgirich sint mar willen darom geen handen an den / plogh schlaan: darna en ten derden den hoch gedrauwenden meest welnitigen beltschnideren / en Aehen houweren vaeret wel.] (Marten Sagemolen, *Frontal view of Legs, No. XII, MS 29*, c. 1652-1660. BIU Santé, Paris).

<sup>23</sup> Van Mander, *Het Schilderboeck*, f. 215r, 217v, 298r; trans. Miedema, *Karel van Mander*, vol. 1, 118, 129, 450.

emphasis on the musculature of the body, or *binnenwerk*, which can result in the appearance of “dryness,” and the “fluffiness” of the Italian method for depicting the human form.<sup>24</sup> In contrast to Northern figures, those produced by artists trained in the Italian style placed greater emphasis on the overall appearance (*omtreck*) of the human form and its soft contours.<sup>25</sup> Strikingly, Van Mander encourages northern artists to find a harmonious balance between their preference for a meticulously detailed rendering of the body and the Italian penchant for creating a graceful image. He invites his countrymen to unite these approaches and draw on both the example provided by nature and improve upon it through intellect and proper training.<sup>26</sup> Referencing Van Mander’s writings, the publications of Van der Gracht, Van Hoogstraten, and Goeree reiterate a concern with hard, dry, or overworked figures.<sup>27</sup>

Steering towards a median between life and art, period sources often point to alternative methods of study including prints and plaster casts. In response to the lack of an anatomy

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<sup>24</sup> “So that often the welstand of art is made too short, as our Netherlanders are known to make their things commonly too lean and dry.” (trans. Miedema, *Karel van Mander*, vol. 1, 213) [soo datse veel tijd de welstaendt der Consten te cort doen, soo wel als onse Nederlanders, met hun dinghen gemeelijk te ranck, en drooghskens te maken.] (Van Mander, *Het Schilderboeck*, f. 238v).

<sup>25</sup> Walter Melion, *Shaping the Netherlandish Canon: Karel van Mander’s Schilder-boek* (Chicago: University of Chicago Press), 167.

<sup>26</sup> Van Mander, *Het Schilderboeck*, f. 239r, trans. Miedema, *Karel van Mander*, 214.

<sup>27</sup> “Some think, that the knowledge of anatomy is not only unnecessary to the perfection of our art, but also oftentimes harmful; and that, because some masters, which one supposes has had experiences in anatomy, have made their muscles very hard, so that their human figures appear to have been anatomized.” [Eenighe meynen, dat de wetenschap der *Anatomie* niet alleen onnoodigh is tot volmaetheyt onser konst, maer oock dickmaels schadelick: ende dat, om dat eenige Meesters, diemen meynt inde *Anatomie* ervaren gheweest te zijn, hebben veel te hart haer musculen ghemaect, soo dat hare Figueren geanatomiseerden menschen schijnen te wesen] (Jacob van der Gracht, *Anatomie der wtterlicke deelen van het menschelick lichaem* [The Hague: Jacob van der Gracht 1634], f. Av); “as if they were dried-out stockfish, satyrs, or had so many knobles, it seemed they were packed with onions” [als ofze harde en uitgedroogde stokvissen, en gevilde de Satyrs waren, of wel zoo veel knobbels hadden, als ofze met ajuin waren opgevult] (Van Hoogstraten, *Inleyding*, trans. Ford, 52-53); In comparing the muscles to a sack of onions Van Hoogstraten uses language akin to Leonardo da Vinci, who refers to “a sack full of nuts” or “bundle of radishes” to describe over worked musculature. Cellini makes a similar allusion but uses the simile of gourds or melons (Monique Kornell, *Artists and the Study of Anatomy in Sixteenth-Century Italy*, Ph.D. diss. [Warburg Institute, Univeristy of London, 1993], 106).



theater for artists, Angel refers his audience to the works of Pieter de Grebber (c. 1600-1652/3) and “the anatomies of Master Hendrick [Goltzius] and Master Cornelis van Haarlem, who have left you flayed plaster casts, for want of anything else, from which you will gain some knowledge of the nude, which is most serviceable to us.”<sup>28</sup> Comparable advice is given in De Lairese’s *Grondlegginge ter Teekenkonst* (Amsterdam, 1701), in which the reader is directed to “look sometimes in the anatomy book of Van der Gracht, you will find benefit there. Nevertheless your knowledge of anatomy obtained from plaster is pure, so it is still much better than the book, and that is the first, and principle plaster statue that you need.”<sup>29</sup> Sixteen years earlier, De Lairese had worked alongside Bidloo preparing drawings for his anatomical atlas. Therefore, it is notable that the famed painter does not direct his reader to these anatomical images for further study. Rather, he follows a more typical course of action among early-modern artists and suggests Vesalian-style figures and plaster casts, preferring the latter, perhaps due to their three-dimensionality. Fulfilling a function comparable to that of figural statues, plaster casts are often found in artists’ inventories and representations of their studios and, together with printed illustrations, these works easily align with methods of training encouraged in period art literature [Fig. 2].

In these texts, we can discern efforts to incorporate anatomy into an artist’s training, while at the same time we find variations concerning the recommended level of study and the materials through which an artist should encounter this subject. I view this shift as corresponding to the rising status of the medical profession and changing professional and

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<sup>28</sup> Angel, *Lof der schilder-konst*, 248 [53].

<sup>29</sup> “...kyk somtyts in het Anatomie-boek van vander Gragt, daar zult gy baat by vinden. Doch kund gy een Anatomie in playster krygen de zuiver is, zo is ‘t noch veel beeter als het Boek, en dat is het eerste, en voornaamste playster beeld die gy noodich hebt.” (Gerard de Lairese, *Grondlegginge ter Teekenkonst* [Amsterdam: Willem de Coup, 1701], 57).

social structures within these disciplines during this period. The practice of dissection resumed formally in the Netherlands in the mid-sixteenth century, when Philip II of Spain (1556-1598) granted the surgeon's guild of Amsterdam the right to hold anatomy lessons for its members in 1555. Following the Dutch Revolt, Leiden was awarded the honor of Holland's first university, likely due to the city's position of strength and resilience during the war. Established in 1575, the university quickly gained renown throughout Europe and in 1590 the town council granted it an anatomy theater, which would be completed in the Faliede Bagijnenkerk by 1594 [Figs. 3 and 4]. Modeled on the example of Padua and erected under the guidance of Pieter Pauw, the anatomy theater and university quickly outstripped its southern predecessors as the preeminent place for medical study in Europe.<sup>30</sup> The popularity of the anatomical theater and growth of anatomical collections over the course of the seventeenth century are testaments to the mounting appreciation and esteem for anatomical study within the Netherlands.

This increased practice and attention made the field both attractive as an area of study and more readily available, particularly through public dissections and the proliferation of anatomical publications. At the same time, physicians experienced a notable advancement in power and prestige. As was the case with artists, the medical profession adhered to a hierarchical structure, which placed physicians at the top, followed by apothecaries, surgeons, barber-surgeons, midwives, and unregistered practitioners, commonly known as quacksalvers.<sup>31</sup> Distinguished from other medical professionals by their university degrees

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<sup>30</sup> Huisman, *The Finger of God*, 26; Paula Findlen, "Anatomy Theaters, Botanical Gardens, and Natural History Collections," in *Cambridge History of Science: Vol. 3, Early Modern Science*, Katharine Park and Lorraine Daston eds. (Cambridge: Cambridge University Press, 2006), 278-279.

<sup>31</sup> Harold Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007), 137-146, 148.

and freedom from guild regulations, physicians reinforced their power by assuming civic posts and administrative positions within the guild system. In Amsterdam, a physician occupied the position of *praelector* for the surgeon's guild from 1578, leading anatomical dissections and teaching theoretical classes to guild members.<sup>32</sup> Physicians also held pride of place in the administration of the Amsterdam Collegium Medicum, which was founded in 1638 to oversee the interests of the apothecaries' guild, with physicians outnumbering apothecaries two to one. Though physicians did not belong to a guild, they were required to register with the Collegium Medicum. This measure sought to mediate the presence of quacksalvers and other unofficial medical practitioners whose deception and trickery undermined the authority of the physicians. In 1668, the midwives were also brought under the jurisdiction of this organization, which supplanted the role formerly held by surgeons.<sup>33</sup> The strategic positioning of physicians in places of administrative power among the various tiers of medical practitioners reinforced and protected their financial and professional interests within the city, while asserting their dominance and authority.

In comparison, the training of painters more closely aligned with that of surgeons and apothecaries, all of whom were instructed through apprenticeship during which they learned practical skills and registered with city guilds upon completion. Until 1629, painters and apothecaries were even members of the same guild and, in Amsterdam, the surgeons' and painters' guilds both met in the St. Anthony Weigh House from 1611-1639 and again from 1691 [Fig. 5].<sup>34</sup> During the seventeenth century, distinctions between different types of

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<sup>32</sup> Kooijmans, *Death Defied*, 65-67; Annet Mooij, *Doctors of Amsterdam: Patient Care, Medical Training and Research (1650-2000)* (Amsterdam: Amsterdam University Press, 2002), 35-49.

<sup>33</sup> Kooijmans, *Death Defied*, 78-79.

<sup>34</sup> Hansen, "Resurrecting Death," 665 note 9; Marie-Christine Engels, "Sociale en medische zorg," *Den Haag geschiedenis van de stad. De tijd van de Republiek*, deel 2 (Zwolle: Waanders Drukkers, 2005), 41.

painters were made more apparent as those specializing in easel paintings sought actively to distinguish themselves from other members of their guild. Examining records for the Guild of St Luke in the province of Holland, Michael North identifies a trend in the mid-seventeenth century, at which time several civic governments disbanded their Guild of St Luke due to a perceived lack of sufficient representation for their members. In particular, he associates this shift with the desire among master painters, who were consistently among the highest educated and well-paid of their profession, to separate from other types of artists such as faienciers, glassmakers, and furniture painters who also held membership. In place of the guild, these master painters established brotherhoods with restricted enrollment.<sup>35</sup>

The formal act of separation and the power of the guild varied depending on the particular circumstances of different cities in this period; but this trend can be interpreted as a desire among master painters to demarcate their profession as something distinct from “suchlike others who earn their living with brush or paint.”<sup>36</sup> Given the combination of intellectual and technical knowledge involved in their trade, painters had the potential to ascend professionally in their field more readily than surgeons in theirs. I suggest that one of the means by which painters accomplishing their aims was to align their work with that of physicians. Printed publications offered the opportunity to both promote artists’ learning and publicize their aptitude beyond the boundaries of their profession. The capability of images

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<sup>35</sup> Michael North, *Art and Commerce in the Dutch Golden Age*, trans. Catherine Hill (New Haven and London: Yale University Press, 1997), 70, 76.

<sup>36</sup> Quoted from Amsterdam guild records (1579) in I.H. van Eeghen, “The Amsterdam Guild of Saint Luke in the 17<sup>th</sup> Century,” trans. Jasper Hillegers, *Journal of Historians of Netherlandish Art*, 4:2 (2012), 1; I.H. van Eeghen, “Het Amsterdamse Sint Lucasgilde in de 17de eeuw,” *Jaarboek Amstelodamum*, 60 (1969), 66; Pieter Bakker notes the rise of *kladschilders* in the second half of the seventeenth-century, which he attributes to changing market demands. However, *kladschilders* are not admitted to guild government until 1671 (Pieter Bakker, “Crisis? Welke Crisis?: Kanttekeningen bij het economisch verval van de schilderkunst in Leiden na 1660,” *De Zeventiende Eeuw* 27 [2011] 2, 257-258, 266-267).

and objects to communicate with a wide audience also appealed to medical practitioners. As a result, they turned to the expertise of artists to create effective pictorial means for persuading the viewer and reinforce the mounting legitimacy of their discipline.

### iii. Debating Art and Nature

One of the strategies early-modern natural historians, including anatomists, invoked to convey the veracity and unmediated content of their works was the denial of their artists' contributions, which consequently occluded the contact that occurred. In many cases, anatomists neglect to name their artists, effectively erasing evidence of their contributions from the written history of these works. For example, the northern artist Jan Stephan van Calcar (c. 1499-1546) is identified as Andreas Vesalius's draughtsman in the artist biographies of Vasari and Van Mander, among others. However, the validity of this claim has been the subject of much debate among modern scholars and is not helped by Vesalius's failure to acknowledge his artist.<sup>37</sup> This practice continues in the seventeenth century and Bidloo's atlas is one of the few examples in which the artist is recognized. In this case, De Lairese's fame was likely seen as an asset that could enhance the work's reception.

However, medical professionals advocated for the use of images, while seeking to construct and reinforce a hierarchical structure that promoted the physician's primacy. Discussing his choice to include images in his *De Fabrica Humani Corporis* (Basel, 1534), Vesalius notes "how much pictures aid the understanding of these things and place a subject before the eyes more precisely than the most explicit language no one knows who has not

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<sup>37</sup> Van Mander, *Schilderboeck*, f. 218r, trans. Miedema, *Karel van Mander*, 130; Francisco Guerra, "The Identity of the Artists in Vesalius' Fabrica," *Medical History*, vol. 13 no. 1 (1969), 37-50; Martin Kemp, "A Drawing for the Fabrica: and Some thoughts upon the Vesalius Muscle-Men," *Medical History*, vol. 14 no. 3 (1970), 277-288; Kornell *Artists*, 72-75; Patricia Simons and Monique Kornell, "Annibal Caro's after-dinner speech (1536) and the Question of Titian as Vesalius's Illustrator," *Renaissance Quarterly*, vol. 61 no. 4 (2008), 1069-1097.

had this experience in geometry and other branches of mathematics.”<sup>38</sup> Yet, in this text the artist is also the recipient of instruction and critique. In a letter addressed to his publisher, Johannes Oporinus (1507-1568), printed with the front matter of Vesalius’s atlas, the author includes strict directions for his woodcuts.

Between the wood blocks we have placed a printer’s copy of each illustration, piece by piece, together with a printed copy of each figure on which I have written where each should be placed, lest by chance their order and arrangement cause trouble for you or your workers and they be printed out of order.<sup>39</sup>

This statement both implies a concern that the process of printing may introduce faults and documents the control of the anatomist over the execution of these works. In a similar vein, the physician Frederik Ruysch frequently finds problems with the execution of his prints and criticizes his engraver.<sup>40</sup> The botanist, Leonhart Fuchs (1501-1566) also proclaims an intercessory role in the production of images for his *De Historia Stirpium* (Basel, 1542),

As for the pictures themselves, every single one of them portrays the lines and appearance of the living plant. We were especially careful that they should be absolutely correct [...] Over and over again, we have purposely and deliberately avoided the obliteration of the natural form of the plants lest they be obscured by shading and other artifices that painters sometimes employ to win artistic glory. And we have not allowed the craftsmen so to indulge their whims as to cause the drawings not to correspond accurately to the truth.<sup>41</sup>

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<sup>38</sup> Andreas Vesalius, *De humani corporis fabrica libri septem: The Fabric of the Human Body: An Annotated Translation of the 1543 and 1555 Editions*, vol. 1, D.H. Garrison and M.H. Hast eds. and trans. (Basel: Karger, 2014), 8 (fol. \*4r[V]).

<sup>39</sup> Vesalius, *Fabrica*, fol. VII, trans. in Garrison and Hast, *Fabric of the Human Body*, 11.

<sup>40</sup> “...the engraver has not been able to represent [the kidney] without darkening the little canals which are displayed in this figure; I will display them clearly in the following fourth Cabinet...” [...de plaatsnyder heeft zulks niet kunnen verbeelden zonder die Canaaltjens te verduyteren dewelke in deze figuur vertoont worden; ik zal zulks klaar vertoonen in ’t volgende vierde Cabinet...] (Frederik Ruysch, “Het Derde Anatomisch Cabinet,” *Alle de Ontleed- Genees- en Heelkundige Werken* [Amsterdam: Janssoons van Waesberge, 1744], 585); “I had intended in this the fourth Cabinet to add a figure of a whole placenta [...] but the engraver detained me for three months, therefore I have been forced to include it in the fifth cabinet.” [Ik had voorgenomen in dit vierde Cabinet in te voegen de figuur van een geheele Moer koek (...) maar de plaatsnyder heeft my drie maanden opgehouden, zoo dat ik gedwongen ben geworden, om dit in ’t vyfde Cabinet in te voegen.] (Ruysch, “Het Vierde Anatomisch Cabinet,” *Alle Werken*, 620).

<sup>41</sup> “Quod ad picturas ipsas attinet, quae cere singulae ad vivarum stirpium linamenta et efficies expressae sunt, unice curauimus et essent absolutissimae [...] summam adhibuimus diligentiam. De industria vero et data opera cavimus ne umbris, alijsque minus necessarijs, quibus interdum artis gloriam affectant pictores, nativa herbarum forma obliteraretur; neque passi sumus ut sic libidini suae indulgerent artifices, ut minus subinde

Fuchs's comment marks a separation between artists' pictorial practice and the requirements of botanical representation. In their work on historical constructs of objectivity, Lorraine Daston and Peter Galison examine the ways in which eighteenth and nineteenth-century physicians increasingly mediated the involvement of their artists in an effort to maintain authority.<sup>42</sup> Focusing on the seventeenth century and situating anatomical images within their larger pictorial context, my study seeks to off-set this seemingly one-sided relationship by drawing attention to the range of representational strategies used to convince the viewer and the ways in which they were deployed.

The roots of this debate are found in the classical texts to which Renaissance and early-modern natural historians responded. In her work on sixteenth-century medical and botanical publications, Sachiko Kusakawa identifies two foundational passages.<sup>43</sup> Most explicit is Pliny's comments concerning the images found in the works of Crateuas, Dionysius, and Metrodorus, who

...adopted a most attractive method, through which one makes clear little else except the difficulty of employing it. For they painted likenesses of the plants and then wrote under them their properties. But not only is a picture misleading when the colours are so many, particularly as the aim is to copy nature, but besides this, much imperfection arises from the manifold hazards in the accuracy of copyists.<sup>44</sup>

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veritati pictura respondet." (Leonhart Fuchs, *De Historia Stirpium Commentarii Insignes* [Basel: Officina Isingriniana, 1542], [a6]v); Trans. by Elaine Mathers and John L. Heller, in Frederick G. Meyer, Emily Emmart Trueblood, and John L. Heller, *The Great Herbal of Leonhart Fuchs* (Stanford: Stanford University Press, 1999), 214.

<sup>42</sup> Lorraine Daston and Peter Galison. "The Image of Objectivity," *Representations, Special Issue: Seeing Science*, no. 40 (Autumn, 1992), 90, 100, 101, 114.

<sup>43</sup> Kusakawa, *Picturing the Book of Nature*, 20; The first is found in Galen's *De simplicium medicamentum facultatibus*, in which the author notes "it is not necessary to describe the forms of plants after the fashion of so many men." (Quoted in Kusakawa, *Picturing the Book of Nature*, 20, 161 note 63: "Abrotoni herbae non speciem formamve scribere post tot tantosque viros oportet, nec particulae actiones, cur illi factitarunt, quas ut non definite distinctaeque saltem clare significarunt." Galen, *De simplicium medicamentum facultatibus* in *Opera*, vol. 5 [Basel: H. Froben and N. Episcopus, 1542], 154).

<sup>44</sup> "Praeter hos Graeci auctores prodidere quos suis locis diximus, ex his Crateuas, Dionysius, Metrodorus ratione blandissima sed qua nihil paene aliud quam difficultas rei intellegatur. pinxere namque effigies herbarum

Elsewhere in his work, Pliny commends representation and praises artists who manage to create works that imitate nature; sentiments that are also expressed in Quintilian and Cicero.<sup>45</sup> Yet particular attention should be given to the subjects about which Pliny and Galen make their statements. Painting and sculpture are praise-worthy, especially when the artist manages to rival nature, but in the context of botanical or anatomical illustrations the devices artists used to convince the viewer may be misleading. Pictorial representations were capable of making claims on behalf of medical practitioners and, for better or worse, could be sources of acclaim or interpreted as evidence of the author's ineptitude if improperly executed.<sup>46</sup> Implied here is a distinction between different types of representation and the roles they are asked to perform. Based on visual evidence from this period, I encourage a view that does not exclude from analysis different media or genres, but embraces the mutually informing roles of these works, even when seemingly opposed.

Kusukawa convincingly demonstrates how the publications of Fuchs, Vesalius, and their contemporaries consciously addressed the works of their classical predecessors, in particular Galen and Discorides, and used images to support new methodologies and arguments.<sup>47</sup> Tracing the pictorial tradition of anatomical images through the seventeenth

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atque ita subscribere effectus. verum et pictura fallax est coloribus tam numerosis, praesertim in aemulationem naturae, multumque degenerat transcribentium fors varia.” (Pliny the Elder, *Natural History*, 25:4) (Pliny, *Natural History, Volume VII: Books 24-27*, W. H. S. Jones and A. C. Andrews trans., vol. 7 (Cambridge: Harvard University Press, 1956), 140.

<sup>45</sup> Jacob Isager, *Pliny on Art and Society: The Elder Pliny's Chapters on the History of Art* (Denmark: Odense University Press, 1991), 136-140.

<sup>46</sup> On the issue of doubt and pictorial representation in natural history texts see David Freedberg, *The Eye of the Lynx: Galileo, his Friends, and the Beginnings of Modern Natural History* (Chicago: University of Chicago Press, 2002), 284, 350-356; Kusukawa, *Picturing the Book of Nature*, 93-94.

<sup>47</sup> Kusukawa, *Picturing the Book of Nature*, 221, 227, 229-231.



century, my research examines how Vesalian-style figures became the new standard of authority with which early-modern artists and anatomists both aligned and juxtaposed their works. In the process, they appropriated the fame of this sixteenth-century physician to validate their publications. This transition runs parallel to a shift Pamela Smith notes in the relationship between the new philosophy and artisanal practice. Surveying Flanders, Germany, and the Netherlands during the fourteenth to seventeenth centuries, she finds that naturalism in the pictorial arts was a means by which Renaissance artisans could make claims to their knowledge of nature, which they gained through observing, recording, and physically engaging with their subjects.<sup>48</sup> Coining the term “artisanal epistemology” Smith posits that these methods of knowing and communicating served as the basis for empirical study. However, following their adoption of this method in the sixteenth century, seventeenth-century natural philosophers sought to create distance between themselves and artisans.<sup>49</sup> She explains that this move corresponded with artist’s efforts to align themselves with the liberal arts and disassociate their products from manual practice.<sup>50</sup>

Focusing on artisans’ material knowledge and methods, Smith draws attention to the history of practice and experience as means of learning and traces the transition of authority from artisans to natural philosophers. Consequently, the changing approaches of seventeenth-century artists to the study of nature fall from Smith’s narrative. Building on her

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<sup>48</sup> Pamela Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: Chicago University Press, 2004), 8; Alternatively, see James Ackerman, “The Involvement of Artists in Renaissance Science,” in *Science and the Arts in the Renaissance*, John W. Shirley and F. David Hoeniger eds. (Washington: Folger Books; London and Toronto: Associated University Press, 1985), 94-129.

<sup>49</sup> Smith, *The Body of the Artisan*, 20, 181.

<sup>50</sup> Smith, *The Body of the Artisan*, 27; This assertion draws on work of Emma Barker, Nick Webb, and Kim Woods eds., *The Changing Status of the Artist* (New Haven & London: Yale University Press, 1999).

argument, my project includes an assessment of artists' views and engagement with anatomical study, particularly the integration of this subject into artists' training, but finds that boundaries were put in place that support artists' redefinition of their field. As much as natural philosophers strove to distance themselves from artisans, while assuming their methods of study, professional artists imbue their works with the authority of anatomy through pictorial reference and a literary approach. In so doing, they distinguish their profession from that of medical practitioners and manual engagement.

#### **iv. Material epistemes**

To assess the role of images and objects in the formation and communication of a reputable professional identity, my research focuses on three types of media: prints, drawings, and three-dimensional representations of the body, in particular, the cadaver and preserved anatomical specimens. The majority of my attention is given to prints, which were the most prolific and popular medium for representing the body among both anatomists and artists. Therefore, these works, found in anatomical atlases and adapted to art literature, most readily facilitate comparison of these two disciplines' nuanced treatments of this subject. In his foundational study on this medium, William M. Ivins views the relatively quick and easy replication and dissemination of printed images as enhancing visual communication in the early modern period.<sup>51</sup> In his work on Northern Renaissance prints, Peter Parshall assesses how authority was constructed and communicated through text and image, and the claims to truth these works could make on behalf of their authors.<sup>52</sup> Working from these premises, I

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<sup>51</sup> William M. Ivins, *Prints and Visual Communication* (Cambridge: Harvard University Press, 1953), 1-3.

<sup>52</sup> Parshall, Peter. "Imago Contrafacta: Images and Facts in the Northern Renaissance," *Art History*, Vol. 16 No. 4 (December 1993), 560, 564-565.

interpret print's potential for travel as one of its primary appeals for artists and anatomists, but posit that the medium's prevalence as a tool for circulating and contributing to period debates necessitated the design and implementation of pictorial and textual apparatuses that ensured its correct interpretation.

Contrasting the authority of print with that of prepared specimens, Dániel Margócsy identifies the two media as fulfilling distinct epistemologies, reinforced by economic and social capital in the seventeenth-century Netherlands. However, Margócsy's thorough and illuminating study presents Ruysch's published images as secondary to his preparations and, as a result, infers an epistemic hierarchy between these media. Comparatively, his analysis of Bidloo's prints primarily focuses on the relationship between period constructs of objectivity and socioeconomic value systems. Building upon Margócsy's study, my research considers how anatomical prints function distinctively from the subjects they depict. I then investigate how these images are constructed in relation to the genre in which they are found; specifically, art literature, anatomical atlases, collection catalogues, or pamphlets. I propose that these different types of publication were held to separate standards and expectations that informed the presentation of the body.

My study of prints and drawings produced for medical study considers how the represented subject related to other objects of study, including cadavers and specimens, and the sites of investigation in which they were encountered, from the dissection hall to collection cabinets. Access to these types of spaces in the early modern period was limited and regulated by codes of conduct, as Paula Findlen makes clear in her notable study of Italian collections.<sup>53</sup> Though not his explicit aim, Margócsy's reconstruction of the

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<sup>53</sup> Paula Findlen, *Possessing Nature: Museums, Collection, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994), 101-107 and 129-144.

commercial capabilities of anatomical collections and published works in the seventeenth and eighteenth-century Netherlands also places this type of knowledge within the grasp of those capable of paying for the privilege.<sup>54</sup> The necessity of an informed audience of peers for the verification and validation of science in this period contributed to the formation and reinforcement of a scholarly community and networks, as is addressed in the writings of Findlen, Steven Shapin and Simon Schaffer, and Brian Ogilvie.<sup>55</sup> These scholars' findings serve as a premise for my theory of a prescribed context of viewing in anatomist's printed works and inform my interpretation of artists and anatomists as striving to construct professional boundaries and legitimacy through their pictorial products, often in opposition to one another.

#### v. Chapter Summaries

This study is divided into two parts, the first of which examines images in art literature that have been adapted from anatomical atlases for the use of artists and *liefhebbers* (amateurs or lovers of art). I distinguish these images from the *écorché* and skeletal figures that are found in several late-sixteenth and seventeenth-century drawing books and manuals. Commencing with Van der Gracht and continued under Van Hoogstraten and Goeree, art literature incorporated images that made use of the visual vocabulary of anatomical publications. This included an animated, flayed figure, often set against a landscape, in the style of Vesalius, the form of which was labeled and accompanied by an explanatory register. I consider how

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<sup>54</sup> Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago; London: The University of Chicago Press, 2014).

<sup>55</sup> Ogilvie, *The Science of Describing*, 11-15; Shapin and Schaffer, *Leviathan and the Air-Pump*, 39, 55-58; Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994).

these works both relied on the examples of anatomists and repurposed these images for artists.

My opening chapter, “Constructing the Corpus: Jacob van der Gracht’s *Anatomie* for Artists,” is the first sustained study of Van der Gracht’s manual for “painters, engravers, sculptors, as well as surgeons.”<sup>56</sup> The short volume includes eighteen images of the skeletal and muscular structures of the human body and has often been viewed as an abridged copy of Vesalius’s *Fabrica*. This assumption has resulted in an oversight of Van der Gracht’s alterations to the designs of the plates to suit their new context as instructive resources for artists. Moreover, statements made by the author in his preface and changes made to the *Anatomie*’s engraved illustrations have contributed to the belief that Van der Gracht conducted dissections and used this knowledge to inform his publication. Contesting these interpretations, I investigate the origins of Van der Gracht’s images and the ways in which they were adapted to the new context and ambitions of his model book, while questioning his assertion that the work would cater to practitioners of both the surgical and pictorial arts. I demonstrate that Van der Gracht bolstered his reputation and made claims to the intellectual and social status of his profession through this type of statement, the use of renowned printed images, and lifted written explanations from at least five anatomists.

In the following chapter, “Manipulating the Subject: Anatomical Instruction in Samuel van Hoogstraten’s and Willem Goeree’s Art Theoretical Treatises,” I consider the effects of Van der Gracht’s strategy for the later seventeenth-century art theoretical treatises of Samuel van Hoogstraten (Rotterdam, 1678) and Willem Goeree (Amsterdam, 1682). Finding that these authors identify anatomical study as fundamental to the believable depiction of the

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<sup>56</sup> Van der Gracht, *Anatomie*, frontispiece.

body in motion, I investigate the extent to which each publication addresses this subject and how anatomy contributed to the distinct ambitions of each author. The Vesalian model selected by Van der Gracht is favored in both publications, however, the engagement with this subject varies according to the author's social and professional ambitions. For Van Hoogstraten, anatomy is only one component of the painter's universal education whereas Goeree uses this material to display his erudition. These later publications illuminate how artists' anatomical study remained a matter of debate in the second half of the seventeenth century. Concurrently, these publications share several of the themes that appear in earlier art literature, including a concern with figural movement, proportions, the production of life-like effects, and a sense of unity and grace within an image (*welstandt*). As such, these three texts enable the identification of artists' concerns and interests in relation to anatomical study and the limitations artists set on their profession's engagement with this subject.

In the second half of the dissertation, I turn to anatomical images produced in the second half of the seventeenth century for the study of medical practitioners in Leiden and Amsterdam. I find that these images are intimately connected to the site of knowledge production with which they were affiliated, from spaces of collection to those of dissection, and were often designed as an extension of these centers. Contrasting different media, I draw attention to the informing role of audience and context concerning the presentation of anatomical subjects and examine how anatomists used text and image to guide the viewer's interpretation of these works. At the same time, this half of the dissertation illuminates one of the primary contexts in which artists encountered anatomical subjects – at the invitation of the anatomists – and makes evident the ways in which images of medical study were made distinct from those directed towards lay audiences.

My third chapter, “Dissection by Design: Marten Sagemolen’s Drawings for Johannes van Horne,” transitions from anatomical images put at the disposal of artists to a study of art practitioners’ roles in the production of these materials. Between 1652 and 1660, the painter, Martin Sagemolen, executed more than 350 large-scale, colored, anatomical drawings for the professor of anatomy at Leiden University, Johannes van Horne. Approximately two thirds of these works were rediscovered at the Bibliothèque Interuniversitaire (BIU) de Santé (Paris) in the summer of 2016. Notably, these drawings contain several annotations detailing their production and function within this space and, while one might expect them to be written in the hand of Van Horne, they record instead the voice of Sagemolen. Consistently stressing his own role in conducting dissections and depicting his material experience, the annotations present Sagemolen as an uncommon example of an artist-anatomist. Substantiating Sagemolen’s claims through archival research, my chapter examines the drawings’ design and function as products of a rare union of pictorial and anatomical skill in the seventeenth-century Netherlands.

The fourth chapter, “Contexts of Inquiry: Collections, Dissections, and Images,” is a companion to the third, and locates Sagemolen’s drawings within Van Horne’s anatomical collection. I compare the professor’s collection and the activities that occurred therein with the famous Leiden University anatomy theater and juxtapose these spaces of general and particularized investigation. Held in Van Horne’s home, these volumes were displayed alongside prepared specimens, anatomical instruments, and other representations of the body that were used to inform Van Horne’s instruction and research. In contrast to printed works, the drawings were viewed by a relatively expert and restricted audience, which informed the selection and presentation of their contents. As the product of this environment, I find that

Sagemolen's representational strategies assert the role of these works as tools that could function both as a contained system and in tandem with the objects of Van Horne's anatomical cabinet.

My final chapter, "Prescribing Anatomy: Pictorial Strategies in the Publications of Govard Bidloo and Frederik Ruysch," examines the structures put in place to mediate the viewer's understanding of anatomical subjects once they left the anatomist's direct sphere of control. Unlike prepared specimens or drawings, printed materials had the capacity to transmit information more broadly and this expanded audience necessitated the implementation of a guiding framework to ensure accurate interpretation. Making comparisons between different genres of publication, I contrast Bidloo's anatomical atlas, the *Anatomia Humani Corporis* (Amsterdam, 1685), with the pamphlets and collection catalogues, or *thesauri*, of his known adversary, Ruysch. I suggest that these works make reference to distinct spaces of anatomical inquiry and use pictorial cues to elicit these settings for the viewer. These strategies enhance the works' credibility by encouraging the perception of close proximity of the images to their subjects.

In drawing this range of materials together, I compare the visual products of artists and anatomists and the areas in which these fields engaged and intersected. Placing these images and objects side-by-side we can more easily perceive their distinctions, which I interpret as the products of restrictions placed on each discipline, often from within their own fields. Notably, I find that artists approach their images with an eye to the lines of the body as it changed shape in response to movement and that their images were designed to connect their field with both antiquity and the rising prestige of modern physicians. However, the type of anatomy on offer in these sources is typically theoretical and somewhat outdated or



imprecise compared to the efforts of these artists' contemporaries within the medical field. Consequently, artists promoted more of an idea of anatomical study than the subject itself. In contrast, seventeenth-century Dutch anatomists begin to depart from the Vesalian model in an effort to create convincing representations of the subject as seen in the dissection hall or collector's cabinet. No longer copying directly after Vesalius's images, seventeenth-century anatomists instead make reference to this pictorial tradition in an effort to encourage associations between modern works and the privileged position of the field's forbearers. Much as early-modern artists borrowed from one another's compositions in a form of *aemulatio*, these working images of study and learning gain in notoriety and prestige through their borrowings from the familiar and renowned works of their predecessors.<sup>57</sup> In their approach to representational materials as a means of elevating their respective professions, we see that artists and anatomists participated in a shared culture of fame, honor, and renown and that both fields sought to compete in their respective arenas through their pictorial products.

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<sup>57</sup> Brian Vickers, *In Defense of Rhetoric* (Oxford: Oxford University Press, 1988), 33, 80, 291; Thijs Weststeijn, *The Visible World: Samuel van Hoogstraten's Art Theory and the Legitimation of Painting in the Dutch Golden Age* (Amsterdam: Amsterdam University Press, 2008), 29, 43; G.W. Pigman, "Versions of Imitation in the Renaissance," *Renaissance Quarterly*, Vol. XXXIII, No. 1 (Spring 1980), 1-32; Jeffrey M. Muller, "Ruben's Theory and Practice of the Imitation of Art," *The Art Bulletin*, Vol. LXIV No. 2 (June 1982), 235; Eddy de Jongh, "The Spur of Wit: Rembrandt's Response to an Italian Challenge," *Delta 12* (1969), 49-67; Perry H. Chapman, *Rembrandt's Self-Portraits: A Study in Seventeenth-Century Identity* (New Jersey: Princeton University Press, 1990); Eric Jan Sluijter, "Vermeer, Fame, and Female Beauty: *The Art of Painting*," in *Vermeer Studies*, ed. Ivan Gaskell and Michiel Jonker, series, *Studies in the History of Art* no. 55, Center for the Advanced Study in the Visual Arts, Washington DC, National Gallery of Art (Distributed by New Haven and London: Yale University Press, 1998), 265-283; Eric Jan Sluijter, *Rembrandt's Rivals: History Painting in Amsterdam 1630-1650* (Amsterdam and New York: John Benjamins B.V., 2015), 19-21.

## CHAPTER ONE

### Constructing the Corpus: Jacob van der Gracht's *Anatomie* for Artists

#### A. *Écorchés, Muscle-men, and Anatomical Study*

##### i. Introduction

Early-modern art literature repeatedly encouraged young artists to study the human body, the proper treatment of which resulted in a convincing and pleasing representation that, in turn, brought enduring fame and honor to the artist. Training began as an apprentice, working after prints of the masters, before moving to the example provided by antique sculpture and, eventually, the living body. Certain artists are even reputed to have had such a fascination with the human form, and a dedication to the meticulous study of its parts, that they turned to the cadaver to learn the intimate workings of human anatomy.<sup>58</sup> To aid young artists in these endeavors, treatises and drawing books such as Jean Cousin's *Livre de pourtraiture* (Paris, 1595), or Crispijn van de Passe's *Van 't Licht der teken en schilderconst* (Antwerp, 1644) use text and image to teach a range of methods for representing the body. However, the views of *écorché* and skeletal figures that populate the pages of sixteenth- and seventeenth-century art literature are distinct from those found in the anatomical publications of their contemporaries. Unmarred by labels and relatively devoid of explanatory text, the figures produced for the use of artists often restrict the type of

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<sup>58</sup> Perry H. Chapman, "The Wooden Body: Representing the Manikin in Dutch Artists' Studios," in Ann-Sophie Lehmann and Herman Roodenburg eds., *Nederlands Kunsthistorisch Jaarboek*, vol. 58 (Zwolle: Waanders Publishers, 2008), 188-215; Victoria Sancho Lobis. "Printed Drawing Books and the Dissemination of Ideal Male Anatomy in Northern Europe." In *The Nude and the Norm in the Early Modern Low Countries*, Karolien De Clippel, Katharina van Cauteren, and Katlijne van der Stighelen eds. (Turnhout: Brepols, 2011), 51-64.

information on offer and limit the viewer to the external lines of the human form, as seen from the front, side, and rear. In contrast to these blank bodies, those of Jacob van der Gracht's (1593-1651) printed drawing book, the *Anatomie der wtterlicke deelen van het Menschlick Lichaem* (s'Graven-Hagae, 1634; Rotterdam, 1660), which is often hailed as the first anatomical publication produced specifically for the use of artists, follows the examples of anatomists more faithfully.<sup>59</sup>

Comprised of eighteen folio-sized engravings, which show the skeletal and muscular structures of the body in a variety of poses and at different states of dissection, the *Anatomie* borrows several of its figures from Andreas Vesalius's (1514-1564) *De Humani Corporis Fabrica* (Basel, 1543). These images are explained with accompanying registers and passages of text taken from the various anatomical publications of André du Laurens (1558-1609), Barthélémy Cabrol (1529-1603), and Vesalius. The close relationship of Van der Gracht's text to its exemplars has led to the assumption that the *Anatomie* is predominantly a copy after existing works, in particular the *Fabrica*. However, my analysis of Van der Gracht's publication demonstrates that the artist-author did not copy directly from Vesalius and I identify materials from at least five anatomical sources that were put to new uses in the *Anatomie*. The selection and combination of both text and image from a variety of printed publications indicates Van der Gracht's broad familiarity with anatomical literature and his thoughtful presentation of information for his readers. Situating Van der Gracht's work within the pictorial tradition of early-modern anatomical atlases and the literary context of

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<sup>59</sup> Lambertus Jacobus Endtz, *De Hage-Professoren. Geschiedenis van een chirurgische school* (Amstelveen: Specia, 1972), 25; Jan Rupp, "Matters of Life and Death: The Social and Cultural Conditions of the Rise of Anatomical Theatres, with Special Reference to Seventeenth-Century Holland," *History of Science* 28:3 (1990), 281 note 9; Jan Briels, *Vlaamse schilders en de dageraad van Hollands Gouden Eeuw, 1585-1630* (Antwerp: Mercatorfonds, 1997), 332.

art theoretical treatises, this chapter investigates the ways in which Van der Gracht actively adopted, altered, and adapted text and image to create a new type of publication directed towards artists' study of bodily movement.

Through a consideration of the ways in which information is repurposed and presented in the *Anatomie*, I argue that Van der Gracht used anatomical instruction to enhance artists' skills in rendering life-like effects and therein elevate the credibility of their works, while he simultaneously places limitations on this type of study for his profession. Drawing attention to the changes that anatomical illustrations experienced at Van der Gracht's hand, I find that the author was more interested in theoretical study of the body as a means of informing artists' ability to convincingly depict figures in motion. Using this knowledge, artists could more successfully endow their images with life-like movement, which allowed them to display their understanding of their subjects and enhance the visual effectiveness and monetary value of their works. Given the rise of anatomical study and its growing prestige in the Netherlands during the early modern period, the use of anatomical figures that mimic those found in anatomical atlases offered a reputable model for young artists to follow. At the same time, the circulation of the *Anatomie* as a printed work publicized and promoted artists' training to an audience outside of their profession. To this end, a study of the *Anatomie's* readership and posterity, which is reconstructed using sales catalogues, inventories, extant drawings, and later publications, is also included in this chapter. Through this assessment, I consider the *Anatomie's* position within the period's pictorial and literary traditions and interpret Van der Gracht's text as evidence of artists' educative, effective, and professional ambitions.

## ii. Artists and Anatomists in the Seventeenth-Century Netherlands

Relying on pictorial evidence, poetry, art literature, artists' biographies, and city descriptions, art historians such as Eddy de Jongh, Eric Jan Sluijter, Perry H. Chapman, and Celeste Brusati have made compelling cases for seventeenth-century Dutch painters' ambitions for fame, fortune, and honor.<sup>60</sup> These efforts are also recorded in the writings of artists themselves, such as the lecture given to the Leiden Guild of St Luke in 1641 by Van der Gracht's contemporary, Philips Angel (1616-1683), which was later printed as *Lof der Schilderkonst (In Praise of Painting)* (Leiden, 1642). In this short text the author applauds the pictorial achievements and skills of early-modern artists and places them within a reputable lineage that can be traced to antiquity.<sup>61</sup> Moving beyond the written claims of artists and art lovers, in this section I wish to locate the *Anatomie* within the professional and intellectual context of art and medicine in the seventeenth-century Netherlands and consider the practical tactics taken to enhance the reputation of its author and the painter's profession through its contents.

The frontispiece of Van der Gracht's treatise clearly communicates the author's desire to connect his work with the fame of sixteenth-century anatomists and instruct the reader, particularly artists, in the structure of the body [Fig. 6]. In the center of the scene, a partially

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<sup>60</sup> Eddy de Jongh, "The Spur of Wit: Rembrandt's Response to an Italian Challenge," *Delta 12* (1969), 49-67; Perry H. Chapman, *Rembrandt's Self-Portraits: A Study in Seventeenth-Century Identity* (New Jersey: Princeton University Press, 1990); Celeste Brusati, *Artifice and Illusion: The Art and Writing of Samuel van Hoogstraten* (Chicago: University of Chicago Press, 1995); Eric Jan Sluijter, "Vermeer, Fame, and Female Beauty: *The Art of Painting*," in *Vermeer Studies*, ed. Ivan Gaskell and Michiel Jonker, series, *Studies in the History of Art* no. 55, Center for the Advanced Study in the Visual Arts, Washington DC, National Gallery of Art (Distributed by New Haven and London: Yale University Press, 1998), 265-283; Eric Jan Sluijter, *Rembrandt's Rivals: History Painting in Amsterdam 1630-1650* (Amsterdam and New York: John Benjamins B.V., 2015), 19-21.

<sup>61</sup> Michael Hoyle and Hessel Miedema, "Praise of Painting," *Simiolus: Netherlands Quarterly for the History of Art*, Vol. 24, No 2/3, (1996), 227-258.

dissected cadaver has been propped into an upright-seated position by a rope, which is wrapped around his left shoulder. In this pose, the figure is visually similar to the depiction of a suspended, *écorché* figure in Cornelius Cort's print after Jan van der Straet, *The Practitioners of the Visual Arts* (1578), in which the anatomical body is also presented as an object of artists' study [Fig. 7]. The skin of Van der Gracht's cadaver has been removed from his arm and hangs from his body in a large sheet, revealing the musculature underneath. The lower portion of his form is covered by drapery, making the cadaver appear as a semi-classical nude reclining atop a plinth; a fusion of the natural, antique, and anatomized body, three areas of an artist's training that Van der Gracht addresses in his preface. Carved into the base of the platform below, the full title of the text reads, "The Anatomy of the Outer Parts of the Human Body. Serving to Understand all Movement of the Same Body Perfectly from the Figures [...] Of Benefit to Painters, Sculptors, Engravers, and also Surgeons."<sup>62</sup> In the foreground, allegories of Painting and Sculpture are seated, surrounded by the tools of their practices, framing the plinth and pointing to both the title of the book and the body above, visually affirming the text's subject.

To the right, behind the figure of the sculptor, stands an anatomist who assumes a pose similar to the author portrait of Vesalius in the *Fabrica* [Fig. 8]. He grasps the fingers of the flayed forearm gently in his hand, while holding a pointer to direct our gaze to the cadaver's exposed muscles. There are no known portraits of Van der Gracht, but the specificity of the anatomist's features and his outward gaze, which meets that of the viewer, suggest strongly

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<sup>62</sup> "Anatomie der wtterlicke deelen van het Meschelick Lichaem. Dienende om te verstaen ende volkomentlick wt te beelden alle beroerlicheit des selven Lichaems. Aengewesen dor Jacob van der Gracht, schilder. Bequam voor Schilders, Beelt-houwers, Plaetsnyders, also ok Chirurgiens. Wtgegeven door den Auteur in s'Graven Hagae. Cum Privilegio. 1634" (Jacob van der Gracht, *Anatomie der wtterlicke deelen van het menschelick lichaem* (The Hague, 1634), frontispiece).

that the artist has placed himself in the guise of the anatomist.<sup>63</sup> Stacked figures fill the remainder of the composition, including a man who reads from a book while looking at the cadaver, referencing scenes of the early-modern anatomy theater, particularly the tiered amphitheatres in which these demonstrations took place [Fig. 4]. In this frontispiece, the author and engraver, Van der Gracht, combines imagery of the artist's studio and the dissection hall and presents his work as a meeting of these two spaces, united as sites in which the body is examined.

Focusing on artists' approaches to the human form in the *Anatomie*'s preface, Van der Gracht recommends anatomical study as a means of acquiring esteem and financial reward, which are gained through the production of beautiful figures that are informed by intellect and understanding of the human form. Drawing on examples from history, he identifies the study of the body as a respectable subject, given its role as a house for the soul and therefore a means of knowing God.<sup>64</sup> Citing a lineage of prestigious predecessors that dates from

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<sup>63</sup> My thanks to Ann Jensen Adams for her suggestion that this figure may serve as a portrait of Jacob van der Gracht.

<sup>64</sup> "Among all the significant works, which the Almighty Lord, our God, in his unmeasured and boundless wisdom has made, none is more wonderful, or higher esteemed, than the human body, founded by him as a fit residence, yes, a glorious temple for the reasonable and immortal soul [...] Others no less, named among the Ancients in science, used to say the structure of the human body is the most perfect and loftiest Book, in which one may read the incomprehensible Almightiness, Wisdom, and Goodness of the Creators." *All translations mine unless otherwise stated*. [Onder alle sienlijcke wercken, door de welcke Almoghenden Heer, onsen Godt, sijne ongemeten ende oneyndelijcke wijsheyt kondigh heeft gemaect, niet meer te verwonderen, oft hooger te waerden en is, als 't Menschelick Lichaem, tot een bequame wooning, ja heerlicken tempel voor de redelicke en onsterfvelicke siel van hem ghesticht (...) Andere niet minder, onder de Ouderlinghen in wetenschap vernaemt, plachten ten seggen 't ghebouw des menschelicken lichaems te wesen het alder-volmaeckste ende verhevenste Boeck, waer in men de onbegrijpelicke Almogentheyt, Wijsheyt ende Goetheyt des Scheppers mocht lesen.] (Van der Gracht, *Anatomie*, fol. A); The metaphor of the body as a book and the idea that an individual can come to know God through study of the body are wide-spread concepts in the early modern period and are found often in anatomical atlases and printed materials. See Eric Jorink, *Reading the Book of Nature in the Dutch Golden Age, 1575-1715*, Peter Mason trans. (Leiden and Boston: Brill, 2010); Jonathan Sawday, *The Body Emblazoned: Dissection and the human body in Renaissance culture* (London and New York: Routledge, 1995), 134-6; Andrea Carlino, "Know Thyself: Anatomical Figures in Early Modern Europe," *RES: Anthropology and Aesthetics*, No. 27 (Spring, 1995), 64-65.

antiquity to the modern day, he attributes much of the praise awarded to classical sculptures and images as the product of a practice based in anatomical knowledge.

And truly, if one wants to perceive how previously, under the Greeks and Romans, the arts of painting and sculpture became so highly elevated and Noble, one will find that it was none other than the knowledge of anatomy, which ancient painters united with their pencils, chisels, and mattocks. This brought their handwork to such great esteem, that we read 80 talents were given for a Medea and Ajax done by Timomachum, 100 talents for an image of the King [by] Aristides of Thebes, [and] for a piece by Apelles, a *mudde* full of gold.<sup>65</sup>

The recounted stories serve as models for an ideal working method, one that combines the intellectual and practical tools of the artist. Van der Gracht's promotion of a learned basis for the art of painting and his recognition its ensuing rewards, are likely the product of the fluctuating internal structure of the painters' profession in this period, as discussed in the introduction to this dissertation. In citing the high prices fetched by renowned painters of antiquity, whose names remained well known in the seventeenth century, Van der Gracht entices his readers with promises of wealth, fame, and honor as rewards for their study and skill, and encourages them to follow a similar course in their own works.

Working as a painter and printmaker in The Hague, Van der Gracht received his first nomination for *hoofman* of the Guild of St Luke in 1634, the same year as the publication of the first edition of the *Anatomie*.<sup>66</sup> Given the coinciding timing of these events, it is

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<sup>65</sup> “Ende voorwaer, indien men wilt bemercken wat voortijds, onder de Griecken ende Romeynen, de Schilder-konst en Beelt-houwerije soo hoogh verheven ende Edel gemaect heeft, men sal bevinden het anders niet geweest te zijn, als de wetenschap der *Anatomie*, die de *Antique* Schilders ende Beelt-snijders met hare pinseelen, beytels ende houweelen vereenicht hadden. Dit heeft haer handt-wercken in sulcke groot-achtinge ghebracht, dat wy lesen voor en *Medea* ende *Ajax* door *Timomachum* ghedaen tachtentich talenten, voor een Beelt vanden konstigen *Aristides* van *Theben* hondert talenten, voor een stuck van *Apelles* een mudde vol gouts gegeven te zijn.” (Van der Gracht, *Anatomie*, fol. Av).

<sup>66</sup> Born in Mechelen in 1593, Van der Gracht trained with his brother Gommaer vander Gracht and Raphael Coxie. He was nominated for the position of *hoofman* for the Guild of St. Luke in The Hague in 1634, 1639, 1641, 1645, and 1647, and was elected in 1647-48 and 1648-49 (Fr.D.O. Obreen, *Archief voor Nederlandsche Kunstgeschiedenis*, vol. 5 [Soest-Holland: Davaco Publishers, 1976], 70, 73-78; Edwin Buijsen, *Haagse Schilders in de Gouden Eeuw: Het Hoogsteder Lexicon van alle schilders werkzaam in Den Haag 1600-1700* [The Hague: Kunsthandel Hoogsteder & Hoogsteer, 1998], 309). Upon settling in The Hague, Van der Gracht married Aeltgen (Adelheid) Cornelis van Winden (24 July 1635) (Haags Gemeentearchief 0351-01 no. 742 fol. 101). He remained in The Hague until his death in 1652 (Briels, *Vlaamse schilders*, 332).



possible that the artist produced his book as a means of distinguishing himself for such positions.<sup>67</sup> The project appears to have been a success, as Van der Gracht's *Anatomie* is referenced in art-theoretical publications throughout the seventeenth and eighteenth centuries, including those of Samuel van Hoogstraten (1627-1678), Willem Goeree (1635-1711), and Gerard de Lairese (1640-1711), suggesting the work's sustained relevance for artists. The presence of the *Anatomie* in inventories of artists' libraries, such as those of Cornelis Dusart (1660-1704) and Jan de Bisschop (1628-1671), testify to these artists' knowledge and possession of this work, while the printing of a second edition in 1660 speaks to continued interest in the seventeenth century.<sup>68</sup> Today, this text is Van der Gracht's most widely acknowledged work, as only a handful of his paintings, primarily portraits, have been addressed in modern publications.<sup>69</sup>

Much of this accomplishment can be attributed to the ways in which Van der Gracht altered his subjects to better suit the needs of artists and his strategy of focusing on the

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<sup>67</sup> The work is advertised on 23 December 1634 in the Amsterdam newspaper, *Courante uyt Italien Duytschlandt, &co.* (Jan van Hilten, *Courante uyt Italien, Duytschland, & co.*, No. 51 [23 December 1634]).

<sup>68</sup> Susan Anderson, "The Library of Cornelis Dusart: Between Artist and Gentleman," *Oud Holland*, v. 123, n. 2 (2010), 135-136; The second edition is printed on lower quality paper, and the registers are done on a smaller scale using a new typeface. An abridged copy of William Harvey's treatise on circulation is also included (Jacob van der Gracht, *Anatomie van het Menschelick Lichaem* [Rotterdam: gedrukt bij Hendrick de Bruyn 1660]).

<sup>69</sup> The earliest dated work by the artist is a *Portrait of a Man, possibly Franciscus Garbin van Strijen* (1642), which is now in the Hof van Twente, Delden. In 1645, Van der Gracht produced individual portraits for the family of Admiral Melchoir van der Kerkhoven, including pedant portraits of the admiral and his wife, Elizabeth Donker (Haags Gemeentemuseum, The Hague), and a companion piece of their daughter, *Rynburgh de Jonge* (Haags Historisch Museum, The Hague). A *Portrait of a Young Man* (1647), which was sold at auction by Christie's, London, 15 December 1983, lot 237, is now in the private collection of dr. Van Gils in Roermond. A portrait of an unidentified military figure also survives in a private collection. The only attributed narrative work is an undated scene of *Cain Slaying Abel*, which was sold at auction by Christie's Amsterdam, 5 September 2007, lot 7. For images, see J. de Maere and M. Wabbes, *Illustrated Dictionary of 17<sup>th</sup> Century Flemish Painters, Plates A-K* (Brussels: Renaissance du Livre, 1994), 504-507; Buijsen, *Haagse Schilders*, 309, and Rijksbureau voor Kunsthistorische Documentatie (RKD) <[https://rkd.nl/en/explore/images#filters\[kunstenaar\]=Gracht%2C+Jacob+van+der](https://rkd.nl/en/explore/images#filters[kunstenaar]=Gracht%2C+Jacob+van+der)> (6 May 2017). These traces of Van der Gracht's *oeuvre* suggest that the artist specialized in figural painting, a feature that he shares with Martin Sagemolen and Gerard de Lairese, who will be examined in the following chapters.

anatomical structure of the human form, during a period in which the popularity and respectability of anatomical study was steadily increasing. Van der Gracht's choice to affiliate his work with the publications of physicians, given that most early-modern anatomical atlases were the products of this prestigious group, makes a statement about the way he desired painters to be viewed and the type of knowledge he wished them to acquire. Texts such as the *Anatomie* complemented an artist's studio training with information concerning the movement and function of the body that was not always readily available through physical subjects or art literature. The origins of this knowledge in a well-reputed and recognized authority on the subject only lent further prestige to the efforts of an artist. At the same time, these works reached beyond the boundaries of the painter's profession to publicize the interests of artists in the increasingly popular discipline of anatomy, lending credibility to their representations of the human form. As such, Van der Gracht's *Anatomie* uses some of the most cutting-edge advancements in the study of the body and displays artists' erudition and diligence in their attention to this subject. Van der Gracht's work at once offers artists tools with which they could inform their pictorial practice and encourages a perception of artists' learnedness, both within the field and beyond.

### ***B. The Anatomical Body in Text and Image***

#### **iii. A United Corpus: Theory and Practice in the *Anatomie***

Using the desirable reputations of ancient artists and the privileged standing of their works as a yardstick against which those of modern artists can be measured, in his preface, Van der Gracht narrates a brief history of anatomical knowledge in art. Among his tales of pictorial triumphs, he includes, "three renowned cities, Rhodes, Sicyonia, and Syracuse [that] were

spared from their enemies [...] to save and liberate some artful figures of renowned masters, which followed most perfectly the *welstandt* of the body, with complete knowledge of natural stirrings and movement.”<sup>70</sup> In this passage, Van der Gracht attributes the appeal of these works to their convincing representation the body in motion and suggests that the proper execution of this subject can elevate the painter’s art to the level reached by the ancients. Elaborating further, Van der Gracht specifies that the success of figural representation is due to “the apparent knowledge of anatomy in the paintings of antiquity [...] [which] indicates the exceeding art and knowledge of their masters perfectly.”<sup>71</sup> For Van der Gracht, proof of the quality of an artist’s training and skill is made evident in the final product, and in his publication he provides what he deems to be the necessary intellectual foundations for rendering a believable, life-like image of the human figure.

The appearance of life and the pictorial techniques through which it was achieved, hinged on the artist’s understanding of how the body moves and his ability to reproduce this quality in his works. Yet, Van der Gracht’s use of the term *welstandt* in relation to the representation of corporeal motion suggests that he wished to transcend depiction and elicit the effect of viewing the body as seen in nature. With origins that can be traced to architectural treatises from antiquity to the early modern period, *welstandt* was applied to discussions of the human figure in Renaissance and early-modern art literature. In

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<sup>70</sup> Italics mine. “Hier door ist gheschiet dat drie vermaerde Steden, *Rhodus*, *Sicionia* ende *Syracusa* van hare Vyanden gespaert, ende niet tot een badt des bloedts haerder Inwoonders ghemaect te zijn, om te sparen ende te bevrijen ettelicke konstighe Beelden, nae de welstandt des lichaems, met volkomen kennis der natuerlicke roeringe ende beweginge, van vermaerde Meesters, op ‘t alder-volmaeckste gedaen.” (Van der Gracht, *Anatomie*, fol. Av).

<sup>71</sup> “Diergelijcke Schilderijen der *Antiquen*, die hare wetenschap der *Anatomie* in haer wercken deden blijcken [...] de uytnemende konst en wetenschap haerder Meesters volkomelijck te kennen geven, ende noyt, geduerende de Christenen tijden, verbetert en zijn.” (Van der Gracht, *Anatomie*, fol. Av).

Vitruvius's *De architectura*, the term appears as *decorum*, in Leon Battista Alberti's *Della Pittura* (Florence, 1435) it is *concinntitas*, and Albrecht Dürer (1471-1528), and later Walter Ryff (1550-1548), discuss it as *Wohlstand*.<sup>72</sup> Subtle distinctions are discernable between these sources and the term continued to change through the seventeenth century, but it can be interpreted generally as making reference to the proper correspondence of various parts to produce a beautiful or pleasing appearance.<sup>73</sup> Associated with grace, decorum, and beauty, *welstandt* describes both the depiction of the body and the effect this produces in the mind of the viewer, namely, the ability to persuade the beholder of the veracity and vitality of the figure.<sup>74</sup> Consequently, this quality allows the artist to approach a certain illusion of life in his representations.

Making its first appearance in Dutch in Karel van Mander's (1548-1606) biographies of artists and his didactic poem, *Den Grondt* (Haarlem, 1604), the seventeenth-century author's use of the term is consistent with that of his predecessors and likely informed Van der Gracht's understanding of the word, given the number of correspondences between the two texts. In Van Mander's publications, the term is often used in conjunction with *schoonheyt* (beauty) and encourages the appropriate, coherent, depiction of a figure, particularly in relation to pose and the suggestion of movement.<sup>75</sup> Notably, in his biography of Frans Floris,

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<sup>72</sup> For a history of *welstandt* see Hans Joachim Dethlefs, "'Wohlstand' and 'Decorum' in Sixteenth-Century German Art Theory," *Journal of Warburg and Courtauld Institutes*, Vol. 70 (2007), 143-155.

<sup>73</sup> Dethlefs, "'Wohlstand'," 146-148.

<sup>74</sup> Dethlefs, "'Wohlstand'," 151; Lyckle de Vries, "Gerard de Lairese: The critical vocabulary of an art theorist," *Oud Holland*, Vol. 117 No. ½ (2004), 81; Caroline O. Fowler, "Presence in seventeenth-century practice and theory," *Word & Image: A Journal of Verbal/Visual Enquiry*, 30:2 (2014), 162; Judith Noorman, "On Truth and Beauty: Drawing Nude Models in Rembrandt's Time," in *Rembrandt's Naked Truth: Drawing Nude Models in the Golden Age*, Judith Noorman and David de Witt eds. (Amsterdam: The Rembrandt House Museum; Zwolle: WBooks, 2016), 29.

<sup>75</sup> "The virtue of the beauty that makes perfect and orderly, that prepares a favor for the eye..." (Elizabeth Honig et al. ed. and trans., *The Foundations of the Noble Free Art of Painting by Karel van Mander* [New

the author also makes associations between this concept and the study of musculature, which he explains can become overworked in representations of the body and take on a “dry” or “lean” quality that undermines the figure’s appearance of grace and beauty.<sup>76</sup> Instead, Van Mander’s application of the term encourages the creation of natural poses that are in keeping with the figure’s activity, age, and gender, through which the artist can create a pleasing effect.<sup>77</sup> In the decade following Van der Gracht’s publication, Angel attributes the appearance of *welstandt* to the proper application of light and shadow in an artist’s work.<sup>78</sup>

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Haven: 1985]) [De deucht der schoonheyt / welstandich en constich/ D’ooghe ghevend’ en volcomen benoeghen.] (Karel Van Mander, *Den Grondt der Edel Vry Schilderconst* [Haarlem: Passhier van Wesbusch, 1604], 4:1); “But we should beware of doing something unnatural, so one must strive in a variety of ways to rotate the head in the most fit way, for such can entirely spoil or enhance the nature of a picture in understanding eyes.” Honig et al. trans. [Oft tamminghen onaerdt wil ons onpaeyen / Dus moetmen op veelderley wijze pooghen / Ter beste welstandigheyt t’hoofft te draeyen / Want sulcx can gantsch bederven oft verfraeyen / Den aerdt eens Beeldts/ in verstandighen ooghen] (Van Mander, *Den Grondt*, 4: 14); “Also one should be careful not to have one’s standing figure step out unnaturally and unbeautifully, ie, there should be not more than a foot between both feet: but know that the ancients consider the standing figure as important as the walking and the running figure.” Honig et al. trans. [Noch is oock toe te sien / dat niet en schrijde / Ons staende Beeldt buyten Natuer en gracy / Dats / als voet van voet meer dan voet heeft spacy: Maer weet / dat d’Antijcken achten welstaende / Standen gelijk als stappend ende gaende.” (Van Mander, *Den Grondt*, 4: 28).

<sup>76</sup> “So that often the *welstand* of art is made too short, as our Netherlanders are known to make their things commonly too lean and dry.” trans. Miedema 1994, vol. 1, 213 [Soo datse veel tijdt den *welstandt* der Consten te cort doen / soo wel als onse Netherlanders / met hun dinghen gemeenlijck te ranck / en drooghs kens te maken.] (Karel van Mander, *Het Schilderboeck* [Haarlem: Passhier van Wesbusch, 1604] reprint in *Karel van Mander the Lives of the illustrious Netherlandish and German painters, from the first edition of the Schilderboek* [1603-1604], 7 vols, H. Miedema trans. and ed. [Doornspijk: Davaco, 1994], fol. 238v).

<sup>77</sup> “Doch te maken de voeten van een Vrouwe / Al te wijt van een gestaen oft gheleghen / Sonderlinghe staend’ / is ghedaen ontrouwe / Teghen den *welstandt*/ vereysschende nauwe / De voeten by een / van eerbaerheys weggen.” (Van Mander, *Den Grondt*, 4: 19); “Noch verder / om allen *welstandt* verstercken / Isser oock een stuck weerdich te betreffen / Voor cloecke sinnen / die op alles mercken / Te weten / siet / Beelden die niet en wercken / Sullen niet gelijk t’samen opheffen / Beyde handen of armen / te beseffen / Is wel dat veranderingh can verblijden / Oock salment aen beenen en voeten mijden.” (Van Mander, *Den Grondt*, 4: 22).

<sup>78</sup> “For if the shadows are arranged next to each other in their proper place they have such a magical effect and marvelous spaciousness that they make many things which are almost impossible to imitate with the brush and colors look almost real.” (trans. Hoyle and Miedema, “Praise of Painting,” 244) [Want de schaduw by een ghevoeght zijnde op haer behoerlijcke plaets, gheven sulcken tooverachtighe kracht, en wonderbaerlijcke *welstandt*; dat veel dinghen, die nauwelijcx door gheen *Penceelen* met *verwen* zijn na te bootsen, seer eyghentlijck doen schijnen.] (Philips Angel, *Lof der schilder-konst* [Leiden: Willem Christiaens, 1642], 39).

In contrast, Van der Gracht does not address the technical means by which this effect might be achieved and, although his treatment of *welstandt* shares Van Mander's insistence on a correspondence between the parts of the body, he is more explicit concerning the association of this effect with the training of an artist. In particular, he places greater emphasis on the artist's need for a thorough study and understanding of corporeal structure and motion as prerequisites for the achievement of a *welstandig* figure. Less attention is given to the concept of beauty in the *Anatomie*, but the idea of being able to obtain perfection in figural depiction so that it approaches life is identified as a desirable goal.

Describing the working methods of early-modern artists, Van der Gracht identifies two principle approaches to the study of the body among his contemporaries: those who draw after antique sculptures and those who work *nae t' leven* (from or after life).<sup>79</sup> Addressing the first group, he cautions against the belief that study after ancient figures alone will result in a transference of knowledge from those who produced classical works to those who copy after them, explaining,

Others judge that it is enough to study antique images or statues, which can still be seen in Rome and other places of Italy [...] for the purpose of knowing the *welstant* and beauty of life [...] however it is not sufficient to obtain the true knowledge of life [...] Albeit he [a lover of art] may come to some perfection, and in much *wel dragen*, and nevertheless will not have complete knowledge of life [...] for as long as he may use the same situation or posture that the Italian statues or figures have, he will succeed, but when he needs to change

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<sup>79</sup> For the purposes of Van der Gracht's text, *nae t' leven* is applied to objects in the round, specifically the living model, and not two-dimensional representations such as drawings, prints, and paintings. The author only uses this phrase to describe a working method for artists, while he uses the word "leven" with "uytwerking" to describe the desired life-like effect an image might have, but the image does not need to have been produced *nae t' leven* to have such an effect. For further discussion of *nae t' leven* and its meaning see: Boudewijn Bakker, "Au vif, naar t'leven, ad vivum: The Medieval Origin of a Humanist Concept," in *Aemulatio: Imitation, Emulation and Invention in Netherlandish Art from 1500–1800, Essays in Honor of Eric Jan Sluifster*, ed. Anton W. A. Boschloo et al. (Zwolle: Wanders Publishers, 2011), 39–40, 46; Claudia Swan, "Ad vivum, naer het leven, from the life: defining a mode of representation," *Word & Image*, vol. 11, issue 4 (1995), 354–357; Sachiko Kusakawa, *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-century Human Anatomy and Medical Botany* (Chicago: University of Chicago Press, 2012), 174–175.

them slightly, the *welstand* of art will necessarily fall short, because he does not understand anatomy or the movement of life.<sup>80</sup>

While an artist may be able to copy the poses of ancient statues, this method does not provide the means for an artist to make adjustments to his figure and confines his capacity for representing the body in a range of positions and attitudes.<sup>81</sup> Drawing from a human model offers comparable challenges, as the position of the living body will necessarily shift with fatigue and create errors in the works of those who faithfully follow his changing form, making it impossible to evoke *welstandt*. However, Van der Gracht reasons that if study of nature is supported through anatomical knowledge, the artist can compensate for the model's changing form and avoid faults in his image.<sup>82</sup> Van der Gracht is explicit that without this

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<sup>80</sup> “Andere oordeelen, dat het genoech is te studeren op de *Antique* beelden ofte statuen, die te Roomen en in andere plaetsen van Italiën noch te sien zijn [...] om de welstant en schoonheyt des levens te leeren kennen [...] nochtans niet genoechaem, om de rechte kennis des levens te bekomen [...] Al ist dat hy wel mach tot eenige perfectie gekomen wesen, ende in veel saken sich wel dragen, en sal nochtans de volkomen kennis des levens niet hebben [...] Voorts soo lange als hy de selve stant oft posture mach ghebruycken, die de Italiaensche Beelden oft Figueren hebben, sullen sijn saken wel gaen: maer soo wanneer hyse eenichsins behoest te veranderen, sal nootwendig de welstant der konste te kort doen, om dat hy de *Anatomie* ofte beroerlickheyt des levens niet en verstaet.” (Van der Gracht, *Anatomie*, fol. A2).

<sup>81</sup> This statement is followed with, “Because every situation or movement makes other muscles work. Also they never work all together, beheld straight and bowed, turning about hither and thither, and others after the same manner with different motions do not happen at one time.” [Want yder stant ofte beroerlickheyt doet andere muscuen wercken. Oock en wercken sy noyt alle te samen, aengesien rechten en buygen, herwaerts en derwaerts omdrayen, ende andere diergelijcke met den anderen strijdende beroerlickheden op eenen tijdt niet en geschieden.] (Van der Gracht, *Anatomie*, fol. A2).

<sup>82</sup> “Because he has begun to become tired, and must keep the same position with trouble [...] necessarily, this must produce a largely wrong situation in all figures, one that cannot be observed however by those that do not understand Anatomy or the working of nature. Again who would like to use the nude, without knowledge of anatomy or motion, will do the most labour on the cover of the human body, which is the skin [...] so that here is also necessary that the *welstand* of art must fall short, through those which anatomy or motion do not foundationally understand.” Italics mine. [Want soc haeft hy vermoeyt begint te worde, een met moeyt de selve stat moet houde (...) Dit moet nootwendigh een groote qualick-stant geven in alle figueren, een en kan nochtans niet waer genomen worden van de gheen, die d’*Anatomie*, ofte werckingh der natuer niet en verstaet. Wederom die ‘t naeck wilt ghebruycken, sonder kennis der *Anatomie* ofte beroerlickheyt, sal sijne meesten arbeyt doen op het kleet van ‘t menschelick lichaem, ‘t welck ‘t vel is (...) So dat hier in oock nootwendig de welstant der konste te kort moet geschiede, door de geen die de *anatomie* ofte beroerlickheyt niet grondelick en verstaet.] (Van der Gracht, *Anatomie*, fols. A2-A2v).

ability an artist cannot create a sense of movement in his works and therefore cannot replicate the appearance of life.

Working exclusively from life (*nae t' leven*) may offer greater opportunity for experimentation but Van der Gracht does not advise this method as a means of producing a *welstandig* figure. He explains that, "Others among the painters suppose it to be enough if they paint after life alone, as it stands before them; there upon only minding its *wel dragen*, that is, that the foremost comes to the front, and the hindermost behind."<sup>83</sup> Notably, Van der Gracht's description of the relationship between the foreground and background of an image echoes Van Mander's writings on the ordering of landscapes. Van Mander uses *welstandt* to explain the creation of harmony or unity between different planes of a work's composition, but in his discussion of the same element, Van der Gracht uses *wel dragen*.<sup>84</sup> In his reference to Van der Gracht's passage, Eric Jan Sluijter defines *wel dragen* as "to harmonize well" and connects this concept in Van der Gracht to the period term *houding*. Paul Taylor's analysis of this word in seventeenth-century Dutch art literature finds that *houding* addressed the balance of color, light, and shade to create a plausible suggestion of space on a two-dimensional surface. Notably, he finds that *houding* is often used in conjunction with

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<sup>83</sup> "Ten lesten, andere onder de Schilders meynen genoech te wesen, indien sy alleen nae 't leven schildere, so alst haer voorstaet; daer op alleenlick lettende, dat sy sich wel dragen, dat is dat het voorste wel voorkomt, en d'achterste wel geschiet." (Van der Gracht, *Anatomie*, fol. A2); Eric Jan Sluijter translates the last lines as, "what is in front comes to the fore and what is behind recedes toward the back," which has informed my translation (Eric Jan Sluijter, *Rembrandt and the Female Nude* [Amsterdam: Amsterdam University Press, 2006], 211).

<sup>84</sup> "Now it is necessary that I promote that which will add strength to our harmony [*welstandt*]; namely that one should strongly couple together all grounds from the foreground back. Just as in Neptune's kingdom the waves all roll into each other so must one allow the grounds to meander along, and not stack up one behind the other." Honig et al. trans. [Nu moet ick nootlijck een dinghen vermonden / T'welck crachtich onsen welstandt sal verstercken / Dats datmen van vooren aen al de gronden / Vast sal maken aen malcander ghebonden.] (Van Mander, *Den Grondt*, 8:20).



*welstandt*, which he interprets as conveying the solidity, or force, of the figure.<sup>85</sup> Working with these definitions, *wel dragen* and *welstandt* can be viewed as mutually supporting concepts that address the portrayal of the body so that it evokes a natural appearance and is regarded as inhabiting space.<sup>86</sup>

However, Van der Gracht's comparison of working after ancient statues or the living model makes evident a distinction between the concepts of *wel dragen* and *welstandt*, particularly concerning the representation of bodies. Van der Gracht acknowledges that artists who copy after antique examples may be successful in their representation of *wel dragen* or the arrangement of their figures' bodies, both in their poses and in relation to other parts of the composition, but will be eluded by *welstandt*.<sup>87</sup> It is *welstandt* that is produced through anatomical study, as it informs an artist's understanding of the causal and reactionary transactions between the body's muscles and bones.<sup>88</sup> This knowledge attunes the painter to relationships that occur naturally in the living body and makes possible his ability to create these harmonious interactions in his own work, which results in convincing images that enhance the prestige and acclaim of painters. Therefore, Van der Gracht encourages his reader to study the anatomy of the body and use this knowledge as a basis in his examination of the human form in both nature and antique sculpture.<sup>89</sup>

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<sup>85</sup> Paul Taylor, "The Concept of Houding in Dutch Art Theory," *Journal of the Warburg and Courtauld Institutes*, vol. 55 (1992), 214, 219-220.

<sup>86</sup> Sluijter, *Rembrandt and the Female Nude*, 211.

<sup>87</sup> See note 80.

<sup>88</sup> "...through the dissection of the body [...] came to be all human *welstandt*." Italics mine. [...door de ontleding der lichamen, tot wetenschap sijns selfs, een aller menschilicker welstants gekomen te zijn.] (Van der Gracht, *Anatomie*, fol. A).

<sup>89</sup> "But the question is, how one will be able to learn, and effectuate life with understanding? One must learn Anatomy, which we demonstrate, where the muscles begin and end, how diversely they work and their representation, after the position or motion of the body." [Maer de questie is hoemen 't leven sal leeren kennen,

Acknowledging the reluctance of some artists to pursue this study, due to fear that it will produce over-worked musculature, as described by Van Mander, Van der Gracht distinguishes his recommended method from that of physicians and surgeons, tailoring it to artists.<sup>90</sup> The type of anatomical education that Van der Gracht encourages through his text is not the experienced-based investigation of the body that anatomists undertook in their dissections of cadavers in anatomy theaters. Instead, Van der Gracht has produced a text, with images, that instructs the reader in the form, function, and nomenclature of the body's muscles and bones. Commenting on the propensity of artists to work after nature alone, Van der Gracht recalls a discussion with his former patron, the Duke of Alcalà, who, "used to say that the art of painting had come to a great decline [...] because so many painters understand little *Theorie*, which is nevertheless the only fountain from which all the perfection of effects (*uytwerckinge*) must flow."<sup>91</sup> Van der Gracht recommends study of the body's parts as training for the mind of the artist, which then informs the hand and can be applied to the artist's practical experience of bodies in the round.

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ende met verstant uytwercken. D'welck de *Anatomie* moet leeren, die ons aenwijst, waer de musculen beginnen ende eynden, hoe verscheydelick datse wercken en haer vertoonen, nae de stant ofte beroerlickheit des lichaems.] (Van der Gracht, *Anatomie*, fol. A2).

<sup>90</sup> "Some think, that the knowledge of anatomy is not only unnecessary to the perfection of our art, but also oftentimes harmful; and that, because some masters, which one supposes has had experiences in anatomy, have made their muscles very hard, so that their human figures appear to have been anatomized." [Eenighe meynen, dat de wetenschap der *Anatomie* niet alleen onnoodigh is tot volmaetheyt onser konst, maer oock dickmaels schadelick: ende dat, om dat eenige Meesters, diemen meynt inde *Anatomie* ervaren gheweest te zijn, hebben veel te hart haer musculen ghemaect, soo dat hare Figueren geanatomiseerden menschen schijnen te wesen.] (Van der Gracht, *Anatomie*, fol. Av); This concern was shared by sixteenth-century Italian artists (Kornell, Monique. *Artists and the Study of Anatomy in Sixteenth-Century Italy*, Ph.D. Diss. [University of London, Warburg Institute, 1992], 42-43).

<sup>91</sup> "Hy placht te segghen, dat de Schilder-konst, by de meerderen-deel van hare Lief-hebbers, in een groot verval ghekomen was, om dat veel van het getal der Schilders weynigh de *Theorie* verstaen, daer sy nochtans is de eenige Fonteyn, uyt de welke alle de volmaetheyt der uytwerckinge moet vloeye." (Van der Gracht, *Anatomie*, fol. Av).

In his analysis of the singular use of the term *theorie* in Samuel van Hoogstraten's art treatise, Jan Blanc writes that the *Inleyding tot de Hooge Schoole der Schilderkonst* (Rotterdam, 1678) is one of the earliest examples in Dutch art literature in which the word is found.<sup>92</sup> Though it is thought to have come into use mid-century, and likely derived from French sources, the appearance of the term *Theorie* twice in the preface of the 1634 edition of the *Anatomie* provides a significantly earlier example of the application of this concept in seventeenth-century Dutch art literature.<sup>93</sup> Van der Gracht uses this term at the beginning and end of his preface, first commenting on the lack of *Theorie* among modern artists and concluding by expressing his desire to help produce good *Theorie* through this published work.<sup>94</sup> Though never defined by the author, Van der Gracht's application of this term seems to complement that found in Van Hoogstraten's treatise, despite the more than forty years that separate the two publications.<sup>95</sup>

In the *Inleyding*, Van Hoogstraten distinguishes between nature and teaching, which he parallels to practice and theory. While theory (teaching) is dependent upon practice (nature), practice can exist without theory, but is made stronger through a harmonious relationship between the two.<sup>96</sup> In his condemnation of artists who copy directly from ancient or natural

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<sup>92</sup> Jan Blanc, "Van Hoogstraten's Theory of Theory of Art," in *The Universal Art of Samuel van Hoogstraten (1627-1678): Painter, Writer and Courtier*, Thijs Weststeijn ed. (Amsterdam: Amsterdam University Press, 2013), 35.

<sup>93</sup> Blanc, "Van Hoogstraten's Theory," 40-41; Jan Emmens, *Rembrandt en de regels van de kunst* (Amsterdam: G.A. Van Ooschot, 1979), 181-183.

<sup>94</sup> See notes 91 and 97.

<sup>95</sup> Several similarities are shared between Van der Gracht and Van Hoogstraten, and it is clear that Van Hoogstraten was familiar with the *Anatomie*, though he dismisses it in his discussion of the anatomical body.

<sup>96</sup> "But as regards replying to this question, whether art has greater need of nature, or of education, it should be understood: that nature without education can do much: and that on the other hand, education without any help from nature is idle and in vain. [margin: Nature and training compared with each other,] But when mediocre natural gifts are helped by education, nature appears to improve, and becomes more

models, without understanding the structure that informs these examples, Van der Gracht's text follows a similar logic – the artist must support his work through prior learning, which will serve as a tool in understanding and representing the natural world. In essence, he encourages his contemporaries to revive the method that he identifies in the works of antiquity, which depends on a theoretical understanding of the body's physiology brought to an artist's practical training. This can elevate modern works to the levels reached by their predecessors, and to serve this aim, Van der Gracht has,

...reviewed with great earnestness, the figures and images [of anatomists], which demonstrate all the bones, muscles, fibers, sinews, and other parts of the body, and have learned the movements of the same, and henceforth unite this knowledge with my pencil with good *Theorie*, so much as I want to serve nature, to endeavor after a more sure and capable effect (*uytwerckinge*) of all *welstant* and perfection of the human body.<sup>97</sup>

Having seemingly adopted this method himself, Van der Gracht now avails it to his reader through folio-sized images, on which the parts of the body are labeled and correspond to facing explanatory registers. Through these visual resources, his reader could learn the name and location of the body's parts, and their relation to one another, while a basic account of

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productive, as it acquires understanding [...] This same difference is also discussed under the names of Theory and practice {Theory en practijk}. Whenever one asks, whether art is assisted more by education, or by experience? Then we reply, that education without experience is in vain. And although experience without education sometimes promises something, that art can rise to no kind of perfection unless one practices steadily, guided by the unfailing rules of learning.” [Maer om deze vraege, of de konst grooter baet van de natuur, of van de leeringe heeft, te beantwoorden, zoo is te weten: dat de natuur zonder de leeringe veel vermacht: en dat in tegendeel, de leeringe zonder eenige hulpe van de natuur, ydel en te vergeefs is. Maer wanneer middelmatige gaven der nature door leeringe geholpen worden, zoo schijnt de natuur zicht te beteren, en geeft meer uit, als't verstand begrijpt (...) Dit zelve verschil wort ook gedongen onder de naemen van Theory en practijk. Wanneer men vraegt, of de konst meest door de leeringe, dan of door de oeffeninge geholpen wort? Waer op wy antwoorden, dat de leeringe zonder de oeffeninge nietich is. En schoon de oeffeninge zonder de leeringe somtijts wel iets belooft, dat de konst tot geenderley volmaektheit kan rijzen, ten zy men die gestaedich oeffene, en nae de ofeylbaere regels der leere bestiere.] (Samuel van Hoogstraten, *Inleyding tot de Hooge Schoole der Schilderkonst: Anders de Zichtbaere Werelt* [Rotterdam: François van Hoogstraten, 1678] trans. Charles Ford [University College London, 1999-2016] <<http://www.ucl.ac.uk/grondt/Inleyding>> [9 June 2015], “Aen de Lezers en Liefhebbers,” 16).

<sup>97</sup> “Oock de figure een beelde, die alle de beendere, musculen, fibren, senuen en aderen des lichaems aenwijzen, en de bewegelikheden des self leere, hebbe met groote ernst dickwils oversien, om voortaan dese wetenschap met mijn pinseel te vereenige, en met goede *Theorie*, so veel my de natuer dienen wilt, naer een seeckerder en bequamer uytwerckinge van alle *welstant* een volmaektheit des menschelicke lichaems te trachte.” (Van der Gracht, *Anatomie*, fol. A2v).

each part's function was included in passages of text borrowed from Du Laurens, Cabrol, and Vesalius. Using these visual and textual means, Van der Gracht provides his reader with the *Theorie* necessary to produce the desirable *welstandig* figure.

#### iv. The Anatomical Origins of Van der Gracht's Plates

Analysis of the sources upon which Van der Gracht drew, provides important insight into the ways in which his materials were altered for their new audience and the claims they were capable of making in their new context. To achieve his instructive goals, Van der Gracht turned to anatomical atlases, a genre designed to teach the structure of the body through text and image, making it well suited to artists' training. However, the origins of Van der Gracht's materials have been obscured, which has led to misunderstandings among modern historians. Since the nineteenth century, the figures found in the *Anatomie* have been viewed as originating south of the Alps.<sup>98</sup> Van der Gracht recounts that he resided in the court of "my Lord the Duke of Alcalà, former Viceroy of Naples,"<sup>99</sup> and spent several years in foreign lands. Training in his hometown of Mechelen under his brother Gommaer van der Gracht (c. 1590-1639), and Raphael Coxie (c. 1540-1616), Van der Gracht later found employment in Seville at the court of Fernando Enriquez Afán de Ribera (1583-1637), the Duke of Alcalà.<sup>100</sup> In his preface, the author alludes to learning anatomy during his travels,

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<sup>98</sup> Carel Vosmaer, *Over kunst: schetsen en studiën* (Leiden: Sijthoff, 1882), 231; F. M. G. De Feyfer, "Die Schriften des Andreas Vesalius," *Janus* 8 (1914), 436-437; G. Wolf-Heidegger and Anna Maria Cetto, *Die anatomische Sektion in bildlicher Darstellung* (Basel; New York: Karger, 1967), 247; Monique Kornell, "The Study of the Human Machine: Books of Anatomy for Artist," in Mimi Cazort, Monique Kornell, and K. B. Roberts eds., *The Ingenious Machine of Nature: Four Centuries of Art and Anatomy*, exh. cat. (Ottawa: National Gallery of Canada, 1996), 56.

<sup>99</sup> "van mijn Heer den Hertogh van Alcalà, gewesen Viceroy van Napels" (Van der Gracht, *Anatomie*, fol. A1v).

<sup>100</sup> Alternative spellings of Van der Gracht's name in Spain include Jacobo Grachet or Jacome de Grachet (Celestino López Martínez, *Arquitectos, escultores y pintores vecinos de Sevilla* [Seville: Rodrigues, Giménez y C., 1928], 56); Jan Briels identifies Van der Gracht as a Catholic artist and his time working in Spain and Italy would seem to support this interpretation (Briels, *Vlaamse schilders*, 332). His only known pupil is Jan

but does not specify where or when this study took place. Archival documents place him in Seville by January 1628 and note that he was to remain in the duke's employ for six years, making it likely that he also journeyed with the court to Naples in 1629-1631.<sup>101</sup> Though he recommends travel to Italy for young artists as an opportunity to learn from ancient sculpture, he does not identify his preparatory drawings as originating from this country. Instead, this is one of several passages of the *Anatomie* that bears resemblance to the advice of Karel van Mander.<sup>102</sup>

Van der Gracht himself is partially to blame for the current interpretation of his work, as his discussion of his figures can be vague and easily misleading. He writes that some think the illustrations, “were formerly drawn by Michelangelo, others by Baccio Bandenelli (they

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Theunisz van Dyck (c. 1632-1663/1683) (Briels, *Vlaamse schilders*, 332). Notably, Van der Gracht's name does not appear in the inventories of the duke's art collection, nor is he mentioned in the account written by the duke's secretary, Pedro de Herrera (c. 1510-1589), concerning the duke's earlier trip to Italy (Jonathan Brown and Richard L. Kagan, “The Duke of Alcalá: His Collection and Its Evolution,” *The Art Bulletin*, Vol. 69, No. 2 [June, 1987], 248-255; Pedro de Herrera, “Jornada de don Fernando de Ribera Enriquez duque de Alcalá a dar la obediencia a la santidad de nuestro mui santo padre Urbino VIII por la magestad cathólica de don Phelippe Quartp rei de las Españas escrita al marqués de Tarifa,” *Archivo hispalense*, I [1886], 50-60; 92-104; 129-42).

<sup>101</sup> Van der Gracht refers to his service under “my Lord the Duke of Alcalà, former Viceroy of Naples” [van mijn Heer den Hertogh van Alcala, gewesen Viceroy van Napels] (Van der Gracht, *Anatomie*, fol. A1v), referencing Fernando Enriquez Afán de Ribera (1583-1637), who traveled from Spain to Italy in 1625-1626 and was temporarily the Viceroy of Naples from 1629-1631. Van der Gracht may have joined his retinue in any of these locations, and vaguely mentions his experience with dissection as, “Concerning this matter [anatomical study] I have been in foreign lands for more than a few years...” [Hier over hebbe my niet weynig jaren, noch buyten 's lants wesende...] (Van der Gracht, *Anatomie*, fol. A2v).

<sup>102</sup> “I must confess that in Italy the are many excellent figures to be seen, from antiquity and also from some modern masters, which are of the highest merit...” [Ik moet belijden dat in Italien veel overtreffelicke figureren, soo van *Antique*, als oock van eenige moderne Meesters te sien zijn, die wel ten hoochsten verdienen...] (Van der Gracht, *Anatomie*, fol. A2); “I should arouse you fully to journey, were I not afraid that I could set you on the wrong path. Because Rome is the city where, more than in other places, the journey of the painter is properly directed, for it is the head of the schools of painting, but it is also preeminently the place where spendthrifts and lost sons carry out their business” Honig et al. trans. [Doch ick soud' u gantsch tot reysen verwecken / Vreesd' ick niet of ghy mocht comen in dolen / Want *Room* isde Stadt / daer voor ander plecken / Der Schilders reyse haer veel toe wil strecken / Wesende het hooft der *Picturae* Scholen / maer de rechte plaetse / daer quistecolen / En verloren Sonen haer goedt doorbrenghen / T'is schromich zijn Jeucht die reyse ghehenghen.] (Karel van Mander, *Den Grondt*, 1:66).

are, after all, from a good master),”<sup>103</sup> seemingly suggesting an Italian origin for his images. However, the following clause clarifies the author’s meaning, and he explains that the illustrations, “have been described by the most renowned anatomists [...] who in Italy, France, and the Netherlands are the highest regarded,”<sup>104</sup> citing the wide dissemination, familiarity, and reputation of these works as making them suitable for the use of artists. Taken together, I read this statement as indicating that the pictorial sources for the *Anatomie* were printed anatomical texts, the reputation of which contributed to their appeal. This interpretation is supported through a close visual analysis of the *Anatomie*’s engravings, which suggests that they follow three separate printed sources, specifically the illustrations found in the anatomical atlases of Vesalius, Juan Valverde d’Amusco (c. 1525-1588), and Julius Casserius (c. 1552-1616). Presented alongside extracts from the publications of sixteenth-century anatomists, each of which remained in use and well respected in the seventeenth century, these images, with their evident debt to Vesalius, provided young artists with an informed and reputable source from which to work.

A similar strategy likely informed Van der Gracht’s association of these images with esteemed sixteenth-century Italian masters, lending the figures credibility from multiple

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<sup>103</sup> “...die eenige meynen door *Michel Angelo*, andere door *Baccio Bandenelli* wel eertijts geteyckent te wesen (zijn immers van een goet Meester)...” (Van der Gracht, *Anatomie*, fol. A2v).

<sup>104</sup> Given that this passage has been the source of confusion, I have chosen to include a more complete translation: “...so with me were resting the following figures, which some suspect were formerly done by Michel Angelo, others by Baccio Bandenelli (they are, after all, from a good master), and have been written about by the most renowned anatomists, that I thought it should not be unacceptable to all lovers of our art if I brought them to light once again, and because knowledge about the outer parts is needed by our painters and engravers and the like, explained with the writings of the forenamed authors, which are the highest regarded in Italy, France, and the Netherlands.” [...soo by my waren rustende de navolgende figuren, die eenige meynen door *Michel Angelo*, andere door *Baccio Bandenelli* wel eertijts geteyckent te wesen (zijn immers van een goet Meester) ende door de vermaerste *Anatomisten* beschreven zijn geweest, hebbe gedacht, dat het alle Liefhebbers onser Konst niet onaengenaem en soude wesen, indien ick wederom de selve in ‘t licht bracht, ende voor alsoo veel als de uytwendige gedeelten, der welcker kennis onse Schilders, Beelt-snijders en diergelijcke noodigh is, met het schrijven vande voorgemelde Autheuren, die in Italiën, Vranckrijck, Nederlandt ten hoogsten geacht worden, verklaerde.] (Van der Gracht, *Anatomie*, fol. A2v).

disciplines. Moreover, Van der Gracht's attribution of his illustrations to Italian masters can be interpreted as the acknowledgement of the authorship of these works in their original, drawn form, given that in this period Vesalius's plates were attributed to several artists, including Titian (d. 1576), Michelangelo (1475-1564), and Jan Stephan van Calcar (c.1499-1546). As such, Van der Gracht would have been justified in identifying these works by their inventor, or the draughtsman, rather than the engraver, particularly as this approach allowed him to connect these figures with famous masters.

The Vesalian images selected for the *Anatomie* also offer an illustrative example of the *welstandt* that Van der Gracht promotes in his preface. In particular, Van der Gracht identifies Michelangelo as reviving the tradition of anatomical study among artists in modern times, and returning art to the prestigious position it enjoyed in antiquity.<sup>105</sup> Therefore, the association of his Vesalian-style images with the Florentine master enhanced their suitability as models for other artists. Moreover, Vesalius's muscle men also draw on the example of antiquity. In his study of Vesalius's sixteenth-century plates, Glenn Harcourt has identified the use of classical sculpture, specifically the *Belvedere Torso* and the *Capitoline Antonius*, as providing a model from which the artists of Vesalius's text worked.<sup>106</sup> Pushing this analysis further, Sachiko Kusukawa identifies Vesalius's preference for a canonical body as a tool that allowed for easy comparison with a variety of bodies and

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<sup>105</sup> “Then skillful Michelangelo Buonarroti, painter and sculptor of Florence [...] understanding the anatomy of the human body and all motion from life, has left behind notable works of his handling, namely stone figures or statues that have great resemblance with the antique, to Rome and other places are held in high esteem.” [Den verstandigen *Michiel Angelo Bonarotti*, Schilder ende Beeldthouwer van Florencen (...) de *Anatomie* des meschelicken lichaems, ende alle beroerlickheyt van 't leven seer wel verstaende, heeft merckelicke werken sijnder handelinge, namelick van steenen Figueren ofte statue nagelaten, die met de *Anticque* tot Roome ende andere plaetsen in hoochste waerde gehouden, groote gelijckenis hebben.] (Van der Gracht, *Anatomie*, fol. Av).

<sup>106</sup> Glenn Harcourt, “Andreas Vesalius and the anatomy of antique sculpture,” *Representations*, 17 (1987), 30, 42, 44.



served to legitimize the claims of the anatomist.<sup>107</sup> In selecting this style of illustration, Van der Gracht provides models that reference the sculptures of the ancients and works of respectable sixteenth-century Italian masters, while allying his publication with the reputation of Vesalius. Through these efforts he distinguishes his work from other drawing books or art treatises and confirms its foundation in anatomical knowledge.

Van der Gracht's use of these renowned and respected anatomical resources was not necessarily a foregone conclusion for a publication directed towards artists and art lovers. Earlier drawing books, model books, and art-theoretical treatises, including those of Philip Galle (Antwerp, 1589), Jean Cousin (Paris, 1595), Peter Feddes van Harlingen (1611-16), and Peter de Jode (Antwerp, 1629), also include *écorché* figures – but Van der Gracht does not borrow from these authors. Similarly, seventeenth-century anatomical atlases, such as Julius Casserius's *Tabulae Anatomicae* (Venice, 1627), include flayed figures that are distinct from the Vesalian tradition, yet Van der Gracht only selects plates of the hand, foot, and skeleton from this seventeenth-century source. In the preface of his text, the Dutch artist-author also states that he had performed dissections on the human body himself, suggesting implicitly that his text would better serve the reader because of these first-hand observations.<sup>108</sup> It is therefore conceivable that he could have produced his own drawings for the use of artists based on these experiences. However, Van der Gracht's decision to

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<sup>107</sup> Sachiko Kusakawa, "The Uses of Pictures in the Formation of Learned Knowledge: The Cases of Leonhard Fuchs and Andreas Vesalius," in *Transmitting Knowledge: Words, Images, and Instruments in Early Modern Europe*, Sachiko Kusakawa and Ian Maclean eds. (Oxford and New York: Oxford University Press, 2006), 85, 87, 91-92; On the ideal body and Vesalius's figures see also Catrien Santing, "Andreas Vesalius's *De Fabrica corporis humana*, depiction of the human model in word and image," *Netherlands Yearbook for History of Art/Nederlands Kunsthistorisch Jaarboek. Body and Embodiment in Netherlandish Art*, Ann-Sophie Lehmann and Herman Roodenburg eds. (Zwolle: Waanders Publishers, 2008), 58-85.

<sup>108</sup> "...yes, also various bodies with my own hands dissected..." [...]jae oock verscheyden lichamen met mijn eygen handen ontledent... (Van der Gracht, *Anatomie*, fol. A2v).

copy after well-established anatomical sources suggests that this was a conscious decision, one that lent the reputation of medical practitioners and Vesalian-style images to the artist's publication.

v. **Under the Knife: Editing Text and Image for Artists**

Though based on the example of sixteenth-century anatomists, an editorial hand is at play in the prints of the *Anatomie* and their descriptions. Eleven of the *Anatomie*'s muscular plates draw on Vesalius's example and the resemblance of Van der Gracht's images to the *Fabrica* has often caused modern scholars to assume that the sixteenth-century text served as the model for the *Anatomie* in its entirety. As a result, they have suggested that slight alterations of the figures' gestures and poses in the first three myological plates are the product of the seventeenth-century engraver and author's discrepancy, or proof in support of his claim to anatomical training.<sup>109</sup> This assumption is understandable, given that the prints found in the *Anatomie* do not simply reuse Vesalius's woodcuts, but are instead copies produced by Van der Gracht and printed using copper plate engraving, resulting in several modifications. However, this does not account for inconsistencies in the first four and last two plates, which require additional investigation.

The most immediately apparent distinction is the addition of two plates of the hand and foot, which are not found in Vesalius or Valverde's texts, but originate in Julius Casserius's *Tabulae Anatomicae* (Venice, 1627) [Figs. 9-11]. Whether or not Van der Gracht drew on

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<sup>109</sup> Harvey Cushing views Figure I as a combination of Vesalius's first and third figures, and notes that Van der Gracht improved upon Vesalius's fifth and sixth muscular tables by correcting the rectus abdominis and scalenus. This information is repeated in Wolf-Heidegger and Cetto, and viewed as evidence for Van der Gracht's anatomical experience. However, Valverde's and Du Lauren's prints also include these corrections, and it is possible that Van der Gracht introduced them to his illustrations from his knowledge of these plates. Cushing also observes that several of Vesalius's mistakes are transferred to Van der Gracht's prints (Harvey Cushing, *The Bio-Bibliography of Andreas Vesalius*, 2<sup>nd</sup> ed. (Hamden and London: Archon Books, 1962), 138; Wolf-Heidegger and Cetto, *Die anatomische Sektion*, 247).

this particular source is difficult to determine, as Casserius, a teacher at the University of Padua and former student of Hieronymus Fabricius (1537-1619), produced more plates than he was able to publish during his life. Consequently, his illustrations are also found in Andrianus Spigelius's *De humani corporis fabrica libri decem*, which was published in Venice in 1627.<sup>110</sup> Combining the figures found in Casserius, in his prints addressing the hand and foot, Van der Gracht reduces the views of these subjects by half and, in this way, selects the information that he deems most valuable for his viewer. These parts of the body are frequently featured in early-modern drawing books and were important subjects for artists.<sup>111</sup> Finding his sixteenth-century sources lacking details of the hands and feet, Van der Gracht turned to the more recent publication of Casserius to supplement his figures and compensate for a detrimental absence of subject matter that other period sources deemed essential to an artist's complete education concerning the human form.

Casserius was also a likely source for Van der Gracht's two unnumbered osteological plates [Figs. 12 and 13], found at the beginning of the *Anatomie*'s series of illustrations. These animated skeletons originate in Vesalius's *Fabrica* but Van der Gracht's skeletal figures do not appear in reverse of Vesalius's tables, as is the case for other illustrations in the *Anatomie* that derive from this volume [Fig. 14 and 15]. Comparing the *Anatomie* and *Tabulae Anatomicae*, we can see that Van der Gracht's first skeletal figure appears in reverse of Casserius's first table and shows a standing, forward-facing skeleton, whose right arm rests on the handle of a shovel, likely as an allusion to Adam's labor. Casserius's

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<sup>110</sup> K.B. Roberts and J.D.W. Tomlinson, *The Fabric of the Body: European Traditions of Anatomical Illustration* (Oxford: Clarendon Press, 1992), 259-62; The artist for most of these plates is identified as Odoardo Fialetti, a pupil of Tintoretto and Jacomo Robusti. They were engraved by Francesco Valesio (Roberts and Tomlinson, *Fabric of the Body*, 263).

<sup>111</sup> Sancho Lobis, "Printed Drawing," 51-64.

skeletons closely follow Vesalius in their pose, style, and shading, and these features are replicated in the *Anatomie*.

Van der Gracht's second osteological plate is unique to the *Anatomie*, but its origins can be found in Casserius. The skeleton is depicted from behind, bent over his hands, which are clasped in front of his face. A feeling of grief lingers over this figure and is made more palpable by the addition of a second, decapitated skeleton lying on the ground, over which the first figure appears to weep; an element that is particular to Van der Gracht's image. The reclining skeleton's skull has been detached and is positioned in such a way that the viewer can see its underside. A dismantled jaw lies next to the skull and these details supply the viewer with alternative perspectives of these parts of the body. The skull and jaw are borrowed from other plates in Casserius's work, solidifying the association of Van der Gracht's osteological plates with this source [Figs. 16 and 17]. These adjustments compensate for the *Anatomie*'s exclusion of Vesalius's second skeletal table, which shows the figure from the side, contemplating a skull, the underside of which is on display [Fig. 18]. Van der Gracht's addition a second skeleton to this image allows the viewer to appreciate how these bones might appear when foreshortened and seen from above, perspectives that would have been of particular interest to artists.

Van der Gracht's osteological plates are followed by fourteen images of *écorché* figures, of which, the first two can be identified as being executed after Juan Valverde d'Amusco's images for his anatomical atlas, the *Historia de la composicion del cuerpo humano* (Rome, 1556) [Figs. 19-22].<sup>112</sup> Valverde's engravings generally follow Vesalius's

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<sup>112</sup> In his hand-written notes on the drawings in his collection, Carel Vosmaer also identifies the source for these images as Valverde's text (Rijksmuseum, item number: RP-T-1989-258-TM-289).

woodcuts, which accounts for some of the confusion concerning Van der Gracht's visual sources [Figs. 23 and 24].<sup>113</sup> However, Valverde's first, third, fifth, and sixth plates differ substantially from Vesalius's prints, and the Spanish anatomist is vocal concerning his corrections to the *Fabrica*'s tables.<sup>114</sup> Later anatomists, including Du Laurens and Ambroise Paré (c. 1510-1590), also copied Valverde's prints, but his first muscular figure is distinct to the *Historia* and its later editions [Fig. 21]. This print displays an *écorché* figure holding his own skin in his right hand and a blade in his left. Francisco Guerro has likened this figure to both Michelangelo's purported self-portrait in his Sistine Chapel *Last Judgment* (1536-1541) and images of St. Bartholomew.<sup>115</sup> It is likely that the artist responsible for Valverde's prints, the Spaniard Gaspar Becerra (1520-1570), was aware of Michelangelo's fresco, as he studied under Vasari in Rome and worked in the style of Michelangelo. This connection reinforces Van der Gracht's association of his figures with the working method of the *cinquecento* master.

In his copy of the print and throughout the *Anatomie*, Van der Gracht simplifies his exemplar. In all of his images of muscular subjects, he has reduced the number of labels and ensured that the outline of each muscle is not obscured. Veins and arteries are excluded and, although Van der Gracht follows Valverde's and Vesalius's examples in his inclusion of tendons, ligaments, and dissected muscles, these features often lack detail and do not follow his sources' careful depiction of their placements on and connections to the body. In some

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<sup>113</sup> In Antwerp, Christoffel Plantijn published the text in both Latin (1566 and 1572) and in Dutch (1568), suggesting that the text would have been widely available in the Netherlands at the time of Van der Gracht's publication. Given that Van der Gracht's text is produced in Dutch in the seventeenth-century Netherlands, I have elected to work with the Dutch edition of Valverde's text.

<sup>114</sup> Francisco Guerra, "Juan Valverde de Amusco," *Clio Medica: acta Academiae Internationalis Historiae Medicinae*, Vol. 2 (1967), 353; Roberts and Tomlinson, *Fabric of the Body*, 211.

<sup>115</sup> Guerra, "Juan Valverde de Amusco," 349.

cases, these elements are even left unfinished. The figures also differ stylistically and, in particular, Van der Gracht has softened many of the heavy, dark lines that create distinctions between the muscles of Valverde's figures. Finally, he has not depicted the landscape background that is seen in Vesalius and Valverde, though shadows are included to support the illusion of three-dimensional figure, in keeping with the author's interest in *wel dragen*. The blank void behind the figure has the effect of focusing our attention on Van der Gracht's preferred subject – the body. In the case of his first muscular plate, Van der Gracht has also removed the identifying attributes of the skin and knife that are shown in Valverde's version [Fig. 19]. His figure's empty right hand appears in a similar gesture, but the flayed skin is not so easily omitted, as in Valverde's image it conceals a portion of the figure's forearm and thus obscures the appearance of these particular muscles from this angle. Presenting his flayed figure's left arm as reaching beyond the edge of the plate, Van der Gracht does not attempt to complete Valverde's figure, but simply conceals this portion of the body from view. With this change, we begin to see how Van der Gracht both relied on the example of anatomical prints and simultaneously placed restrictions on the knowledge made available to his audience.

Valverde's second table follows the example provided by Vesalius more closely, and shows a flayed figure from the side, in mid-step with his arm outstretched [Fig. 22]. In choosing Valverde's version as his primary source, Van der Gracht's copy after this image returns the figure to his orientation as seen in Vesalius [Figs. 20 and 24]. Certain details that distinguish Valverde's treatment of this figure from that of Vesalius are also shared in Van der Gracht's representation and reinforce the relationship between the *Anatomia* and *Historia*. In particular, muscular groups surrounding the figure's eye and mouth in

Valverde's table are not included in the *Fabrica* and Van der Gracht's presentation of these features aligns him with Valverde. In other cases, Van der Gracht appears to have misinterpreted his exemplar. For example, he divides the large muscle on the back of Valverde's figure's neck into two separate muscles, likely in response to the vertical shading used by Valverde's artist. The description of this muscle as a singular entity in Valverde's register helps to identify Van der Gracht's error, while the absence of a complementary label in the seventeenth-century image indicates the lack of emphasis awarded to this feature. Other omissions, most notably, the removal of the right arm in Van der Gracht's illustration and with it the knowledge of the inner forearm, also indicate the distinct concerns of the *Anatomie*'s author. Unlike their counterparts in anatomical atlases, which feature more details and are accompanied by a greater level of explanation and description, Van der Gracht's simplified images provide a basic explanation to support an artist's understanding of the body's movements.

Describing his first two plates in the second book of the *Fabrica*, Vesalius identifies these images as best suiting the needs of artists, making Van der Gracht's decision to select from another source particularly striking.<sup>116</sup> However, in his explanation of his images, Valverde writes that he has improved on the model provided by Vesalius, clarifying his representation of the muscles to better convey each member's function. In part, Valverde achieves this through the removal of a "smooth skin" or "fleshy membrane" that he notes

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<sup>116</sup> In the introduction to his first myological table, Vesalius writes, "it had been our intention to leave this table and the next one free of characters to avoid having them look cluttered. Since the third is essentially the first that we prepared for instruction, this one (like the one that follows) presents nothing to the eyes that we have not seen learned artists and sculptors regularly emphasize in muscular, so to speak 'square-built' men." (Andreas Vesalius, *De humani corporis fabrica libri septem: The Fabric of the Human Body: An Annotated Translation of the 1543 and 1555 Editions*, D.H. Garrison and M.H. Hast eds. and trans. (Basel: Karger, 2014), vol. 1, 337 [fol. 171]).

obscures the body's musculature from view. In his description of his first figure, Valverde writes, "This first Table represents the figure of a man, whose skin, fat and veins, and the whole fleshy membrane has been removed [...] the reader will be warned that this figure is different from the figure of Vesalius, and how clearly the shadowing shows the fibers of the flesh and how each muscle operates."<sup>117</sup> This is followed by a discussion of the neck muscles, in which the author advises, "But one must note, that this muscle for the most part does not have the same breadth, as that which Vesalius gives in the 3<sup>rd</sup> Table of the muscles" and that he has shown it, "without the intervention of the fleshy membrane, which we have cut because we want the muscle to be free."<sup>118</sup> Similar comments are made concerning Valverde's depiction of the thigh in his second muscular figure, in which the membrane seen in the *Fabrica* has also been cut and hangs to the side, revealing the muscular structure underneath.<sup>119</sup> In his discussion of the living model, Van der Gracht identifies the skin as obscuring the viewer's knowledge of anatomy, and it is likely that this perception extended to the "fleshy membrane".<sup>120</sup> We might conclude, therefore, that the ease with which the muscles can be seen informed the Dutch artist's selection of anatomical models. However,

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<sup>117</sup> "Dese eerste Tafel representeert de figure van een man, wien dat af gestrocken sijn, t'vel met sijn smout ende aders, en de geheele vleesachtige membrane [...] Maer den Leser sal ghewaerschouwet wesen, dat dese Figure verschillet met de Figure van Vesalius, en dat in dese, de streken vande saselingen oft fibren des vleeschs, hoe dat yeghelijck gheuoecht werden in haerlieder musclen, claelijcker ghehoont werdt." (Juan Valverde d'Amusco, *Anatomie oft Levende beelden vande deelen des meschelicken lichaems* (Antwerp: Christoffel Plantijn, 1568), 17); Guerra, "Juan Valverde de Amusco," 353.

<sup>118</sup> "Maer men moet noteren, dat dese muscle de meestendeel niet en heeft de selue breedte, die haer Vesalius geeft inde derde Tafel van de musclen [...] sonder tusschen comen van een vleeschachtighe membrane, de welcke wy hier af ghesneden hebben, om dat wy souden de musclen vry laten." (Valverde, *Anatomie*, 17).

<sup>119</sup> "This figure [...] differs from the table of Vesalius, that in this view the muscles are seen, and that the 'smooth skin' or membrane of the sixth muscle is removed from the leg, because the muscles can be seen better." [Dese Figure (...) verschiltse van de tafel van Vesalius, dat in dese gesien werden de musclen des aensichts, en dattet velleken oft membrane vande seste muscle van die t'been roeren afgetrocken is, om dat de musclen te beter souden mogen gesien werden.] (Valverde, *Anatomie*, 19).

<sup>120</sup> See note 82.



in Valverde's illustrations, the membrane remains attached to the body, recording its location, and is shown peeling away from the muscles, a feature that Van der Gracht does not replicate in his versions of Valverde's prints.

Moreover, Van der Gracht also removes this element in his treatment of Vesalius's plates. The *Anatomie*'s third myological figure is a copy after Vesalius's first table of the muscles, ensuring that the image that Vesalius marked as the most useful for artists is included in this later publication [Figs. 25 and 26].<sup>121</sup> Vesalius's version of this image includes cross-hatching and closely spaced fine lines, which the wood-cutter has used to describe the play of light and shadow, and therein suggest the shape, texture, and volume of the muscles. These structures are overlaid by more freely flowing and crisply rendered lines that serve to indicate the "fleshy membrane" that covers the muscles, and it is also represented by the peeling layer on the *écorché* figure's legs. In the *Anatomie* this anatomical fabric is absent and, given that the copperplate engraving used by Van der Gracht often allows for finer details than the woodcuts used by Vesalius, these omissions may be interpreted as a conscious decision and suggest that Van der Gracht desired a clearer representation of the body's structure. However, this element is discussed in the passages of text taken from Vesalius, which signals a discord between text and image in the seventeenth-century publication as a result of its author's alterations.

This inharmonious relationship continues in the tables that explain the structure of Van der Gracht's figures, despite the author's comment that he finds Vesalius's registers confusing, and has endeavored to clarify them for his reader.<sup>122</sup> Van der Gracht's statement

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<sup>121</sup> See note 117.

<sup>122</sup> "Andreas Vesalius, although he has figures, and his *Epitome* is translated into Dutch, is no less difficult to understand [...] and it is difficult to search the registers." [*Andreas Vesalius, hoe wel hy figueren*

is intriguing, as the meticulous organization of Vesalius's text, and his diligence in the preparation of his images, is expressed by the anatomist himself and is repeatedly noted by modern scholars.<sup>123</sup> In his letter to his publisher Johannes Oporinus (1507-1568), Vesalius records the care taken with his images, enclosing printed proofs of each plate to ensure that no details are lost, and describing the precise placement of images within the text.<sup>124</sup> Though Van der Gracht finds it difficult to work between text and image following Vesalius's system of characters and symbols in the margins of the *Fabrica*, Vesalius writes that this is intended to avoid disruption of his written description and follows the standard practices of printing houses.<sup>125</sup> These sentiments are also found in Vesalius's preface, which includes comments on the usefulness of images to anatomical study and the anatomist's concerns regarding the faithful translation of information from woodblock to printed image.<sup>126</sup> However, Van der Gracht's alteration to this system draws attention to the prioritization of his aesthetic and structural interests in the body over the physiological ones of his source.

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heeft, en sijn kort verhael in 't Nederantsch overgeset is, niet te min swaerlick is om te verstaen (...) ende moeyelick valt dese inde Registers te soecken.] (Van der Gracht, *Anatomie*, fol. A2v).

<sup>123</sup> Martin Kemp, "A Drawing for the 'Fabrica': and Some Thoughts upon the Vesalius Muscle-men," *Medical History* 14, 3 (July, 1970), 280; Kusakawa, "The Uses of Pictures," 74, 87-92.

<sup>124</sup> "Between the wood blocks we have placed a printer's copy of each illustration, piece by piece, together with a printed copy of each figure on which I have written where each should be placed, lest by chance their order and arrangement cause trouble for you or your workers and they be printed out of order." (Vesalius, *Fabrica*, fol. VII, trans. in Garrison and Hast, *Fabric of the Human Body*, 11).

<sup>125</sup> "For markers to locate anatomical parts in a particular illustration, we engraved on our blocks characters in constant use in printing shops, usually beginning with capital letters, then the other [lower-case] roman letters, then small Greek letters, followed by Greek capitals which are not cognate with the roman; when all these were not enough, we used numerical figures and whatever other signs occur in ordinary type sets." (Vesalius, *Fabrica*, fol. VII, trans. in Garrison and Hast, *Fabric of the Human Body*, 11).

<sup>126</sup> "...how much pictures aid the understanding of these things and place a subject before the eyes more precisely than the most explicit language no one knows who has not had this experience in geometry and other branches of mathematics." (Vesalius, *Fabrica*, fol. \*4r[V], trans. in Garrison and Hast, *Fabric of the Human Body*, 8).

Drawing on Vesalius's system, Van der Gracht includes labels that correspond to an accompanying key, in the form of a table, to identify the parts of the body. The markings on the body, which make use of different cases of letters, numbers, and symbols, are generally ordered according to the image, moving from the figure's head to foot. However, unlike Vesalius's organization of information, the emphasis on the visual relationship between plate and table in Van der Gracht is one directional, so that the reader can move from table to image but attempting to work in the opposite order will often result in the discovery of labels without table entries. Frequently, different parts of the body are even marked by the same symbol, which presents an additional challenge when trying to navigate between the figures and textual descriptions that include corresponding characters in the margins. The introduction of a table enhances the ease of locating and naming the various muscles of the body, but its function is restricted to helping the reader identify the parts depicted, while the format allows for little description, particularly in comparison to Vesalius. In order to use this treatise as a means of learning about the anatomical body, his reader must consult the accompanying textual accounts, and it is here that the process becomes more complicated.

Preserving the selected passages of information taken from Du Laurens, Cabrol, and Vesalius as intact entities, Van der Gracht chose not to combine their contributions into a single, cohesive explanation. The result is a clear lineage for the textual contents of the *Anatomia*, but the reader must also consult and compare each section to learn about a single part of the body. In each case, the descriptions identify the motion of a particular limb or portion of the body, detailing both the individual muscles and the ways that they work together to achieve movement. While some labels are repeated in each of the three author's texts, certain passages contain additional information. In the sections taken from Vesalius,

the names of specific muscles are not consistently given and, instead, the reader must work this out with the aid of the marginal characters, the tables, and the information provided by the other authors, which complicates this task. Unfortunately, Van der Gracht does not indicate to his reader in which plate or table a particular part of the body can be found. However, he often repeats the marker for the same muscle or bone in different images, which assists the reader's understanding of the changing appearance of a specific part in different poses and from various angles, though this is not practiced consistently. Instead, the inclusion of visual markers, such as labels, registers, and explanatory passages aligns the *Anatomie* with the format and organization of anatomical atlases, further enhancing the visual similarities between the two genres, but falls short in its practical application.

Although Van der Gracht was conscientious in his selection of figures, this kind of modification changes the function of the images and speaks to Van der Gracht's distinct concerns, specifically the priority he awards to the shape and form of the body. His images subtly alter those of Vesalius and Valverde, making clear reference to the established authority of the sixteenth-century anatomist, while presenting the reader with a nuanced view of the body for the specific use of artists. Through the changes made to the illustrations and accompanying text, we can appreciate that Van der Gracht sought to focus the reader's attention on the illustrations and, from there, on more general instruction concerning the outer appearance of the human body, placing constrictions on artists' knowledge through omission. This emphasis is reinforced by the reduced number of characters and symbols in Van der Gracht's images, which exclude certain parts of the body's musculature entirely. Together, these choices of content and style result in a more clearly articulated outline of each muscle, without the clutter of unneeded or unwanted labels. Presumably, this would aid

the efforts of an artist copying after these illustrations, though it removes vital information that would be of use surgeons, despite Van der Gracht's claims to the contrary in his frontispiece and preface.

### ***C. Making the Anatomie and its Audience***

#### **vi. Preparing the *Anatomie*: The Vosmaer Manuscript**

The preceding analysis of the *Anatomie*'s contents provides evidence for the range of sources consulted by Van der Gracht and their adaptation in response to their new context. Further evidence for the preparation of the *Anatomie* is found in a set of sixteen drawings of skeletal and *écorché* figures, now held in the Rijksmuseum in Amsterdam. Currently contained in a folder of thirty-three anonymous anatomical works, I have identified these drawings as the Vosmaer Manuscript that is discussed by Harvey Cushing in his *Bio-biography of Andreas Vesalius* [Figs. 27, 30, 33, 36, 39, 42, 45, 46].<sup>127</sup> In his *Over kunst: schetsen en studiën* (1882), Carel Vosmaer writes that he had purchased a selection of anatomical drawings, which he identifies in a footnote as the originals from which Van der Gracht produced his prints. Vosmaer speculates further that Van der Gracht had obtained them during his trip to Italy, an interpretation that was likely based on the information found in the work's preface.<sup>128</sup> Citing Vosmaer, François Martin Gérard de Feyfer recounts that the drawings were purchased in 1880 and, upon Carel Vosmaer's death in 1888, were passed on to his son, Dr. Gualtherus Carel Jacob Vosmaer.<sup>129</sup> Cushing recounts that a member of the

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<sup>127</sup> Cushing, *Bio-Bibliography*, 139.

<sup>128</sup> Vosmaer, *Over kunst*, 231.

<sup>129</sup> De Feyfer, "Die Schriften des Andreas Vesalius," 36-37.

Vosmaer family exhibited the drawings in 1927 at the 6<sup>th</sup> International Congress of the History of Medicine (ICHM) at Leiden, but this is the last published reference to these works.<sup>130</sup> Until recently, it seemed that they had been lost or forgotten. In 1989, the Rijksmuseum acquired over two hundred drawings from Vosmaer's collection, a transaction that included the folder with thirty-three anonymous drawings. Comparison of the contents of this folder with the description of works on display in the 1927 ICHM catalogue shows a clear correspondence between the drawings now held in the Rijksmuseum folder and those in Vosmaer's collection that he believed to be by Van der Gracht.<sup>131</sup>

Watermark research and analysis of these drawings alongside the *Anatomie*'s engraved illustrations help us secure this connection and determine a general date and place of production for these works.<sup>132</sup> Developments in the study of watermarks, including the growing samples available through online databases and a number of relatively recent publications on Dutch materials, such as Theo and Frans Laurentius's study of the Zeeland archives, or Nancy Ash and Erik Hinterding's works on Rembrandt's prints, make this type of analysis possible.<sup>133</sup> However, given the geographic and temporal transience of paper, this

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<sup>130</sup> Cushing, *Bio-Bibliography*, 138; "Fourteen drawings from the work of J. van der Gracht: Anatomy of the outer parts of the Human body, 1634." *Catalogue d'une Collection d'Art Medico-Historique: Tableaux, Portraits, Dessins, Manuscrits, Livres Rares et Précieux, Sculptures, Médals. Exposé à l'occasion du VI<sup>e</sup> Congrès International D'Histoire de la Médecine au Musée Municipal d'Amsterdam* (21 Julliet – 1 Août 1927), 31.

<sup>131</sup> "Map met 33 Nederlandse 17de eeuwse tekeningen van skeletten en anatomische tekeningen met een beschrijving door C. Vosmaer, anonym, 1600-1699," Rijksmuseum, item number: RP-T-1989-258-TM-289 <<http://hdl.handle.net/10934/RM0001.COLLECT.369225>> [24 June 2015]

<sup>132</sup> My thanks to Dr. Erik Hinterding for his generous help and instruction in watermark analysis while I was conducting on-site research at the Rijksmuseum, and to Suzanne van den Meerendonk, Hester Kuiper, and Kate Campbell for their assistance during the preliminary stages of research.

<sup>133</sup> Theo and Frans Laurentius, *Watermarks, 1600-1650, found in the Zeeland Archives* ('t Goy-Houtent: Hes & de Graaf Publishers BV, 2007); Theo and Frans Laurentius, *Watermarks, 1650-1700, found in the Zeeland Archives* ('t Goy-Houtent: Hes & de Graaf Publishers BV, 2008); Erik Hinterding and Nancy Ash, *Rembrandt as an Etcher*, Vols. 1-3 (Ouderkerk aan den IJssel, Sound & Vision, 2006); See also, Nancy Ash,

method should be used with caution. Though it does not offer a precise means for determining the date and place of production of a work, watermarks can supply a general guide for these factors. Nevertheless, in this case, the Rijksmuseum drawings offer new evidence that allows us to reassess the narrative that currently accompanies Van der Gracht's publication, specifically Vosmaer's statement that the drawings originated in Italy.

Of the sixteen drawings held in the Rijksmuseum, fourteen sheets illustrate the muscles of the human form and can be matched with those that appear in the *Anatomie*, particularly the first three myological figures, which include the distinctive attributes and gestures of Van der Gracht's prints. Executed by the same hand, the *écorché* figures show traces of a red chalk underdrawing, overlaid with brown ink and a colored wash to distinguish flesh from bone, and their material and technical similarities identify them as a cohesive set. Matching the size of the finished engraved figures, the drawings appear in reverse of Van der Gracht's plates, making their role as preparatory works even more likely. Barring a few exceptions, the style, pose, and features of these bodies closely follow those found in Van der Gracht's printed book.

Within these fourteen sheets, eight different watermarks and countermarks are found, the majority of which are clear enough to be identified. The most common among these are the initials IHS with a Latin cross, which occupies five or six sheets of the set. Four of these are the same size, font, and location relative to the vertical chain lines, distinguishing them as the countermark to the watermark of a Strasbourg Lily that is present in three of the

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Shelley Fletcher, and J. P. Filedt Kok, *Watermarks in Rembrandt's Prints* (Washington: National Gallery of Art, 1998).

surviving drawings.<sup>134</sup> Research on the watermarks found in Rembrandt's etchings and engravings identifies this combination in multiple prints from samples in The Hague and Amsterdam, c. 1632, offering a plausible date and location for seven of the drawings.<sup>135</sup> A second discernable pair includes a Posthorn watermark and the countermark "IA", which are found in figures VII and IX. The countermark for this set does not precisely match any known example but together the watermark and countermark are comparable with other specimens from The Hague, c. 1648-1651.<sup>136</sup> While this date is later than the publication of the *Anatomie*, the nature of watermark research does not eliminate the possibility that this work was made contemporaneously to the printed plates of the Van der Gracht's book. Unfortunately, the colored wash of the drawings obscures the remaining marks, so that only partial views are possible, which are not suitable for a secure attribution.<sup>137</sup> However, identification for nine of the fourteen *écorché* figures suggests that they originate from the Netherlands during the first half of the seventeenth century, negating the popular understanding that the drawings came from Italy, which has pervaded modern scholarship on Van der Gracht's text.<sup>138</sup>

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<sup>134</sup> This particular mark features a fleur-de-lis on a shield, mounted by a crown, with the initials WR at its base.

<sup>135</sup> "UK-BML-1973.U.825" and "RU-HMP-154449", Rembrandt van Rijn, *New Testament scene*, 1632. "Watermark Database," *Dutch University Institute for Art History Florence* <http://www.wm-portal.net/niki/index.php> [22 July 2016]; See also, Hinterding and Ash, *Rembrandt as an Etcher*, IHS-A-a\_HMP-235035 and Strasbourg lily-A-WR-A'-a-a\_HMP-154449.

<sup>136</sup> Laurentius, *Watermarks, 1600-1650*, no. 688B.

<sup>137</sup> Attempts to date the period in which the wash was applied through technical analysis proved impossible, given the thinness of its application and the use of common pigments. The request for analysis was made to Idelette van Leeuwen, Head Paper Conservator at the Rijksmuseum, in the hopes that we might find support for the watermark analysis or some indication of whether the color was original to the drawings' production or a later addition, given that it may have some bearing on the drawings' status as preparatory works. I am grateful for her expertise and assistance on this matter.

<sup>138</sup> Feyfer, "Die Schriften des Andreas Vesalius," 36-38; Cushing, *Bio-Bibliography*, 138; Jules David Prown, *Art as Evidence: Writings on Art and Material Culture* (New Haven and London: Yale University



Among the thirty-three illustrations found in the Vosmaer folder, these fourteen are distinct for their reversed orientation of Van der Gracht's plates, shared media, style, and consistent hand. Together, the relatively firm attribution of the majority of the drawings to c. 1632, and their correspondence to samples from The Hague during a period in which the artist was active in the city, increases the likelihood that these works were produced in preparation for Van der Gracht's prints. However, the lack of labels, plate numbers, and the use of color make it unlikely that they were the final copies from which the plates were cut. Comparison of the drawings to the prints of Van der Gracht, Valverde, and Vesalius, reveals at least six alterations in the organization and content of the drawings, which provide examples of the draughtsman reworking his source materials and, in some cases, making further alterations before the prints were published.

At times, these changes seem to have been purely compositional. For example, the drawing that corresponds to the eighth muscular plate depicts a removed portion of the ribs and sternum next to the dissected figure's left arm. In the *Fabrica* this element rests under the figure's right hand and in the *Anatomie* it has been moved to a position below the left hand [Figs. 27-29]. Moreover, in the Rijksmuseum drawing the right arm is altered from its position across the right thigh, as it appears in Vesalius, and now extends away from the body. This adjustment prohibits the arm from obscuring the audience's view of the leg's structure and is repeated in Van der Gracht's print. A comparable change is found in the print of Van der Gracht's fourteenth figure, in which the skull that is depicted resting on a

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Press, 2001), 21; There is no indication of marks that would have been part of the process of transferring the designs to the copper plates, nor is the use of color conducive to this process. Without technical analysis it is not possible to determine when the colored wash was applied, and the date range that accompanies the identifiable watermarks is such that it is only prudent to consider the possibility that these works may have been made in the Netherlands as copies after the original drawings.

platform between the knees of the dissected figure in the *Fabrica* has been moved to the side, above a dissected foot. The skull is higher on the page and further to the right in the Rijksmuseum drawing, but the adjustment to Vesalius's arrangement distinguishes the work as an intermediary between the *Fabrica* and *Anatomie* [Figs. 30-32].

In other cases, the drawings include elements found in Vesalius that do not appear in Van der Gracht's finished plates. In the drawing that corresponds to Van der Gracht's thirteenth figure, a leg, severed at the knee is depicted as it appears in Vesalius's image, but it is excluded from Van der Gracht's print [Figs. 33-35]. Similarly, the diaphragm that is shown in the upper right corner of Vesalius's seventh myological plate is absent in both Van der Gracht's printed version and the corresponding Rijksmuseum drawing, though in this case the distinction can be attributed to the seventeenth-century author's disinterest in the body's internal organs [Figs. 36-38]. These examples support the interpretation of the drawings as transitional works between Van der Gracht and his sources. At the same time, they indicate disparities with the *Anatomie*, which signal that the artist was still trying to determine which information to include and how to present his figures on the page.

The drawings also illustrate two instances in which Van der Gracht made corrections to Vesalius's images. The sixth muscular figure of the *Anatomie* amends the sixteenth-century anatomist's depiction of the *scalenus* muscle, an observation made by Cushing [Figs. 39-41].<sup>139</sup> However, the drawing in the Vosmaer folder replicates Vesalius's print and its inaccuracies, making it likely that further adjustments were made prior to cutting Van der Gracht's plates. By the time Van der Gracht was working on his publication, these faults had already been discovered by other anatomists and corrected in reworked versions of

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<sup>139</sup> Cushing, *Bio-Bibliography*, 138. It is notable that in the register that accompanies this amended image Van der Gracht does not address the muscles of the neck, nor are they labeled in his drawing.

Vesalius's prints, including those of Valverde and Du Laurens. Given Van der Gracht's acquaintance with these authors, it is possible that he made adjustments to his illustrations that drew on these sources. A secondary example is seen in the fifth plate of the *Anatomie*, which includes a correction to Vesalius's depiction of the *rectus abdominis*. In this case the amendment is also present in the Rijksmuseum drawing, which seems to refer to Valverde's version of this feature in its depiction of the torso. In particular, the muscles shown on top of the ribcage in Vesalius's image have been removed and the lower abdominal muscles are corrected [Fig. 42-44]. Though small, these adjustments demonstrate that the works held in the Vosmaer folder are not simply a set of copies after Vesalius and Valverde. They manipulate their sources and show signs of further adjustment, some of which are included in the *Anatomie*, while other elements underwent additional changes. The drawings' inclusion of details from all three printed sources locate them between the anatomical atlases consulted by Van der Gracht and the final plates of the *Anatomie*.

The Rijksmuseum folder also contains two drawings of skeletal figures that are similar to those found in the *Anatomie*, but are more challenging to date because they do not share the same media, stylistic markers, or watermarks as the *écorché* figures. The anterior skeleton, executed in pen with ink wash over a graphite underdrawing, is almost certainly a later copy after Van der Gracht's print [Fig. 45]. The figure shares the orientation of its engraved counterpart and, unlike the other drawings found in the Rijksmuseum folder, is marked by labels and includes a corresponding explanatory table on its verso. The watermark of a Strasbourg Lily with a "4" and the initials "WR" is only partially visible and it is challenging to identify precisely. It is more linear than those found in the drawings of flayed figures and should not be considered part of this series. The red chalk drawing of the

posterior skeleton is smaller than the printed version and contains several inconsistencies when compared to the engraving, particularly in the shape of the bones [Fig. 46]. Instead, the drawing can be identified as a copy after Valverde's third skeletal figure [Fig. 47]. The drawn figure is oriented to face the same direction as the printed example, the treatment of light and shadow is comparable, and its shape and configuration are more easily reconcile. Near the hip of the osteological figure, a Five-pointed collar Foolscap watermark is visible and shares several traits with Dutch examples from the 1630s and 1640s, making it contemporaneous with the illustrations of myological figures.<sup>140</sup> Though it is unlikely that this drawing was produced as a preparatory work for the *Anatomie*, it offers additional evidence of the practice of copying after anatomical illustrations in the seventeenth-century Netherlands. Given its correspondence to the second skeletal figure, its presence in the Rijksmuseum folder is likely not an accident but may offer more insight into nineteenth-century collecting practices than Van der Gracht's preparation of the *Anatomie*.

**vii. Dissemination: The *Anatomie* in the late-17th and early-18th centuries**

A second set of drawings, now held in the Harvey Cushing/John Hay Whitney Medical Library at Yale University serve as a counterpart to the Vosmaer folder and are evidence of the continued consultation of Van der Gracht's illustrations into the eighteenth century [Fig. 48].<sup>141</sup> As the Vosmaer drawings fell out of the literature on Van der Gracht in the later twentieth century, the Yale drawings have been identified by modern art historians as the

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<sup>140</sup> Hinterding and Ash, *Rembrandt as an Etcher*, E-a-a\_HMP-235192 and E-a-b\_HSUM-Va-4683; Laurentius, *Watermarks, 1600-1650*, no. 549a.

<sup>141</sup> I am grateful to Yale University's Harvey Cushing/John Hay Whitney Medical Library for their support of my research, which I conducted as a Ferenc Gyorgyey Research Grant recipient.

preparatory works for the *Anatomie*.<sup>142</sup> However, the formal properties of the drawings and watermark research contradict this assessment. The manuscript, which was purchased by Cushing in 1927, contains a handwritten copy of Van der Gracht's address to the reader, description of the bones taken from André du Laurens, a portion of the text on the description of the muscles that follows, and the registers that explain the labels in the accompanying illustrations. The skeletal and muscular figures are depicted in black and red chalk, and this contrast aids the viewer in understanding the relationship between the muscles and bones. In his analysis of the drawings, Cushing notes that together, the use of color, which is not easily translated to the printed medium, the inclusion of text on the back of the drawings and the larger scale of the figures, prevented these draughts from being considered as the final templates for the engraved plates.<sup>143</sup> Believing the drawings to have been part of the preparatory process for the published text, Cushing excuses the inclusion of the registers on the backs of the drawings, and attributes them to a prior owner of the manuscript. However, Cushing does not seem to be entirely convinced by his own conclusion and acknowledges that, "The paper, however, in the original seven leaves of text bears the same watermarks as that on which the drawings are made. It would be interesting to know the date and place of this paper,"<sup>144</sup> though he does not seem to have had the opportunity to pursue this line of inquiry.

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<sup>142</sup> Cushing believed this manuscript to be the preparatory drawings for the *Anatomie* and Prown repeats this assertion (Cushing, *Bio-Bibliography*, 138; Prown, *Art as Evidence*, 21).

<sup>143</sup> Each of the figures in the Cushing MS is approximately four centimeters taller than its engraved counterpart.

<sup>144</sup> Cushing, *Bio-Bibliography*, 138.

Fortunately, Cushing's suggestion offers a more straightforward course of investigation than the case of the Rijksmuseum drawings. A clear Strasbourg Bend watermark and the countermark "IV" are found in alternating leaves of the twenty-two pages of the Yale manuscript.<sup>145</sup> The design of the watermark and countermark, their sizes, and placement in relation to the chain lines are comparable to that of the paper maker Jean Villedary (1668-1758) and, based on samples found in London and Amsterdam, date to the first quarter of the eighteenth-century, likely between 1718 and 1722.<sup>146</sup> The consistent appearance of these watermarks in the sheets that bear writing, and those occupied by anatomical figures, increases the probability that the work was produced at one time as a coherent whole. Moreover, the elegant cursive script in brown ink is the product of the same hand throughout the manuscript, confirming the concurrent execution of text and image.

Furthermore, the rough date of the watermarks to the first quarter of the eighteenth century complements the visual evidence found in the drawings. Carefully following Van der Gracht's illustrations, the Yale figures share the same orientation as the final prints, though they have been enlarged. Labels are also included and are often duplicated on both sides of the body, or supplemented with those found in other plates of the *Anatomie*. Made as a copy after Van der Gracht, it is possible that, at one time, the entirety of the text accompanied the illustrations, as is suggested by the surviving fragments of Du Laurens's text on the bones. As such, the Yale manuscript offers an example of a hand-copy after Van

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<sup>145</sup> Additional leaves of paper (and tissue paper) are bound between the drawings of the Cushing MS. However, the slightly smaller size, absence of watermarks in the paper, and evident water damage that is not found in the folios that include the drawings indicate that this paper was likely added during the binding process, but do not contribute to the analysis of the drawings or text found in the current manuscript.

<sup>146</sup> William Algernon Churchill, *Watermarks in paper in Holland, England, France* (Nieukoop: De Graaf, 1990), no. 437; Edward Heawood, *Watermarks: mainly of the 17<sup>th</sup> and 18<sup>th</sup> Centuries* (Hilversum: Paper Publications Society, 1950, 1969), nos. 73 and 78.

der Gracht's publication nearly one hundred years after its initial publication, while the alterations to the appearance of the figures suggests the changing expectations for and engagement with these types of materials.

A complementary eighteenth-century example of an artist copying both text and image by hand from a printed source is found in what is known as John Singelton Copley's *Anatomy Book* (c. 1756), now held in the British Museum [Fig. 49].<sup>147</sup> Regarded by modern scholars as a compilation of anatomical sources, including the illustrations of Bernardino Genga (1620-1690), Giovanni Maia Lancisi (1654-1720), and Jacob van der Gracht, which have been altered by the American artist, the sketchbook is viewed as evidence of Copley's keen study of the anatomical body.<sup>148</sup> Contradicting this assessment, comparison of the sketchbook to eighteenth-century published sources reveals that in this manuscript Copley meticulously follows the example of *An Abridgement of Anatomy taken from Titian & other the best Italian masters* (London, c. 1714-1723), which include prints made by Edward Cooper (d. 1725) and Henry Hulsberg (d. 1729), and was published by Thomas Bakewell (n.d.). As such, Copley's drawing book offers evidence of an artist copying after large-scale anatomical prints, not a cadaver, to learn about the parts of the body and their relationship to one another. By including the labels and explanatory tables for the muscles and bones, the artist actively learnt the names and functions of the body's parts and, simultaneously,

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<sup>147</sup> This specific type of engagement with anatomical images is recommended by Samuel van Hoogstraten in relation to his own anatomical images. "You would straight away grasp them, and know all the bones by heart, if you were simply to copy out the print once, and check through the names linked to the letters. And in a brief hour you will provide yourself with knowledge, which will stay with you all your life, and be of great service." [Zeeker gy zultze strax van buiten weeten, en al de beenederen kennen, zoo gy de print maer eens naeteykent, en de naemen van de bystaende letteren naeziet. Een kleyn uur kan u hier met een kennis voorzien, die u al uw leeven lang zal byblijven, en grootelijks dienen.] (Van Hoogstraten, *Inleyding*, trans. Ford, "Inleyding & Grondt," 54).

<sup>148</sup> Prown, *Art as Evidence*, 12-13.

created a reference text that could be used again throughout his career. The choice to use color in both Copley's drawing book and the Yale manuscript serves the additional function of clarifying the different elements of the body, while creating a more life-like image. A comparable choice to use color for anatomical subjects is found in Johannes Teyler's *Opus Typochromaticum* (c. 1688-1700), an album of the Dutch printmaker's copies after the works of other artists, in which he experimented with a variety of coloring techniques [Fig. 50].<sup>149</sup> Included among the mythological scenes, landscapes, and ornamental designs, are four plates borrowed from Van der Gracht's *Anatomie*, now stripped of their labels and reprinted in color.

These examples from the late seventeenth and early eighteenth centuries testify to the rich posterity enjoyed by Van der Gracht's work, even as his name was slowly disassociated from these images. The propensity to identify this style of anatomical figure with Vesalius or sixteenth-century Italian masters obscures our ability to recognize Van der Gracht's characteristic modifications to his models. Therefore, as much as these samples testify to the prevalence of Van der Gracht's prints in the first half of the seventeenth century, they also signal a transitory period at which time his name fell into disuse, the consequences of which continue to this day. With these sources we can begin to formulate an idea of early-modern readers' responses to Van der Gracht's publication and its function into the eighteenth century, particularly through the changes to the text and illustrations. In the case of the Rijksmuseum drawing of a skeleton, additional labels have been included, while in *An abridgement of anatomy*, the information that was once found in the register is now printed

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<sup>149</sup> Simon Turner, "Opus typo-chromaticum: The Colour Prints of Johannes Teyler," *Printing Colour 1400-1700: History, Techniques, Functions and Receptions*, Ad Stijnman and Elizabeth Savage eds. (Boston: Brill, 2015), 196-206; My thanks to Monique Kornell for bringing this source to my attention.



within the frame of the illustration. Cooper's reprinting and adaptation of the plates, and the drawn copies after Van der Gracht in the Cushing Manuscript, indicate the primacy awarded to the illustrations themselves as sources of knowledge.

Surviving copies of the drawing book offer additional clues of the posterity of Van der Gracht's text, its audience, and use. Published for a second time in 1660 by Hendrick de Bruyn and Quiryn Smits in Rotterdam, the later edition of the *Anatomie* includes the original illustrations, but with different font, poorer paper, and the addition of a condensed version of William Harvey's treatise on the circulation of blood. Likely cheaply produced for quick sale, surviving copies of the second edition often bear marks made by their owners, which indicate the active use of this type of text and points to the ways in which its contents were adjusted by its early-modern audience. For example, the first myological plate in a copy at Michigan University has been annotated in red chalk, the script of which can be identified as seventeenth-century Dutch, and includes the names for the muscles found in the register on the image itself [Fig. 51].<sup>150</sup> Annotations are also found in a copy held at Yale University, in which the third and ninth muscular figures have had labels and explanations added to the plate and register in a now-faded, French hand, though these additions seem to have been taken from other tables in the *Anatomie*.<sup>151</sup> Finally, pasted into a copy in the British Library are four additional printed plates that have been taken from Thomas Bartholin's *Anatomia: ex Caspari Bartholini parentis institutionibus* (The Hague, 1660) and an ink and wash drawing after Vesalius's second skeletal figure [Fig. 52].<sup>152</sup> Explanatory registers do not

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<sup>150</sup> Special Collections, Michigan University, QM 21 .G73 1660.

<sup>151</sup> Yale Medical Historical Library, 16th cent Vesalius VI.D-17.

<sup>152</sup> The British Library, General Reference Collection 544.I.11.(1.).

accompany the new illustrations and the inclusion of the additional images alone suggests that the previous owner of the text may have felt a need to supplement the views of the body – working in a manner common to print albums. This copy bears the stamp “PHL,” which Monique Kornell identifies as the collector’s mark of the Flemish artist Prosper Henry Lankrink (1628-1692) who worked in England as an assistant to Sir Peter Lely, and it is possible that he added the prints and drawing to this volume.<sup>153</sup> However, the British Library copy also bears the marks of other owners and these additions may have been the product of another individual.

Alterations to the images first adapted by Van der Gracht from anatomical atlases, and their relation to the written descriptions of the bones and muscles, raise the question of the practicality of the *Anatomie* as suitable to both artists and surgeons as professed in the work’s frontispiece and preface. However, the *Anatomie* is listed among the contents of both Herman Boerhaave (1668-1738) and Arent Cant’s (1695-1723) libraries.<sup>154</sup> Boerhaave was the professor of botany, medicine, and chemistry at the University of Leiden, and Cant was a physician in Amsterdam, who had close ties to the famed anatomist Frederik Ruysch. In the case of Cant, his collection also includes Albrecht Dürer’s *Beschrijvinge der Menschelijke Proportien* (Arnhem, 1622), Karel van Mander’s *Het leven der uyde antycke doorluchtighe schilders* (Amsterdam, 1618), Samuel van Hoogstraten’s *Inleyding tot de hooge scholle der schilderkonst* (Rotterdam, 1678), and Gerard de Lairese’s *Het Groot Schilderboek* (Amsterdam, 1707) and *Grondlegging der Teekenkonst* (Amsterdam, 1713).<sup>155</sup> Cant had an

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<sup>153</sup> Kornell, “The Study of the Human Machine,” 52.

<sup>154</sup> Samuelem Luchtman, *Bibliotheca Boerhaaviana* (Leiden: Samuel Luchtman, 1739), 9; Joan et Herm Verbeek, *Bibliotheca Cantiana* (Leiden: Joan et Herm Verbeek, 1724), 2.

<sup>155</sup> Dürer is catalogued under “Philosophici et Mathematici” while the other texts are designated as miscellaneous. (*Bibliotheca Cantiana*, 13, 36).

interest in and aptitude for drawing, as is seen in the illustrations he produced for his own publications and his assistance to Jan Wandelaar (1690/92-1759) concerning those executed for Ruysch.<sup>156</sup> The presence of Van der Gracht's text in the collections of Cant and Boerhaave may point to an attentiveness among physicians concerning the theoretical and practical concerns of artists in the presentation of the body. Alternatively, medical professionals may have recognized the *Anatomie* as a reference text on the muscles, or an abridged version of the works of three reputable sixteenth-century anatomists. As a publication in Dutch and the first of its kind for artists, this work was likely viewed as a collectable item later in the century, which contributed to a library's breadth and quality.<sup>157</sup> Van der Gracht hints at this possibility in his preface, where he states that his work is the first translation of Du Laurens into Dutch and that his images help to explicate Cabrol's text, which does not include whole figures.<sup>158</sup>

Information found in inventories and art treatises provides further evidence concerning the demographics of Van der Gracht's readership. Despite Samuel van Hoogstraten's quick dismissal of the *Anatomie* as, "show[ing] the way better for physicians, than for painters,"<sup>159</sup>

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<sup>156</sup> Luuc Kooijmans, *Death Defied: The Anatomy Lessons of Frederick Ruysch*, Dianne Webb trans. (Leiden: Brill, 2011), 398.

<sup>157</sup> My examination of sixty sales catalogues published in the later seventeenth and early eighteenth centuries in the Netherlands, which focuses on the collections of artists and medical professionals, is currently too small to make a definitive conclusion. These sources only list the texts available for sale, not the complete contents of an individual's library, and thus cannot provide reliable statistics. The use of sales catalogues from personal estates as a means of accessing the question of ownership and audience for Van der Gracht's text is helpful only to the extent that it identifies particular individuals, but this method is not indicative of the potential larger readership of the *Anatomie*.

<sup>158</sup> "I hope that my labor will be taken for the better, provided that Andreas Laurentius be for this, so I suppose, has never come forth in our Dutch language; Bartholomaeus Cabrolius has had no instructions for the whole figure." [Hoope dat mijnen arbeyt te beter ghenomen sal worden, mitsdien dat *Andreas Laurentius* voor desen, soo ick meyne, noyt in onse Nederlantsche tael uyt-gekomen en is; *Bartholomaeus Cabrolius* gheen aenwijsinge van heele figueren gehadt en heeft.] (Van der Gracht, *Anatomie*, fol. A2v).

<sup>159</sup> "Zelf van der Gracht leyt meer weegs voor heelmesters, alsvoor Schilders af." (Van Hoogstraten, *Inleyding*, trans. Ford, "Inleyding & Grondt," 52).

the text appears in the inventories of several artists, including Cornelis Dusart (1660-1704), Jacob de Wit (1695-1754), Antoni de Waardt (1689-1751), Jacob Loys, or Lois (1620-1676), and Jan de Bisschop (1620-1676).<sup>160</sup> Awareness of Van der Gracht's book in England is also suggested by William Salmon's *Polygraphice, or, The arts of drawing, engraving, etching, limning, painting, varnishing, japaning, gilding, &c.* (London, 1672), in which the author advises his reader that,

In drawing the Muscles of a human body you must have either the life or very good Patterns made either of Plaister, or drawn in pictures, enough of which are to be found in Anatomical Books; but chiefly the Book of Jacob Vander Gracht, compleated with many varieties and curiosities; from whence the alterations and changes, rising and falling, extension and contraction, and other operations of the Muscles, Arteries and particular members, are in imitation of the life excellently depicted.<sup>161</sup>

A similar recommendation is found in an English translation of Willem Goeree's *Inleyden tot d'Algemeene Teyken-konst* (Amsterdam, 1670; Robert Pricke, London, 1674).<sup>162</sup> In the early eighteenth century De Lairese also indicates his preference for this type of anatomical image over those he had produced for Govard Bidloo's *Anatomia Humani Corporis* (Amsterdam, 1685), when he recommends Van der Gracht's text in his *Grondlegginge ter Teekenkonst* (Amsterdam, 1701).<sup>163</sup> In comparison to the two known cases of medical professionals who owned Van der Gracht's text, the evidence found in art treatises,

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<sup>160</sup> Anderson, "The Library of Cornelis Dusart," 135-136; Abraham Bredius and Otto Hirschmann. *Künstler-Inventare; urkunden zur Geschichte der Holländischen kunst des XVIten, XVIIten und XVIIIten Jahrhunderts*, eight volumes (Haag: M. Nijhoff, 1915-1922), 42, 751, 1031, 1588.

<sup>161</sup> William Salmon, *Polygraphice, or, The arts of drawing, engraving, etching, limning, painting, varnishing, japaning, gilding, &c.* (London: A. & I. Churchill and I. Nicholson, 1685), 14.

<sup>162</sup> "among the rest there is one made by that understanding and well-experienced Picture-drawer, Jacob Vander Gracht with Draughts and names of the Muscles, serving all Picture-drawers, Stone-Cutters and Chyrurgions" (Willem Goeree, *An Introduction to the General Art of Drawing* [London: For Robert Pricke, 1674], 16).

<sup>163</sup> "...look sometimes in the Anatomy book of van der Gracht, you will find benefit there..." [...kyk somtyts in het Anatomie-boek van vander Gragt, daar zult gy baat by vinden...] (Gerard de Lairese, *Grondlegginge ter Teekenkonst* [Amsterdam: Willem de Coup, 1701], 57).

inventories, and extant prints and drawings indicate that the *Anatomie* was better known among early-modern artists. These records point to the active awareness of and engagement with Van der Gracht's text in both the Netherlands and abroad, from the year of its first publication to the mid-eighteenth century.

#### ***D. Conclusion***

The examples of artists and anatomists' consultation of and interactions with Van der Gracht's text, seen in the previous section, indicate the *Anatomie*'s status as an authoritative resource on the body's structure and movement in the seventeenth and eighteenth centuries. Central to this success was the author's careful choice, correction, and change to the anatomical atlases from which he borrowed his text and images. Previous accounts of Van der Gracht's work have dismissed the author's active role in compiling this resource and, consequently, obstruct our understanding of how artistic authority was constructed and enacted through publications such as the *Anatomie*. This chapter questions several of the assumptions that have previously guided research on Van der Gracht's work and reassesses its contribution to artist's aims and ambitions in the seventeenth-century Netherlands.

Perhaps most damaging to the publication's current reputation is the narrative suggested through a misinterpretation of the author's preface. This resulted in the perception of Van der Gracht as an artist-anatomist, who traveled to Italy and acquired a set of drawings, which he published upon his return to the Netherlands. However, these experiences are not apparent in the contents of the *Anatomie*, which instead speak to the author's familiarity with printed anatomical atlases. The identification of the Vosmaer Manuscript in the Rijksmuseum confirms that the drawings were produced in the Netherlands and provides

evidence for the ways in which Van der Gracht both relied upon and reformed his anatomical sources. The resulting prints and their accompanying texts are pared down versions of the originals, which have been edited to emphasize the form, shape, and appearance of the muscles and bones of the human body, distinguishing them from earlier art treatises and drawing books. This act illustrates the boundaries that were placed on the type of information deemed necessary for artists and Van der Gracht's particular interests in the creation of this book.

His preface also holds the key to interpreting the contents of his images. Herein, Van der Gracht explains that he desires modern artists to support their studies after life and antiquities with theoretical knowledge of the body's structure. This understanding should inform their depictions of resting and active figures to convey a sense of unity and grace among the body's parts. This achievement, which Van der Gracht identifies as a hallmark of paintings and sculptures from antiquity, recently realized once again in the works of Michelangelo, brings acclaim, honor, and wealth to the studious painter and his products. As exemplars, he selects Vesalian-style prints, imbued with the credibility of famous anatomists and possessing the aesthetic appeal of notable sixteenth-century Italian masters and ancient sculpture. The growing renown of anatomical study in this period only made the subject more appealing as a means of elevating an artist's practical skill with intellectual acuity. Appropriating the prestige of his sources, Van der Gracht redirected the text and images of five well-known anatomical publications to a new purpose and, through his alterations, placed them in the service of artists. As such, the *Anatomie* could act as both a reference book to be consulted and studied by painters, sculptors, and engravers, and as a promotional

work that publically pronounced the artist's possession of authoritative knowledge and his ability to produce convincing, life-like figures.

## CHAPTER TWO

### **Manipulating the Subject: Anatomical Instruction in Samuel van Hoogstraten's and Willem Goeree's Art Theoretical Treatises**

#### **i. Introduction**

In his adaptation of anatomical materials, Jacob van der Gracht (1593-1651) encouraged a new method for artists' study of the human form, which repurposed the works of physicians to suit the particular requirements of painters, engravers, and sculptors. The *Anatomie der wtterlicke deelen van het Menschelick Lichaem* (The Hague, 1634) offered more pictorial examples of flayed and skeletal figures, accompanied by a greater level of explanation than earlier works. Through text and image, Van der Gracht encouraged artists to train their minds as a foundation to their study after the living body or classical statues. Yet, following the publication of the *Anatomie*, Van der Gracht's model was not universally adopted. For example, unmarked *écorché* figures reappear in Crispijn van de Passe's *'t Light der Teken en Schilderkonst* (Amsterdam, 1643), devoid of labels or explanation. Drawing books from the mid-seventeenth century, including Abraham Bloemart's *Artis Appellae liber* (Utrecht, 1650) and Jan de Bisschop's *Paradigmata graphices variorum artificum* (The Hague, 1670) feature several muscular nudes and fragmented studies of the body, but do not provide examples of flayed or skeletal figures. It is not until the second half of the seventeenth century that both Samuel van Hoogstraten (1627-1678) and Willem Goeree (1635-1711) produced art theoretical treatises that included anatomical instruction for their readers and once again drew on the example of Vesalius's *De Humani Corporis Fabrica* (Basel, 1543).

In the publications of Van der Gracht, Van Hoogstraten, and Goeree, text and image provide their audiences with a theoretical understanding of the body and share the desire to



facilitate a sense of believable movement in representations of this subject. However, the degree to which each of these authors addresses anatomical study, and the context in which it is situated, differs from author to author. The variations found in these examples suggests that while anatomical instruction for artists followed certain standards in the seventeenth-century Netherlands, it was not standardized, and could be used in support of different ambitions. In this chapter, I argue that as anatomy became a more widely accepted and accessible subject of study for artists, writers of art literature deployed it in support of aims and ambitions that vary according to the particular interests and concerns of the author.

In the cases of Van Hoogstraten and Goeree, their practical experiences and professions contribute to the discernable differences seen in their publications. Basing his art theoretical treatise in both literary sources and his practical experience as a painter, Van Hoogstraten's *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678) offers a broad approach to painting, through which the author seeks to encompass and surpass the works of his predecessors.<sup>164</sup> Referencing Van der Gracht's example, Van Hoogstraten curtails his treatment of anatomy and endeavors to moderate the painter's anatomical training relative to other topics of significance, such as proportion. In contrast, Goeree's extensive engagement with anatomy in his self-published *Natuurlyk en Schilderkonstig Ontwerp der Menschkunde* (Amsterdam, 1683), goes well beyond the contents of the *Anatomie* or *Inleyding*, and we should view the author's display of knowledge as a product of his occupation as a publisher and book seller. In this context, anatomical subjects unite with contemporary theories of the body to communicate and reinforce Goeree's position as a man of learning. Though Van Hoogstraten and Goeree

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<sup>164</sup> Celeste Brusati, *Artifice and Illusion: The Art and Writing of Samuel van Hoogstraten* (Chicago: University of Chicago Press, 1995), 5, 8, 222-225.

differ in their treatment of this material, in each case the use of renowned printed anatomical sources provides a means of strengthening their claims to authoritative knowledge and encourage comparison between their writings and those of their predecessors.

### ***A. Inleyding tot de Hooge Schoole der Schilderkonst (1678)***

Early in his treatise, Van Hoogstraten identifies the art of painting as one of the *artes liberales* and, as such, he explains that it is ordered by a series of rules which should be learned through a progression of individual parts, a statement that has attracted the attention of art historians as the guiding principle for his work.<sup>165</sup> In his investigation of Van Hoogstraten's use of the term "regelen", Jan Blanc argues that these "rules" should be understood as flexible guiding principles but not concrete laws.<sup>166</sup> Agreeing with this interpretation, Thijs Weststeijn explains that the "rules" of painting are intimately bound to

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<sup>165</sup> "The first beginnings of art, must be learned in a certain order, so that the one does not wander lost." All trans. of Van Hoogstraten from Charles Ford, "Grondt & Inleyding: The Visible World," *University College London* (1999-2017) < <http://www.ucl.ac.uk/grondt/Inleyding> > (10 July 2017); [d'Eerst beginselen der konst, om niet verdoolt te loopen, moeten op een gewisse ordre geleert worden.] (Samuel van Hoogstraten, *Inleyding tot de Hooge Schoole der Schilderkonst: Anders de Zichtbaere Werelt* (Rotterdam, 1678), 19); Brusati understood this statement as a literal explanation of how one should approach the contents of Van Hoogstraten's work. For Brusati, the headings of the chapters, and the examples used to explain particular concepts, are secondary to the overall aim of the text to break down the art of painting into manageable steps, making the content easier to study and learn (Brusati, *Artifice and Illusion*, 223, 225); Attempting to clarify this ordering principle, Czech identifies the sequence of classrooms as creating a path for the young artist to follow through his training, with various sections building upon one another (Hans-Jörg Czech, *Im Geleit der Museen: Studien zu Samuel van Hoogstratens Maleretraktat Inleyding tot de hooge schoole der schilderkonst: anders de zichtbaere werelt [Rotterdam 1678]* [Münster; New York: Waxmann, 2002], 164-167, 175-176); In contrast, Van de Roemer cautions that attempting to ascribe a certain system to the organization of knowledge as it appears in the *Inleyding* may be contradictory to the nature of the work itself. Instead, he encourages the reader to appreciate the flexibility and versatility of the text as an approach that accommodates and makes available a wide range of information (Gijsbert van de Roemer, "Regulating the arts: Willem Goeree versus Samuel van Hoogstraten," in Erik Jorink and Bart Ramakers eds. *Nederlands Kunsthistorisch Jaarboek 2011, vol. 61: Art and Science in the Early Modern Netherlands* [Zwolle: WBooks, 2011], 190).

<sup>166</sup> Jan Blanc, *Peindre et penser la peinture au XVIIIe siècle: La théorie de l'art de Samuel van Hoogstraten* (Bern: Peter Lang, 2008), 57-58; Jan Blanc, "Van Hoogstraten's Theory of Theory of Art," in *The Universal Art of Samuel van Hoogstraten (1627-1678): Painter, Writer and Courtier*, Thijs Weststeijn ed. (Amsterdam: Amsterdam University Press, 2013), 39.

nature, which, in its changing appearance and order, serves as a model for the artist.<sup>167</sup>

Examining the structure of Franciscus Junius's (1591-1677) *De pictura veterum*

(Amsterdam, 1637), which serves as one of Van Hoogstraten's primary sources, Weststeijn

notes that it closely follows the writings of the classical orators, Cicero and Quintilian, except that the seventeenth-century author has changed the word "orator" to "painter".<sup>168</sup>

Having identified the classical foundations of Van Hoogstraten's treatise, Weststeijn proceeds to make more specific associations between the shared aims of seventeenth-century Dutch painting and rhetoric, namely the desire to persuade or convince.<sup>169</sup> Brusati, Blanc, and Weststeijn's assessments of the *Inleyding* have not included Van Hoogstraten's anatomical images, but we can interpret these plates through a lens comparable to that applied to the author's text.

The *Inleyding* includes numerous borrowings from the works of Van Hoogstraten's predecessors, likely as a means of elevating the work through association with illustrious examples, which it then sought to surpass.<sup>170</sup> This framework of *aeumulatio* informs our understanding of the role of anatomical study within the pages the *Inleyding* on several

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<sup>167</sup> Thijs Weststeijn, *The Visible World: Samuel van Hoogstraten's Art Theory and the Legitimation of Painting in the Dutch Golden Age* (Amsterdam: Amsterdam University Press, 2008), 54, 58, 66, 71-72; Brusati understood this statement as a literal explanation of how we should approach the contents of Van Hoogstraten's work. For Brusati, the headings of the chapters, and the examples used to explain particular concepts, are secondary to the overall aim of the text to breakdown the art of painting into manageable steps, making the content easier to study and learn (Brusati, *Artifice and Illusion*, 223, 225); Czech identifies the sequence of classrooms as creating a path for the young artist to follow through his training, with various sections building upon one another (Czech, *Im Geleit der Musen*, 164-167, 175-176).

<sup>168</sup> Weststeijn, *The Visible World*, 17.

<sup>169</sup> Weststeijn, *The Visible World*, 17, 27, 63-65, 67.

<sup>170</sup> Brian Vickers, *In Defense of Rhetoric* (Oxford: Oxford University Press, 1988), 33, 80, 291; Weststeijn, *The Visible World*, 29, 43; See also G.W. Pigman, "Versions of Imitation in the Renaissance," *Renaissance Quarterly*, Vol. XXXIII, No. 1 (Spring 1980), 1-32.

levels. Sharing Van der Gracht's aim to educate his reader in the physical basis of the body's movements and the coherent appearance of its parts, Van Hoogstraten includes images that follow the example of sixteenth-century anatomists as a means of enhancing the painter's training. This instruction is only one element of a larger program of education and provides the theoretical knowledge needed to avoid errors in the study of the human form. At once engaging with the contents of earlier texts and differentiating his work from their model, Van Hoogstraten places greater limitations on the materials he provides his reader and presents the *Inleyding* as a succinct substitute for those that came before.

In his comments concerning the role of proper training and education, Van Hoogstraten recommends several sources of study, including the works of early-modern masters and the ancients, but the author consistently reiterates that nature supersedes these resources.<sup>171</sup> Through time and diligent practice with this range of models, the artist can develop good judgment, which will allow him to select, combine, and move beyond the examples found in the works of others and prevent him from making mistakes.<sup>172</sup> These instructions are

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<sup>171</sup> "But as regards replying to this question, whether art has greater need of nature, or of education, it should be understood: that nature without education can do much: and that on the other hand, education without any help from nature is idle and in vain. [marg: Nature and training compared with each other,] But when mediocre natural gifts are helped by education, nature appears to improve, and becomes more productive, as it acquires understanding..." [Maer om deze vraege, of de konst grooter baet van de natuur, of van de leeringe heeft, te beantwoorden, zoo is te weten: dat de natuur zonder de leeringe veel vermacht: en dat in tegendeel, de leeringe zonder eenige hulpe van de natuur, ydel en te vergeefs is. (marg: De Natuur ende Leer tegen elkandere vergeleken) Maer wanneer middelmatige gaven der natuure door leeringe geholpen worden, soo schijnt de natuur zich te beteren, en geeft meer uit, als't verstant begrijp...] (Van Hoogstraten, *Inleyding*, 16; trans. Ford, "Grondt & Inleyding"); "For a well made painting is like a mirror of nature, in which things which do not exist, seem to exist and which tricks one in an acceptable, pleasing and praiseworthy way." [Want een volmaekte Schildery is als een spiegel van de Natuer, die de dingen, die niet en zijn, doet schijnen te zijn, en op een geoorlofde vermakelijke en prijslijke wijze bedriegt.] (Van Hoogstraten, *Inleyding*, 25; trans. Ford, "Grondt & Inleyding"); "In this investigation into nature, we have only her visible parts to take note of, for everything that in nature is visible, provides the objects of Painting and the Art of Drawing." [In deze naspeuring van de natuer, hebben wy alleen haer zichtbaer deel aen te merken, want alles wat'er in de natuer zichbaer is, moed de Schilder- en Teykenkonst ten onderwerp verstrekken] (Van Hoogstraten, *Inleyding*, 33; trans. Ford, "Grondt & Inleyding"); Blanc, *Peindre et penser*, 56.

<sup>172</sup> "For nearly every part of Nature is suitable to supply your attention, and to hone the sharpness of your eyes. They are surely bravely struggling on crutches, who constantly require the Yardstick and Compass, when

repeated throughout the treatise, and I interpret Van Hoogstraten's inclusion of anatomical models as providing his reader with an example that has been similarly chosen and integrated to provide an appropriate degree of anatomical knowledge needed for success in figural representation. After training his mind through the study of these prints, the artist could apply this knowledge to his work with living models and enhance his representation's fidelity to nature. This strategy echoes Van der Gracht's advice in his preface, but the tools Van Hoogstraten avails to his reader distinguish his approach from that of the *Anatomie*.

The thirty pages of Van Hoogstraten's treatise that are dedicated to the muscles and bones of the human form are only a small portion of a more extensive work and, within the context of the *Inleyding*, this material functions in support of Van Hoogstraten's larger program of universal study.<sup>173</sup> The text, which is presented as a kind of academy for the painter, is divided into nine *leerwinkels*, or classrooms, each dedicated to one of the ancient Muses. Departing from the traditional associations of these ancient figures, Van Hoogstraten assigns each Muse a new identity and places her in the service of the Art of Painting.<sup>174</sup> In this chapter, our attention will be devoted primarily to Van Hoogstraten's second *leerwinkel*, which is dedicated to the muse Polymnia. Though traditionally associated with hymns and sacred poetry, in this context, Van Hoogstraten identifies the muse as "The Rhetorician."

Including a discussion of anatomy, she offers instruction on the structure and function of the

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the eye, strengthened by practice, itself supplies a Compass." [Want byna ieder deel der Natuer is bequaem genoeg om deeze opletting te voeden, en de scherpte des oogs te wetten. Zy gaen waerlijck wel dapper op krukken, die gestadich den Maetstok en Passer van nooden hebben, daer het ooge, door oeffening gesterkt, zelf een Passer verstrekt.] (Van Hoogstraten, *Inleyding*, 35-36; trans. Ford, "Grondt & Inleyding").

<sup>173</sup> Brusati, *Artifice and Illusion*, 5; Weststeijn, *The Visible World*, 61, 84.

<sup>174</sup> Weststeijn, *The Visible World*, 18-19; Charles Ford, "Introduction," *Hoogstraten's Visible World: Inleyding tot de Hooge Schoole der Schilderkonst* (University College London, 1999-2016) <<http://www.ucl.ac.uk/grondt/Inleyding/Introduction>> [9 June 2015]

human figure, which Van Hoogstraten identifies as the most important subject for artists.<sup>175</sup> Given the emphasis of early-modern rhetoricians on the ability to move an audience through the expression and experience of the passions, Van Hoogstraten's selection of this title for his muse is appropriate for a classroom that addresses the proper presentation of the body.<sup>176</sup>

At the outset of his ten chapters which comprise Polymnia's *leerwinkel* Van Hoogstraten is explicit in his reasons for including this content for his reader, and explains, "Proportion will be much easier to understand, if first one knows the individual parts, and their uses."<sup>177</sup> Of these ten chapters of which *Polymnia* is comprised, four are dedicated to proportion, three to the face, two to anatomical knowledge, and the last to errors made by artists in their study and depiction of the body. Placing these topics in the service of proportion, history painting, and portrait painting, Van Hoogstraten recommends anatomy as a practical tool that can assist the painter's endeavors in his pictorial pursuits.<sup>178</sup> For this

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<sup>175</sup> "The human figure is the most important thing, on which our art is built; / Thus the young painter should learn her lessons well." [Het menschbeelt is 't voornaemst, daer onze konst op bouwt; / Dat dan de schilderjeugt haer lessen wel onthouwt.] (Van Hoogstraten, *Inleyding*, 37; trans. Ford, "Grondt & Inleyding").

<sup>176</sup> Vickers, *In Defense of Rhetoric*, 276-277.

<sup>177</sup> "De maetschiklykheit zal veel lichter zijn om te begrijpen, als men de byzonderheden, waer toe menze gebruiken wil, eert kent." (Van Hoogstraten, *Inleyding*, 52; trans. Ford, "Grondt & Inleyding").

<sup>178</sup> "Many have set about painting peoples' portraits from the life, and they have also often become so beguiled by it, that they have left the rest of art completely neglected: indeed they have fallen so shamefully, that they have not only been unable fix an arm or leg, but not even a sound shoulder onto the neck of their portraits." [Veele hebben zicht 't na 't leeven schilderen van menschentronien onderwonden, en zijn ook veeltijts daer op zoo verlekkert geworden, dat zy de rest van de konst geheel verstoft hebben: ja zoo schandich vervallen zijn, dat zy niet alleen niet een arm of been, maer zelf niet een gezonde schouder aen den hals van haere Konterfeytsels hebben kunnen vastmaken.] (Van Hoogstraten, *Inleyding*, 44; trans. Ford, "Grondt & Inleyding"); "...most of all that one correctly observes the movements of the Muscles of a figure in action, and that one places the fleshy swellings and contractions in their proper places. [marg;: And neglected.] It is not enough, that some trusting to their eyes, so delude themselves, imitating nature's fleshy and soft appearances, often producing abortions and sacks of salt on the panel: illustrious spirits have shown more prudence, and their knowledge of Muscles shines through in their works, however it is concealed." [...maer datmen in een werkend beelt voornamentlyk de beweegingen der Spieren te recht waerneeme, en de vleezige opzwellingen en inkrimpingen op zijn behoorlyke plaets stelle. (marg: En verwaerloost.) Het en is niet genoeg, dat eenigen op haer oog vertrouwende, de natuer, zoo zy waenen, vleezich en zacht navolgen, en dikwils misgeboorten en zout zakken op't panel brengen: de doorluchte geesten hebben meerder voorzichtigheit gehad, en hare kennis der Muskulen blinkt, hoe bedekt, in hare werken uit.] (Van Hoogstraten, *Inleyding*, 53; trans. Ford, "Grondt & Inleyding").

author, anatomy occupies a supporting role, but the very inclusion of this subject recognizes its validity and vitality within a larger program of an artist's education.

## ii. Anatomy in the *Visible World*

Encouraging a generalist approach for members of his profession, Van Hoogstraten touches on a range of topics but rarely dwells on any one subject in great detail; a tactic that is central to the presentation of anatomy in his treatise.<sup>179</sup> In his opening address, the author informs the reader, “that this art [of painting] comprises the whole of the *Visible World*; and that there is hardly any art or science, of which a painter can afford to be ignorant.”<sup>180</sup> It is within this spectrum that we can understand his comment that anatomy should be left “to surgeons and physicians, but my lessons reach only so far as the art of painting. I want only to teach you what it is necessary to know, what is easily learned, and what produces great benefit.”<sup>181</sup> This distinction between necessary and unnecessary knowledge pervades the chapters of the *Inleyding* and informs the author's selection of material for his reader.

For Van Hoogstraten, Van der Gracht goes too far in the amount of physiological instruction he offers, moving beyond the need of painters and into the more specified realm of medical professionals.

For who has the time or the inclination, as regards human anatomy, to work through all the writings of Vesalius, Du Laurens, or Cabrol? Van der Gracht shows the way better for physicians, than for painters. Therefore since I wish that my young painter avoids all unnecessary labor, I will show them a shorter route...<sup>182</sup>

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<sup>179</sup> Weststeijn, *The Visible World*, 71.

<sup>180</sup> “...dat deeze konst de geheele *Zichtbaere Wereld* behelsde; en dat ‘er naulijx eenige konst of weetenschap is, daer een Schilder onkundig in behoorde te zijn.” (Van Hoogstraten, “Van de Schilderkonst,” *Inleyding*, unnumbered page; trans. Ford, “Grondt & Inleyding”).

<sup>181</sup> “De Ontleedingkunde laet ik de heelmesters en geneesheeren, maer mijn lessen strekken alleen tot de Schilderkonst. Ik wil u alleen leeren ‘t geen u noodich om weten is, dat licht geleert wort, en groot voordeel toebrenghet.” (Van Hoogstraten, *Inleyding*, 52; trans. Ford, “Grondt & Inleyding”).

<sup>182</sup> “Want wie heeft tijd of lust om, aengaende de menschlijke ontleding, al de schriften van *Vezalius*, *Laurentius*, of *Kabrolius*, de deurkruipen? Zelf van der Gracht leyt meer weegs voor heelmesters, als voor

Through his critique of Van der Gracht, and the sources upon which the *Anatomie* draws, Van Hoogstraten posits a void in the existing art literature, into which the *Inleyding* can be inserted. At the same time, Van Hoogstraten's dismissal of these sources hints at his familiarity with anatomical publications and locates the author in a position of discriminating expertise, through which his images and instructions are sanctified for the young artist.

Despite Van Hoogstraten's relatively limited engagement with anatomy, its very inclusion in the *Inleyding* is notable, as the subject is absent in the publications of Karel van Mander (1548-1606) and Junius, upon whom Van Hoogstraten's treatise is otherwise based.<sup>183</sup> This change may indicate the growing acceptance and perceived necessity of this type of knowledge in the later seventeenth century and its contribution to the complete training of an artist. At the same time, the breadth of the *Inleyding* necessitated a more limited treatment of certain topics. Van Hoogstraten explains that there is simply too much to know and the painter runs the risk of entering a "maze".<sup>184</sup> To mediate the overwhelming breadth of information, Van Hoogstraten often focuses on subjects he deems most important, but does not always explain them for his reader. Instead, he identifies key sources

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Schilders af. Daerom wil ik mijn Schilderjeugt van allen onnoodigen arbeyt onslaen, haer een korten wech wijzen..." (Van Hoogstraten, *Inleyding*, 52; trans. Ford, "Grondt & Inleyding").

<sup>183</sup> On Hoogstraten's sources, see: Brusati, *Artifice and Illusion*, 5-6, 221; Czech, *Im Geleit der Musen*, i \*1-\*149; Jan Blanc, "Book Review: Im Geleit Musen." *Simiolus: Netherlands Quarterly for the History of Art*, Vol. 29, No. ¾ (2002), 213; Jan Blanc, *Introduction à la haute école de l'art de peinture* (Genève: Librairie Droz, 2006), 29; Thijs Weststeijn, "Approaches to a Multifaceted Master," *The Universal Art of Samuel van Hoogstraten (1627-1678): Painter, Writer, and Courtier*, Thijs Weststeijn ed. (Amsterdam: Amsterdam University Press, 2013), 9; Weststeijn, *The Visible World*, 17, 28-36, 41.

<sup>184</sup> "I do not wish, O my Young Painters, to bring you into a maze, or to lead you too far astray, as has previously been done." [Ik en wil u, ô mijn Schilderjeugt, hier in geen doolhof brengen, of u te verbuiten om leyden, gelijk tot noch toe gedaen is.] (Van Hoogstraten, *Inleyding*, 52; trans. Ford, "Grondt & Inleyding"); This metaphor likely derives from Quintillian's *Institutio Oratoria* (92-94) (Vickers, *In Defense of Rhetoric*, 41).



on the topic and recommends them for further study. For example, the author concludes his seventh book, *Melpomene* with a discussion of perspective, which he distinguishes as foundational to the painter. Despite his insistence on the centrality of this skill and the prevalent role of perspectival techniques in his own painted works, Van Hoogstraten does not include any practical instruction on how an artist could achieve these desired effects. Rather, he directs his reader to the books of Albrecht Dürer (1471-1528), Hans Vredeman de Vries (1527-c. 1607), Guidobaldo del Monte (1545-1607), Samuel Marolois (1572-1627), and Girard Desargues (1591-1661).<sup>185</sup> In relation to his treatment of proportion, his treatment of anatomy is more complete, given that he provides his reader with illustrations to follow and a list of the body's muscles and bones.

In *Polymnia*, Van Hoogstraten's inclusion of two plates of the anatomical body and three featuring proportionate figures makes this *leerwinkel* the most heavily illustrated chapter in the *Inleyding*. The only other topic that is accompanied by printed images is Van Hoogstraten's discussion of light and shadow in *Melpomene* and the illustrated title pages that mark each *leerwinkel*. In contrast to Van der Gracht, images do not play a large role in Van Hoogstraten's publication. The inclusion of these visual aids, produced by the artist's own hand, indicate the perceived necessity of visual examples for success in the study of this topic. As such, these images help to define and reinforce the author's encouragement of anatomical study within specified parameters. In the cases of other subjects that necessitate illustration, such as perspective, Van Hoogstraten directs his reader to existing pictorial examples. In contrast, his approach to anatomical study suggests that he determined a need for new illustrations.

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<sup>185</sup> Van Hoogstraten, *Inleyding*, 273-276; trans. Ford, "Grondt & Inleyding".

The muscular and skeletal plates found in the *Inleyding* are the invention of the author and, although they draw on the examples of early-modern anatomists, they do not copy directly from any one source. Offering a total of three *écorché* figures, which are depicted in the traditional posterior, anterior, and profile views, and a single representation of a skeleton, the contents of Van Hoogstraten's anatomical images also complement the types of figures found in early-modern drawing books. However, the inclusion of labels, explanatory registers, and the depiction of his figures animated in a landscape setting, allies these images with the example found in anatomical atlases, particularly Vesalian figures. Making reference to both types of sources, Van Hoogstraten visually demonstrates the status of this subject. It is enough to warrant instruction, particularly in relation to the muscles, but not to the degree undertaken by Van der Gracht.

In the first plate, a skeletal figure is shown standing against a grid and reaches out his left arm to place a laurel crown on the head of a male *écorché*, alluding to the value of anatomical study [Fig. 53]. In the preface of the *Inleyding*, a verse written by Dirck van Hoogstraten (1596-1549) specifically associates a laurel crown with depicting the human body and the renown that accompanies success in figural representation,

*Here the clever BATAVIAN will teach  
From among the pick of valuable Jewels  
How to represent the Ideal Man  
And gain the Laurels  
Full of triumph, the prize of the brave.<sup>186</sup>*

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<sup>186</sup> “Here the clever BATAVIAN will teach / From among the pick of valuable Jewels / How to represent the Ideal Man/ And gain the Laurels / Full of triumph, the prize of the brave.” [Hier leert de schrandre BATAVIER / In puik van konstlijke Jeweelen / En Hemelsch Manne ons mée te delen / Zig eigenen den Lauwerier, / Vol van triomf, den prijs van braven.] (D. v. Hoogstraten, “Preface”, in Van Hoogstraten, *Inleyding*, \*\*2; trans. Ford, “Grondt & Inleyding”).

This attribute is also awarded to the figure of the artist in the title page of the *Inleyding* and is described throughout the text as synonymous with fame, honor, victory, and immortality [Fig. 54].<sup>187</sup> The interaction of the skeleton with the flayed figure in Van Hoogstraten's print conveys the connection between these structures of the body, while making an iconographic jest concerning the immortality achieved by the artist through the depiction of the "living" skeletal figure.

The recipient of the crown, a forward-facing, flayed figure in a restrained *contrapposto* pose, is depicted in a format that also makes use of the visual vocabulary of anatomical atlases. While the specific precedent for Van Hoogstraten's selection of figures as a whole is not known, the poses of the anterior and posterior flayed figures likely derive ultimately from those found in Juan Valverde d'Amusco's *Historia de la composicion del cuerpo humano* (Rome, 1560). These images were reprinted in several sixteenth- and seventeenth-century anatomical publications, including Jacques Guillemieu's *De Fransoysche chirurgie* (Dordrecht, 1598), Helkiah Crooke's *Micocosmographia* (London, 1615), Stephanus Michael Spacherus's *D'Ontleding des Kleyne Werelds* (Amsterdam, 1634), and Andreas du Lauren's *Anatomia Humani Corporis* (Paris, 1600), the only work Van Hoogstraten recommends [Fig. 55].<sup>188</sup> Although these figures share one frame in Valverde's plate, Van

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<sup>187</sup> "Urania prepares Laurels for him, so that with them he may / Be crowned in Fame's court, to live eternally." [Urania bereyt hem Lauwren, om daer meê / Bekranst in Famaes hof onsterfelijk te leeven.] (Van Hoogstraten, "Description of the title print," *Inleyding*, unnumbered page; trans. Ford, "Grondt & Inleyding"); "...you shall show us the way to honour and praise, and stand ready, for those, who have climbed the lofty stair of art, to grant your crown of Laurels." [...den wech tot eer en prijs baenen, en gereet staen, om de geene, die een hoogen trap der konst beklimmen, met uwen Lauwerhoedt te beschenken.] (Van Hoogstraten, *Inleyding*, 69; trans. Ford, "Grondt & Inleyding").

<sup>188</sup> "For we only teach the most important necessities: whosoever wants more, should set about helping themselves. For this you will find André Du Laurens most useful of all." [Want wy leeren alleen wat ten hoogsten noodich is: die meer begeert, zal wel te recht raken. Maer voornamentlijk kan u *Andreas Laurentius* hier toe dienstig zijn] (Van Hoogstraten, *Inleyding*, 56; trans. Ford, "Grondt & Inleyding").

Hoogstraten allocates them to separate images, making their association with any specific anatomical text less evident. However, the poses of these figures encourage comparison between the sixteenth and seventeenth-century illustrations; specifically, the bent elbow of the forward-facing figure's left arm (Plate A, figure 2), juxtaposed with his right arm that reaches out and turns the figure's palm towards the viewer. Moreover, both figures turn their head to the right, presenting a three-quarter view of the face. The combination of this figure with his counterpart seen from the rear (Plate B, figure 4), supports the association of Van Hoogstraten's plates with those found in Valverde's text [Fig. 56]. In both cases the posterior figure raises one arm, which is bent at the elbow so that his hand is just above his head, while the other arm is held out beside the body, fingers outstretched. The turn of each figure's head to the right also connects the two images.

The frequency with which Valverde's plates were reproduced in early-modern sources and the prevalence of these publications in the catalogues of private libraries, makes it more probable that these figures would be recognizable to a learned audience in the second half of the seventeenth century. However, Van Hoogstraten adjusts the contents of these images to make them more suitable as models for painters. Most notably, he removes the webs of veins and arteries that cover the figures' bodies in Valverde's images, as this information presumably offered little to an artist's study. The figures are disassociated further from their original anatomical context through the addition of hair and individualized facial features. In contrast, Valverde uses his images to illustrate the musculature of the head, a subject that is not addressed in the *Inleyding*. The hands and feet of Van Hoogstraten's figures also remain intact, preserving the parts of the body that were considered to be among the most challenging for artists.

Supplementing the frontal and rear views of the muscular body, a figure shown in profile shares the second plate with the posterior model and performs a role akin to that of Vesalius's and Van der Gracht's second muscular table. However, an anatomical precedent for the pose of Van Hoogstraten's figure is yet to be identified and, while he shares certain features with plates found in Julius Casserius's anatomical atlas, he may have been an invention of the artist [Fig. 57]. Depicted on the banks of a river, with a Dutch town across the water and a small boat filled with figures who look up at rain that descends from impressive, billowing clouds above, the combination of figures and their distinct poses encourage a narrative interpretation of the scene, particularly in comparison to depictions of bathers [Fig. 58].<sup>189</sup> The figure's pose and thin, non-academic body are also reminiscent of the figural studies done from life by Rembrandt and his circle in the 1640s [Fig. 59].<sup>190</sup> These additional associations help to distinguish Van Hoogstraten's plates from the anatomical model, producing a visual aid that reinforces the author's advice to study from nature, rather than repeating classical forms. At the same time, this combination of visual references locates these plates between recognizable pictorial types and the familiar format of the anatomical atlas.

As much as he relies on anatomical knowledge to support the information contained in his discussion of the body, Van Hoogstraten is careful to distinguish the information provided in his text from that of anatomists. His are "bloodless anatomies [...] and remain

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<sup>189</sup> Stephanie Dickey, "Rembrandt's 'Little Swimmers' in Context," *Midwestern Arcadia: A Festschrift in Honor of Alison Kettering* (Northfield: Carleton College, 2014), 44-56. <<https://apps.carleton.edu/kettering/dickey/>> [10 October 2015]

<sup>190</sup> Alison M. Kettering, "Rembrandt and the Male Nude," in *Aemulatio: Imitation, Emulation and Invention in Netherlandish art from 1500 to 1800: Essays in honor of Eric Jan Sluijter*, Anton W. Bosch et al. eds. (Zwolle: Waanders Publishers, 2011), 248-262; In particular, Samuel van Hoogstraten, *Standing Male Nude*, c. 1646, Paris, Musée du Louvre, Département des Arts graphiques, RF 4713.

within the purely artistic physiology, neither cutting nor flaying.”<sup>191</sup> This comment is striking, given that the illustrations included in early-modern anatomical atlases are notable for the absence of blood depicted, which suggests that this statement may refer to the practice of dissection, rather than representations of the anatomized body in general. However, Van Hoogstraten distinguishes his work from these models by excluding the deeper layers of muscular tissue and structures of the body’s internal systems from his account, focusing on what could be seen through the skin’s surface. This selection of materials and explanations for their use distinguishes Van Hoogstraten from Van der Gracht and indicates the privilege that the later artist awarded to aspects of the human body that would be represented most often in *kunstprenten* and paintings. Within the pages of the *Inleyding*, the information conveyed through illustrations and the author’s comments function to simultaneously allude to the body of knowledge accessed by Van Hoogstraten and locate his discussion of the subject firmly within the realm of the art of painting.

### **iii. The Proportionate Figure**

In Van Hoogstraten’s written description of his anatomical prints, the author explains that the images have been included as a means of actively instructing the young artist in the names, location, and function of the muscles and bones. Offering his reader a means of memorizing these images, he encourages artists “to copy out the print once, and check through the names linked to the letters. And in a brief hour you will provide yourself with knowledge, which will stay with you all your life, and be of great service.”<sup>192</sup> Working from

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<sup>191</sup> “...ik zal u niet anders als een onbloedige ontleding voorstellen, en alleen die spieren en muscullen aenwijzen, die in ‘t beweegen der leeden, of rekken of zwellen: en blijven by de waerachtige schilderachtige spierkunde, zonder snijden of villen.” (Van Hoogstraten, *Inleyding*, 52; trans. Ford, “Grondt & Inleyding”).

<sup>192</sup> “Zeeker gy zultze strax van buiten weeten, en al de beenderen kennen, zo gy de print maer eens naeteykent, en de naemen van de bystaende letteren naeziet. Een kleyn uur kan u hier met een kennis voorzien,

this example in his mind, the artist can then bring this understanding of the body's anatomical structure to his study of live and ancient models and, eventually, to his depictions of figures. Van Hoogstraten encourages his audience to learn which muscles should be flexed when others are relaxed, and notes that this will assist the painter in perceiving subtle changes in pose as a living model tires. Offering advice similar to Van der Gracht, Van Hoogstraten aligns anatomical study with the development of good judgment, which will prevent the painter from erroneously recording these changes.<sup>193</sup> Alternatively, the painter should avoid producing figures, “as if they were dried-out stockfish, satyrs, or had so many knobbls, it seemed they were packed with onions,”<sup>194</sup> a passage that echoes

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die u al uw leeven lang zal byblijven, en grootelijks dienen.” (Van Hoogstraten, *Inleyding*, 54; trans. Ford, “Grondt & Inleyding”).

<sup>193</sup> “You will discover, that it is not enough, merely to copy a living person, as they pose in front of you: for as soon as they begin to tire, and need to hold the pose when fatigued, the muscles work wrongly, to very bad effect, so that others, who do not know and understand muscles and how they work, will not be able to manage it. But you, who understands the requisite movement, will position the moving muscles in their proper places, and conceal the wrong working with judgment.” [Gy zult bevinden, dat het niet genoeg en is, een levend mensch, zoo als hy voor u staet, slechtlyk na te volgen: want zoo haest hy vermoeyt begint te worden, en met moeyte de zelve stant moet houden, zoo doen de muskullen verkeerde werkingen, tot groote mistand, daer andere, die de kennis der muskelen en hare werkingen niet en verstaen, zich niet voor kunnen hoeden. Maer gy, die de vereyschte roeringen verstaet, zult de beweeging der muskullen op haer behoorlijke beurt waerneemen, en de verkeerde werkingen met oordeel schuwen.] (Van Hoogstraten, *Inleyding*, 56; trans. Ford, “Grondt & Inleyding”); “...pay very close attention, to the movement of the figure, draw it, before it gets fatigued, and relate the parts to each other well.” [...sla dan wel gade, wat zwier de geheele figure heeft, schets 'er uit, wijlze onvermoeyt is, en vergelijk de deelen wel tegen elkander.] (Van Hoogstraten, *Inleyding*, 64; trans. Ford, “Grondt & Inleyding”); “Because he has begun to become tired, and must keep the same position with trouble [...] necessarily, this must produce a largely wrong situation in all figures, one that cannot be observed however by those that do not understand Anatomy or the working of nature. Again who would like to use the nude, without knowledge of anatomy or motion, will do the most labour on the cover of the human body, which is the skin [...] so that here is also necessary that the *welstand* of art must fall short, through those which anatomy or motion do not foundationally understand.” Italics mine. [Want soc haeft hy vermoeyt begint te worde, en met moeyt de selve stat moet houde (...). Dit moet nootwendigh een groote qualick-stant geven in alle figueren, een en kan nochtans niet waer genomen worden van de gheen, die d' *Anatomie*, ofte werckingh der natuer niet en verstaet. Wederom die 't naeckt wilt ghebruycken, sonder kennis der *Anatomie* ofte beroerlickhey, sal sijne meesten arbeyt doen op het kleet van 't menschelick lichaem, 't welck 't vel is (...). So dat hier in oock nootwendig de welstant der konste te kort moet geschiede, door de geen die de *anatomie* ofte beroerlickhey niet grondelick en verstaet.] (Jacob van der Gracht, *Anatomie der witterlicke deelen van het menschelick lichaem* [The Hague, 1634], fol. A2-A2v).

<sup>194</sup> “...als ofze harde en uitgedroogde stokvissen, en gevilde de Satyrs waren, of wel zoo veel knobbls hadden, als ofze met ajuin waren opgevult...” (Van Hoogstraten, *Inleyding*, 52-53; trans. Ford, “Grondt & Inleyding”); In comparing the muscles to a sack of onions Van Hoogstraten uses language akin to Leonardo da

Van der Gracht's and Van Mander's comments concerning overworked muscles, which Goeree later repeats. Though Van Hoogstraten shares several of his predecessors' sentiments, his presentation of this information relegates anatomical knowledge to a position of support within the larger study of the human body, specifically in the service of portraits and proportion, which is unique to the *Inleyding*.

The network of practices that Van Hoogstraten considers anatomical study to inform is presented in the title-print for *Polymnia* [Fig. 60]. Behind the muse, who stands just right of center, a second woman is seated and having her portrait painted by an artist, while a group of men take her measurements using a yard stick and compass. At their feet is an antique bust and, in the background, we can see another group discussing a row of four sculptures, which allude to the role of classical examples in the study of the body. Behind the seated woman, five figures stand in shadow below the cartouche that bears the title for the chapter [Fig. 61]. Four of these figures are nude and present partial views of the body from different angles, though our attention is drawn to the figure that faces the viewer and raises his right arm. His pose replicates that found in Van Hoogstraten's diagrams of the body in his seventh chapter on proportion and an overlying grid pattern confirms their association. Behind the main proportional figure in the title-print, the empty eye sockets and nasal cavity of a skull are just visible. As such, the role of anatomy is not made explicit, but is included as one among several components that make up an artist's study of the human form; placed alongside the models of antiquity, the living model, and a system of proportion.

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Vinci, who refers to "a sack full of nuts" or "bundle of radishes" to describe over worked musculature. Cellini makes a similar allusion but uses the simile of gourds or melons (Monique Kornell, *Artists and the Study of Anatomy in Sixteenth-Century Italy*, Ph.D. diss. Warburg Institute, University of London, 1993], 106).



The grid that is featured in the center of the image and the pose of the figure it accompanies correspond to that seen in Van Hoogstraten's skeletal figure and his plates that illustrate the study of proportion. The seventh to ninth chapters of *Polymnia* address this subject and include three plates of multiple men, women, and children that display a range of body-types and poses [Figs. 62-64]. The variety of these figures corresponds to those found in Dürer's *Vier Bücher von Menschlicher Proportion* (Nuremberg, 1528; Latin, 1534; Dutch 1622) [Fig. 65].<sup>195</sup> Though Van Hoogstraten has adapted these images to correspond with his new system of proportion, he reveals his dependency on the sixteenth-century text through several references to Dürer's publication in his written analysis of the subject. Speaking to the German artist's work and adding his own images, Van Hoogstraten comments that while there is no one version of beauty, perfection results from harmony and symmetry among the body's various parts.<sup>196</sup> It is for this reason that the young artist must understand the rules that govern the body's ratios. Making reference to the traditional proportional division of the body into eight heads, based on Vitruvius's system, Van Hoogstraten includes a verse originally published in Van Mander's *Den Grondt*, as a succinct aid for the young artist,

*One measures, according to the old way,  
A figure eight heads tall,  
First from the crown to the chin,*

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<sup>195</sup> My thanks to Thijs Weststeijn for sharing this observation.

<sup>196</sup> "...as Dürer says: one sometimes comes across two very beautiful and attractive people, where the one has nothing in common with the other, neither in size nor in shape, and therefore it is not evident, which of the two is perfect [...] Elsewhere he said, that the parts of a figure from the head to the soles of the feet must be in harmony [...] We conclude then that the shapeliness of bodies consists, of a certain Symmetry, which the parts have among themselves, and with the whole." [...gelijk Durer zeyt; want men bevind somtijts twee menschen zeer schoon en fraey, van de welke d'eene met d'andere niets gemeen heeft, noch van maet noch van gestalte, en nochtans is 't niet openbaer, wie van beyden volmaekst is (...) Elders zeyt hy, dat de deelen van een beelt van den hoofde tot de voetsoolen moeten overeenstemmen (...) Wy besluiten dan dat de welschaepentheyt des lichaems bestaet, in een zekere *Simmetrie*, die des zelfs deelen onderling, en met het geheel hebben.] (Van Hoogstraten, *Inleyding*, 50; trans. Ford, "Grondt & Inleyding").

*Next to between the nipples,  
And thirdly to the navel,  
Fourthly to the genitals,  
Fifthly to half-way down the thigh,  
Sixthly to below the knee,  
Seventh to the shin,  
And eighthly to the end of the legs.*<sup>197</sup>

However, Van Hoogstraten deviates from the examples of Dürer and Van Mander and instead proposes a figure that is seven and a half heads tall. Perhaps finding this an awkward ratio, Van Hoogstraten replaces the unit of the head with the hand (*palm*), resulting in a body that comprises of fifteen hands. Supporting this new division through empirical evidence, the author finds that the body can be easily divided into fifteen parts, and these parts, such as the hand or foot, are also made up of fifteen joints. Offering his reader a range of smaller measurements, Van Hoostraten explains that each hand is comprised of four thumbs (*duimen*), and these in turn are broken down into ten grains (*greynen*).<sup>198</sup>

Van Hoogstraten's new system of measurement relies on information that is found in the body itself, which the author supports with anatomical knowledge in his fifth and sixth

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<sup>197</sup> “Men meet, nae d’ oude gang,/ Een beeldt acht hoofden lang, / Eerst van de kruinter kin, / Voort tusschen tepels in, / Ten dan derden in den navel, / Ten vierden tot de snavel, / Ten vijfdn halver dgie, / Ten zesten onder knie, Ten zevenst’ op de scheenen, / Ten achtsten ‘t eynd der beenen.” (Van Hoogstraten, *Inleyding*, 57; trans. Ford, “Grondt & Inleyding”); Ernst van de Wetering, “Chapter One: Towards a Reconstruction of Rembrandt’s Art Theory,” *A Corpus of Rembrandt Paintings: Small-Scale History Paintings*, Rembrandt Research Project, Vol. 5 (Dordrecht Springer, 2011), 47; Jaap Bolten, *Method and Practice: Dutch and Flemish Drawing Books, 1600-1750* (Landau: Pfälzische Verlagsanstalt, 1985), 212.

<sup>198</sup> “And first of all, a man, who we shall make seven and a half heads tall. I shall divide his total height into fifteen half-head-measures or large Hands, and also indicate the breadth of those hands at the side. I find the total of fifteen very appropriate [...] we identify each of these fifteenth parts as a Hand, which we further divide into four equal parts, that we shall call thumbs; each is as much as a sixtieth part of a figure's whole height. We divide each thumb again by ten, and call these small parts grains...” [En voor eerst van een man, die wy zeven en een half hooft lang zullen maeken. Ik zal zijn geheele lengte in vijftien halfhooftmaeten of groote *Palmen* verdeylen, en de breedte der gemelde palmen ook ter zijden uitzetten. Ik bevind het getal van vijftienen zeer bequaem (...) Wy dan, als gezeyt is, noemen yder vijftiende deel een *Palm*, die wy wederom in vier gelijke deelen deylen, die wy duimen zullen noemen; zijnde yder zoo veel als een sestichste deel van des belts geheele lengte. Yder duim deelen wy wederom in tien, en noemen die deeltjes gryn...] (Van Hoogstraten, *Inleyding*, 58; trans. Ford, “Grondt & Inleyding”).

chapters. The relationship between his anatomical and proportional models is made explicit through the shared grid that measures the skeleton and nude figures. Addressing his depiction of the skeleton, Van Hoogstraten notes that he had “measured [it] from life, it was five Rhineland feet tall, but it was probably half a foot taller, that reduction is I believe, caused by the drying out of the sinews in the spine, and which thereby shortened it by 6 thumbs.”<sup>199</sup> In documenting his first-hand study of the preserved skeleton, Van Hoogstraten bases his advice in anatomical observation, made all the more convincing through his understanding and explanation of the effects of drying on the sinews. Prior to Louis de Bils’s (1624-1671) invention of a wet preparation technique mid-century, which is discussed in the following chapter, the preservation of the body through dry methods was more typical, and bones were among the most easily and commonly preserved.<sup>200</sup> Though he does not indicate the location of his specimen or how he obtained access to it, Van Hoogstraten’s claim to have studied the skeleton from life makes use of a well-worn strategy for conveying expertise. At the same time, this comment lends credibility to his system of proportion and the information contained in his printed skeletal figure.

Basing the *Inleyding* on the writings of respected artists and anatomists, Van Hoogstraten distinguishes his work from that of his predecessors. Dürer does not make reference to the anatomical body in his study of proportions, and Van der Gracht does not provide instruction on the topic of proportion in the *Anatomie*. Moreover, these subjects are

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<sup>199</sup> “Ik heb dit geraemt nae ‘t leven afgemeeten, het was vijf Rijnlandsche voeten lang, maer vademde wel een half voet meer, ‘t welk ik geloof, dat by ‘t ontdroogen der Zenuwen in den Ruggraet bykomt, en dat het daer door wel 6 duimen gekrompen was.” (Van Hoogstraten, *Inleyding*, 54; trans. Ford, “Grondt & Inleyding”).

<sup>200</sup> Dániel Margócsy, “Advertising Cadavers in the Republic of Letters: Anatomical Publications in the Early Modern Netherlands,” *The British Journal for the History of Science*, vol. 4, issue 2 (June 2009), 188-190.

significantly curtailed in Van Hoogstraten's account, offering his, "bees a flower filled with ready honey, which will be enough to fill up their greedy honeycombs."<sup>201</sup> This metaphor makes reference to a passage from Seneca concerning a method of rhetorical imitation. Like a bee, the orator gathers from the flower for his own use.<sup>202</sup> In providing the "honey" for his reader, suggesting that the nectar has already been ingested and transformed, Van Hoogstraten offers his own finished project for imitation.

#### **iv. Portraying the Passions**

Together with the incorporation of anatomy in his discussion of the art of painting, Van Hoogstraten's *Polymnia* is distinguished from earlier texts through the inclusion of sections on portraiture. In particular, the face is addressed in the first three chapters of *Polymnia*, providing the reader with advice that could be applied to figural representation in genre scenes, history paintings, and portraits. In his treatment of this subject, Van Hoogstraten begins by explaining that the face is the most important feature of the human body and presents a challenge to the artist since no two countenances are exactly the same, necessitating close study of its many possible variations.<sup>203</sup> However, the relation of this subject to anatomy is somewhat unclear. In his depiction of *écorché* figures in the fifth and

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<sup>201</sup> "...mijn *Bijtes* hier een bloem vol gereeden honigh voorstellen, die genoeg zal zijn om haer gratige honichraten op te vullen." (Van Hoogstraten, *Inleyding*, 52; trans. Ford, "Grondt & Inleyding").

<sup>202</sup> Pigman, "Versions of Imitation," 3; Jeffrey M. Muller, "Rubens's Theory and Practice of the Imitation of Art," *The Art Bulletin*, Vol. LXIV No. 2 (June 1982), 235.

<sup>203</sup> "Peoples' faces are rightly held to be their Noblest and most Beautiful parts, the most accomplished work of art, of all that is to be seen here below [...] it is so rare that there are two faces, alike in all respects [...] However in experience it is esteemed a greater wonder, that, among such great diversity, two be found, alike in every way." [Des menschen aengezicht wort met recht gehouden voor het Edelste en Schoonste van den mensch, die het alderkonstichste werkstuk is, van al wat hier beneden gezien wort (...) dat zoo veel duizenden van menschen al versheyden van wezen zijn: en dat 'er zoo zelden twee gezien worden, die den anderen in alles gelijk zijn (...) Nochtans is't door ervarentheyt grooter wonder geacht, datmen, in zoo veel verscheydenheyt, twee gevonden heeft, die elkander in alles geleecken.] (Van Hoogstraten, *Inleyding*, 38; trans. Ford, "Grondt & Inleyding").

sixth chapters of the *Inleyding*, the artist does not remove the skin or hair from the head, and the muscles associated with this part of the body are also omitted from the discussion of these prints. Given that Van Hoogstraten emphasizes the individuality of the countenance and the tendency of anatomical images to adhere to an idealized appearance with generic features, his exclusion of an anatomical model for the head may not have been deemed expedient to his larger aims.

Instead, in his treatment of the face, Van Hoogstraten focuses more on the relationship between body and soul. In his second chapter, Van Hoogstraten provides a cursory discussion of physiognomy, and explains how outer features can convey additional information about an individual's inner character.<sup>204</sup> A chapter dedicated specifically to the task of painting portraits follows, in which Van Hoogstraten reprimands artists for paying disproportionate attention to the face at the expense of the body.<sup>205</sup> This comment offers a second potential explanation for the emphasis placed on the muscular structure of the body itself. Serving as a point of transition from the countenance to the other parts of the human form, this passage provides an opportunity for the author to address bodily proportions and promote his new system of measurement.

Van Hoogstraten may be trying to correct the aforementioned bias towards the face and direct his reader to study the body, but this subject is not neglected in the *Inleyding*. In particular, Van Hoogstraten identifies the countenance as a “mirror of the soul” or “mirror of

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<sup>204</sup> “Physiognomy is the identification by means of individual particularities, observed in the faces or features of people, of their country of birth, descent, spirit and the inclination of their emotions.” [De *Kroostkunde* nu is een kennis van uit de byzonderheden, die in de aengezichten of tronien der menschen bespeurt worden, haer landaert, geslacht, geest en neyging des gemoets te verklaren.] (Van Hoogstraten, *Inleyding*, 40; trans. Ford, “Grondt & Inleyding”).

<sup>205</sup> Van Hoogstraten, *Inleyding*, 44; trans. Ford, “Grondt & Inleyding”; See note 215.

the heart.”<sup>206</sup> In his classroom dedicated to the muse Clio, Van Hoogstraten explains, “As the head is the most important part of the body, so too is it the most important instrument, by means of which the inner emotions are made known by an outward motion.”<sup>207</sup> This concept, that an individual’s innermost thoughts and feelings – the emotions, or passions – are articulated through the external movements of the body, has its roots in antiquity. In the seventeenth century, the relationship between the soul and body circulated in a range of writings, including those of Aristotle, the Neo-Stoics, René Descartes (1596-1650), and Benedict de Spinoza (1632-1677), each of whom convey an understanding of the passions as uniting the physical with the immaterial.<sup>208</sup>

Drawing on several sources in his discussion of the body and soul, Van Hoogstraten does not go into great detail concerning the theoretical connection between these elements and explains that the topic will be examined in his future publication on the Invisible World.<sup>209</sup> This text only ever existed as a manuscript and likely dealt with philosophical and

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<sup>206</sup> “Nevertheless one calls the face the mirror of the soul, and its greatness must be knowable from outward appearance. And thus an ingenious Painter, whenever he has some History before him, must with Poetic invention, make manifest the spirits of the persons, whom he will portray, and give the figure something, by which it is to be recognized...” [Nochtans noemtmen het aengezicht een spiegel des geests, en zijne grootheit moetmen in de weezentlijkheit kennen. En aldus moet een vernuftich Schilder, wanneer hy eenige Historie voorheeft, met een Poëtische uitvinding, de geest des persoons...] (Van Hoogstraten, *Inleyding*, 41; trans. Ford, “Grondt & Inleyding”); “The expressions of the face are quite rightly called the mirror of the heart; in which favour and disfavour, love and hate, diligence and stupidity, joy and grief, and as many passions, as there are in the soul to move it, can be seen and be read.” [Het gelaet des aengezichts wort wel te recht den spiegel van het hart genoemt; waer in gunst en wangunst, liefde en haet, vlijt en traegheit, vreugd en droefheit, en zoo veel hartstochten, als ‘er in ‘t gemoed zich oyt beweegen kunnen, gezien en als geleezen worden.] (Van Hoogstraten, *Inleyding*, 110; trans. Ford, “Grondt & Inleyding”).

<sup>207</sup> “Gelijk dan het hoofd het voornaemste deel des lichaems is, zoo is het zelve ook het voornaemste werktuig, waer meede men de bewegingen des gemoeds met een uiterlijke beweging te kennen geeft.” (Van Hoogstraten, *Inleyding*, 117; trans. Ford, “Grondt & Inleyding”).

<sup>208</sup> Weststeijn, *The Visible World*, 172-175.

<sup>209</sup> “Now, this is how it is in nature, for we have set aside the serious consideration of invisible things for our Invisible World.” [Nu, dit in de natuer zoo zijnde, want in ernst van onzichtbaere dingen te handelen spaeren wy voor onze *Onzichtbaere Werelt*] (Van Hoogstraten, *Inleyding*, 86; trans. Ford, “Grondt & Inleyding”).

theological topics, but is now lost. In his distinction between the visible and invisible, Hans-Jörg Czech perceives Van Hoogstraten's text as following Descartes's differentiation between *res extensa* and *res cogitans*.<sup>210</sup> Noting Van Hoogstraten's references to the French philosopher in the *Inleyding*, and those of other Cartesians, particularly Sir Kenneth Digby, who also published a two-volume text that addressed the visible and invisible worlds, Czech makes a compelling case for the role of Cartesian thought in Van Hoogstraten's treatise.<sup>211</sup>

While Cartesianism may have informed the selection of topics addressed in the *Inleyding*, Weststeijn also identifies the prevalent role of Neo-Stoic philosophy within the treatise, especially concerning the conduct of the artist and his capacity to sway others through command over his own passions.<sup>212</sup> In her work on seventeenth-century Dutch portraiture, Ann Jensen Adams has examined how Neo-Stoic belief informed the presentation of portrait subjects, both communicating their laudable behavior and providing an example for others.<sup>213</sup> In this capacity, the accurate representation of the external elements of the face, which are more closely tied to the soul than physiological structure, would be of greatest value to an artist and may account for the decision to leave this portion of the illustrated figures intact. Notably, the *écorché* figures depicted in Van Hoogstraten's treatise, though deprived of their skins, maintain an upright, almost stiff bearing, and controlled gestures and expressions, in keeping with ideal of behavior promoted in this

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<sup>210</sup> Czech, *Im Geleit der Musen*, 77-78.

<sup>211</sup> Czech, *Im Geleit der Musen*, 79.

<sup>212</sup> Weststeijn, *The Visible World*, 58, 76, 113-116.

<sup>213</sup> Ann Jensen Adams, "The Three-Quarter Length Life-Sized Portrait in Seventeenth-Century Holland: The Cultural Functions of *Tranquillitas*," in *Looking at Seventeenth-Century Dutch Art: Realism Reconsidered*, Wayne Franits ed. (Cambridge: Cambridge University Press, 1997), 167-172.

period.<sup>214</sup> In 1657, Van Hoogstraten translated Nicolas Faret's (1596-1646) popular conduct book, *L'honneste homme, ou l'art de plaire à la court* (Paris, 1630), which he published under the title *Den Eerlyken Jongeling, of de Edele Konst van zich by groote en kleyne te doen eeren en beminnen* (Dordrecht, 1657). Van Hoogstraten's version deviates slightly from its model, condensing certain sections, and adding a chapter on the benefits of painting to the education and success of a young gentleman at court.

Early-modern corporeal codes of conduct also inform the discussion of the human form in the *Inleyding*. Acknowledging the primacy of the face in his chapter on portraiture, Van Hoogstraten instructs his reader, "To be able to make a good face is very commendable, but to make a balanced (*welstandig*) figure with a merely competent face, is better."<sup>215</sup> Expanding upon our earlier analysis of *welstandt* in relation to Van der Gracht, we must adjust our understanding of the term in the context of the *Inleyding*. In his work on etiquette in the seventeenth-century Netherlands, Herman Roodenburg interprets the term "welstandt" as connoting a type of grace, which derives from a *contrapposto* pose, with its characteristic "swelling" hip.<sup>216</sup> Van Hoogstraten's flayed figures appear quite rigid, especially in comparison with Vesalius's and Van der Gracht's animated anatomical figures. However, their controlled stances are more in keeping with early-modern standards of etiquette; each figure places greater weight on one foot, while the other rests, producing the desired effect of controlled nonchalance. As such, they express their inner rationality and

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<sup>214</sup> Herman Roodenburg, "How to Sit, Stand, and Walk: Towards a Historical Anthropology of Dutch Paintings and Prints," in *Looking at Seventeenth-Century Dutch Art: Realism Reconsidered*, Wayne Franits ed. (Cambridge: Cambridge University Press, 1997), 176-177.

<sup>215</sup> "Een goede trony te kunnen maken is wel prijsselijk, maer een welstandige figuer met een maer taemelijke trony te maken, is meer." (Van Hoogstraten, *Inleyding*, 44; trans. Ford, "Grondt & Inleyding").

<sup>216</sup> Roodenburg, "How to Sit, Stand, and Walk," 180; Herman Roodenburg, *The Eloquence of the Body: Perspectives on Gesture in the Dutch Republic* (Zwolle: Waanders Publishers, 2004), 120.



strength through composed exteriors and serve the additional function of providing suitable examples for young artists studying the foundations of portraiture or history painting. In their demonstration of a laudable posture, Van Hoogstraten's *écorchés* serve as both a tool for anatomical instruction and a visual reference for the benefits of this knowledge in practice.

In the *Inleyding*, the physiological structure of the body is made visible for the artist and treated as a tool through which the painter can achieve his aim of depicting a convincing and pleasing human form. Therefore, in his depiction of *écorché* figures, Van Hoogstraten draws on the recognizable format, poses, and markings of anatomical atlases, while distinguishing his work through the bodily comportment of his figures. At the same time, the reduction of the number of his figures to four returns the work to the model of early-modern drawing books and further blurs the line between these genres. In particular, his anatomical text and images are designed as a means of bolstering his proportionate figures, which act as a foundation for the depiction of the body in history and portrait paintings. At each turn the author emphasizes what he deems to be most "necessary". In the case of the face, which was so integral to portraiture and history scenes, the ability of the artist to accurately convey the external expression of the inner state takes priority over the physical structure of the muscles underneath. For the depiction of the body, the type of knowledge required for an artist had changed since the publications of Dürer, Van Mander, and Junius, and now necessitated at least a cursory overview of anatomical study to maintain the art of painting's status and confirm the treatise's position of authority. Van Hoogstraten achieves both through his visual representations of anatomical figures and his written advice on the subject, which places anatomical study firmly in a role of support to the art of painting.

### ***B. Natuurlyk en Schilderkonstig Ontwerp der Menschkunde (1682)***

Willem Goeree's *Natuurlyk en Schilderkonstig Ontwerp der Menschkunde* (Amsterdam, 1683) expands upon the *Inleyding*'s treatment of anatomy and offers a thorough discussion of this subject for artists. Drawing on the model of Van Hoogstraten, Goeree includes chapters that address physiognomy, proportion, and the internal and external motions of the body, supported by two final chapters dedicated to the human skeletal and muscular systems. Providing illustrations throughout the work, Goeree dedicates two plates to the muscles and bones, which feature figures that once again borrow from Vesalius. However, Goeree's images are more illustrative than the *Anatomie* or *Inleyding* and greater emphasis is placed on the author's written account. Though his images may adhere to the increasingly standardized Vesalian model, Goeree deviates from the cursory discussion of the body's form and function that marks Van der Gracht's and Van Hoogstraten's works and integrates the theories of his contemporaries, including Descartes and Niels Steno (1638-1686), into his account of the human body. As such, Goeree's work treads into the maze that Van Hoogstraten avoided and far surpasses the depth of information offered on this topic in earlier art literature. I find that, although the work is addressed to artists and *liefhebbers* and offers valuable insights into pictorial theory and practice in the late-seventeenth century, it serves primarily to promote the erudition of its author. I attribute the emphasis placed on text over image in Goeree's *Menschkunde* to the author's profession and training outside of the pictorial arts.

As is the case with the historiography of the *Inleyding*, Goeree's use of a wide range of sources has received a predominantly negative response from modern scholars, a view that has undergone revision only recently. He has been presented as a compiler of existing texts,

a plagiarist, and a translator, credited with making foreign publications available to readers in the Dutch Republic.<sup>217</sup> In particular, his borrowing from Leonardo da Vinci's *Trattato della Pittura* (Paris, 1651), including the reprinting of Nicholas Poussin's (1594-1665) original illustrations, has complicated our understanding of his writings. However, art historians such as Marjorie Bottenheim and Michael Kwakkelstein have challenged these perceptions. In his analysis of Goeree's *Inleyding tot de Practijck der Al-gemeene Schilder-konst* (Middelburg, 1670), Kwakkelstein argues that the organization and presentation of this material, alongside information on artists' working methods and observed practices, gives Goeree's text a new purpose that is unique in the history of art-theoretical treatises.<sup>218</sup>

In bringing together a rich array of sources, including the writings of early-modern artists and art theorists, philosophers, and anatomists, Goeree's *Menschkunde* can be aligned with Kwakkelstein's assessment of the *Schilder-konst*, or Weststeijn's analysis of the *Inleyding*. In this book, Goeree combines a variety of texts and images, working in a manner that was popular for his period, to produce a new work meant to serve artists in their study of the human body. Rather than viewing the author's borrowings as indicative of a lack of originality, we can understand them as a means of establishing authority through the citation of known experts, a technique that is also used in Van der Gracht's and Van Hoogstraten's

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<sup>217</sup> J.A. Emmens, *Rembrandt en de regels van de kunst* (Utrecht, 1968) (Amsterdam: G.A. Van Oorschot, 1979), 68; E.A. de Klerk, "'Academy-Beelden' and 'Teeken-Schoolen' in Dutch Seventeenth-Century Treatises on Art," in Anton Boschloo, *Academies of Art Between Renaissance and Romanticism* (Den Haag: SDU Uitgeverij, 1989), 284; K.T. Steinitz, *Leonardo da Vinci's Trattato della Pittura: Treatise on Painting. A Bibliography of the Printed Editions 1651-1956* (Munksgaard: Copenhagen, 1958), 157; Beatrijs Brenninkmeyer-de Rooij, "Theories of Art," in Bob Haak, *The Golden Age: Dutch Painting in the Seventeenth Century*, Elizabeth Willems-Treeman trans. (New York: H.N. Abrams, 1984), 61-62; Bolten, *Method and Practice*, 212-226, 254, 268; For a full historiography of Goeree's reception by modern scholars see Michael W. Kwakkelstein, *Willem Goeree: Inleydinge tot de al-gemeene teycken-konst: een kritische geannoteerde editie* (Leiden: Primavera Pers, 1998), 13-15.

<sup>218</sup> Michael W. Kwakkelstein, "Willem Goeree and Leonardo's Theories on Painting," *Achademia Leonardi Vinci: Journal of Leonardo Studies & Bibliography of Vinciana*, Carlo Pedretti ed., vol. 10 (Firenze: Giunti Periodical, 1997), 137.

texts, and which serves as a useful framework for interpreting Goeree's engagement with this subject.

#### v. Studying the Body

In the *Menschkunde*, Goeree provides his reader with a solution to what he argues is a lapse in the study of the human figure among artists. He explains that the role of anatomical knowledge concerning the body has been either neglected or misunderstood by modern masters, often producing unconvincing or overworked bodies and resulting in the mistrust of anatomy in the arts of painting, drawing, and sculpture.<sup>219</sup> For this reason he renames the physiological study of the body for artists as *menschkunde*, a term that Van Hoogstraten uses in *Polymnia* to encompass anatomy, proportion, and physiognomy.<sup>220</sup> Whereas Van Hoogstraten places greater emphasis on his system of proportion and structures the other topics of his *leerwinkel* around this subject, Goeree is most concerned with the beautiful and graceful appearance of represented figures, in keeping with Dutch Classicism.<sup>221</sup>

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<sup>219</sup> "...either through negligence or otherwise came to be amiss; and came to make their nude figures with very hard muscles, yes as skinned anatomy-men." [...of door agtelooheyd of anders quamen te vergrijpen; en hare Naakte beelden met seer harde Muskelen, ja als gevilde Anatomie-mannen quamen te maken.] (Willem Goeree, *Natuurlyk en Schilderkonstig Ontwerp der Menschkunde* [Amsterdam: Willem Goeree, 1682], 5). All translations of Goeree are mine unless otherwise indicated. I am grateful to Angela Jager for her careful review, comments, and suggestions for my translations of this source.

<sup>220</sup> "To not scare these timid minds, we fling the hateful and unpicturesque word *anatomie* behind the bench, and rather term this useful knowledge with a gentler name *menschkunde*: even though the first designation is already installed under painterly terms of art and has become common enough." [Waarom wy dan ook, om dese beschroomde geesten niet bang te maken, het hatelijk en onschilderagtig woord *Anatomie* veelsints achter de bank smijten, en noemen dese nutte wetenschap liever met een sagter naam *Menschkunde*: alhoewel de eerste benaming alrede onder de schilderkunstige konstwoorden, ingehuldigd en gemeen genoeg geworden is.] (Goeree, *Menschkunde*, 5-6); "First she teaches physiology (*Menschkunde*), so as to teach anatomy (*kroostzweem*)/ From top to toe, and all that concerns it, in faces and nudes/ And their significance: to advise on the muscles/And their movements, as far as concerns art." [De *Menschkunde* eerst 't ontleen, van top tot teen te leeren/ De *kroostzweem*, en haer werk, in tronyen en naekt./ En haer beduidenis: de spieren aen te wijzen./ En haer broerlijkheen, zoo veel de konst betreft.] (Van Hoogstraten, *Inleyding*, 37; trans. Ford, "Grondt & Inleyding"); Goeree's comment on overworked musculature is also found in Van Mander, Van der Gracht, and Hoogstraten.

<sup>221</sup> "It will be beyond all doubt that it benefits the art of painting highly to always advance the most beauty and perfection of things that are represented..." [Het sal buyten alle twiffel aan de Schilderkonst ten

Encouraging an approach based in anatomical knowledge, Goeree connects the subjects of proportion, movement, action, and expression of the passions to an understanding of this foundational subject.<sup>222</sup> Combining the subjects found in the *Inleyding* with the method favored in the *Anatomie*, Goeree occupies an educative position between Van der Gracht and Van Hoogstraten.

In his first chapter, Goeree addresses alternative methods through which his reader might study the body and uses these practices as foils for those recommended in his treatise.

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hoogsten voordeeligh zijn, altijd de meeste Schoonheyd en volmaaktheyd der dingen die verbeeld werden, te bevorderen... ] (Goeree, *Menschkunde*, 17); “To the rest we answer; that although, except the bunglers, even some of the famous masters of the previous centuries, have not been entirely free from the said mistake, and sometimes have made nudes in which the muscles are not depicted with a soft, uncontroled relation, nor with a solid fleshiness, or plumpness, or membranous relaxation, or completely strained and obediently working juiciness [...] however, one must derive from the mistake of some of those great geniuses and their overly thorough knowledge of the muscles, that although they are on the right track, they possibly have not yet carved their way far enough, their thorough knowledge cannot be reconciled satisfactorily with the grace of life and beauty.” [Op de rest antwoorden wy; dat alhoewel, behalven de brodders, selfs eenige van de beroemde meesters der voorige eeuwen, niet geheel vry van de geseyde mislag zijn geweest, en somtijts Naakten hebben gemaakt, daar aan men de Spieren en muskelen niet met een sagte twijffelagtige betrecking, noch met een beklonckene vleesigheyd, of poeseligheyd, of vellige ontspanningh, of volkomen opspanning en gehoorsaam werkende volsappigheyd (...) schijnd te sien, men nogtans de mistasting van eenige dier groote Geesten soo seer niet en moet afleyden van de al te grondige kennis der muskelen, als wel daar van voortkomende, dat alhowelse ‘t rechte pad bewandelden, sy mogelijk noch niet ver genoeg daar in doorgeboord, hun grondige kennis niet genoegsaam met de bevalligheyd van ‘t leven en de schoonheyd hebben we ten te vereenigen.] (Goeree, *Menschkunde*, 6); Van de Roemer, “Regulating the Arts,” 186.

<sup>222</sup> “For a long time have not only learned men, or great master painters, but also many renowned anatomists under the physicians, seriously urged that the knowledge of the fabric of the human figure was very necessary to all natural knowledge in general: and in particular that it should not only be understood by the philosophers, healers and physicians, but to a large degree also by the drawers, painters, sculptors, casters, engravers and all followers of natural life; in order that they would be able to delineate in a recognizable, graceful, and lively manner, all the motions and movements in accordance with the natural and casual arrangement of the limbs and parts in the whole human body, after all kinds of conditions and incidents.” [Van over langh hebben niet alleen Geletterde mannen, noch groote Schildermeesters, maar ook veel vermaarde Ontleders onder de geneeskundigers, ernstig aangedrongen dat de kennis van het maaxsel des Menschen Beeld, seer noodigh was tot alle natuurlijke wetenschappen in ‘t gemeen: en dat die in het bysonder niet alleen diende verstaan te warden van de Wijsgeeren, Genees en Heelmeesters, maar by uitnementheyd ook van de Teykenars, Schilders, Beeldhouwers, Gietkundigers, Plaatsnijders, en alle navolgers van het natuurlijk leven; op dat sy alle de beroeringen en bewegingenvolgens de natuurlijke en toevallige schicking der ledematen en deelen in den geheelen mensch, na allerhande staat en voorval, op een kenbare bevallige en levendige wijze souden kunnen afbeelden.] (Goeree, *Menschkunde*, 2-3).

Notably, Goeree mentions the possibility of participating in a dissection and even writes that this approach may produce useful knowledge.

...sometimes one can find the opportunity to see a dead human body dissected, or do such in a modest manner oneself, who has the means in hand to penetrate attentively the ingenious system of the great masterpiece of creation, and transfer what he sees in a dead body into his art. And although we always have compassion and reverence for our fellow creatures, which makes us somewhat bashful to cut a dead man into strips, and to see the bones undressed and peeled from their muscles, nevertheless we have not entirely taken away that desire to sometimes dwell some night hours in a death chamber [anatomy hall] and attend such dissections.<sup>223</sup>

Goeree's suggestion that an artist might view or conduct a dissection is rarely encountered in earlier Dutch art literature. Moreover, he treats this activity as a means of satisfying curiosity and does not offer instruction for active study in this setting. Recommending that the artist approach the body in life equipped with a suitable level of foundational knowledge, Goeree's language suggests that he distinguishes between different kinds of anatomical experience and has a clear perception of the type of sources that will best serve the depiction of the body *na 't leven*, or from life.<sup>224</sup> Dissection may be a useful exercise, but it is only one of many options for the artist.

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<sup>223</sup> "...te mets gelegentheyd kan vinden om het dood lichaam van een mensch te sien ontleden, of sulx op een zedige wijze selfs te doen, die heeft de middel in de hand om met opmerking de konstige samenstel van het grootste meesterstuk der schepping wel te doorgronden, en 't geen hy hier na 't leven in een doode romp siet, tot de regelen van sijn konst over te brengen. En alhoewel de me-waartigheyd en de eerbied die we voor onsen evenmensch altijd in ons gemoed hebben omgedragen, ons eenigsints schromig maakte, en afgestorven mensch in riemen te snyen, en de gebeenten van haar spieren te sien ontkleeden en afschillen, egter heeft ons dat niet geheel de lust benomen, om somtijts eenige nagt-uurtjes in een Dood kamer, soodanige ontledingen by te wonen." (Goeree, *Menschkunde*, 8).

<sup>224</sup> "...it is a mistake to believe that one can only come to the proposed level of true menschkunde by drawing much after life [...] because after one comes to life with unprepared eyes and senses, he cannot see many things in life because the eyes have still have not opened through a special preparation..." [...] is ook misgetast, te meenen datmen alleen door veel na het leven te Teyckenen (...) tot de voorgestelde trap der ware Menschkunde kan komen: want na dienmen met onbereyde oogen en zinnen, tot het Leven komende, veel dingen in het leven niet en kan sien, om dat noch door een bysondere voorbereydinge de oogen niet open gedaan zijn...] (Goeree, *Menschkunde*, 14).

Turning his attention to study after living bodies and antique sculpture, Goeree cautions his reader against reliance upon these models, echoing the advice of Van der Gracht and Van Hoogstraten. Sharing Van der Gracht's view that ancient artists brought the study of anatomy to their depictions of the human figure, he promotes a similar working method for modern artists.<sup>225</sup> Simply following the example of classical nudes does not offer sufficient instruction and Goeree explains that exclusive focus on this model only replicates poses, which limits the potential for variability and offers little opportunity for a full understanding of how the body moves.<sup>226</sup> A comparable issue accompanies drawing the body from life, a method that Goeree remarks is practiced in the Academy. He cautions that this approach trains the artist in copying from a static example without teaching how the model actually moves into diverse poses and gestures, restricting the repertoire of the artist and preventing

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<sup>225</sup> “When we want to explore upon what grounds and reasons painting and sculpture formerly [practiced] under the Greeks and Romans, of all wisdom became so highly elevated, we will actually find that it was only the knowledge of *menschkunde* that the ancient painters and sculptors united very precisely to the mastering of their pencil and chisel.” [Wanneer wy nasporen willen, op wat grond en om wat reden de Schilderkonst en Beelvorming, eertijts onder de Grieken en Romeynen, van de geheele wijsheyd soo hoog is verheven geworden, wy sullen waarlijk bevinden dat het alleen de wetenschap der Menschkunde geweest is; welke d’Antijke Schilders en Bootseerders seer nauwkeurig aan ‘t bestuur van hun pinçeel en beytel hadden vereenigt. . .] (Goeree, *Menschkunde*, 3). “And truly, if one wants to perceive how previously, under the Greeks and Romans, the arts of painting and sculpture became so highly elevated and Noble, one will find that it was none other than the knowledge of anatomy, which ancient painters united with their pencils, chisels, and mattocks.” [Ende voorwaer, indien men wilt bemercken wat voortijds, onder de Grieken ende Romeynen, de Schilder-konst en Beelt-houwerije soo hoogh verheven ende Edel gemaect heeft, men sal bevinden het anders niet geweest te zijn, als de wetenschap der *Anatomie*, die de *Antique* Schilders ende Beelt-snijders met hare pinseelen, beytels ende houweelen vereenicht hadden.] (Van der Gracht, *Anatomie*, fol. Av).

<sup>226</sup> “Because if the muscles can have infinite different forms according to the innumerable variety of [their] workings; these are impossible to learn from figures or statues, because in every example only a single and limited case is represented: so it follows, that in the general art of painting, one must not only understand what each muscle does in such actions, but in what degree and shape and substitution it does so.” [Want nadien de muskelen volgens d’ontelbare verscheydentheden der werckingen, oneyndig verschillige gedaantens kunnen hebben; die onmogelijck uyt geen Statuen of Pronkbeelden kunnen geleerd werden, om dat in yder voorbeeld slegts een enkel en bepaald geval verdoend werd: soo volgd van selfs, datmen in de algemeene Schilderkonst, niet alleen en moet verstaan wat yder Muskel in dusdanigen Actie doen, maar in wat trap en gedaante en onderschikking sy sulx doet.] (Goeree, *Menschkunde*, 10-11); This advice is also found in Van der Gracht and Van Hoogstraten.

his composition of new forms.<sup>227</sup> Repeating advice found in Van der Gracht and Van Hoogstraten, Goeree reminds his reader that the model may tire and fail to hold his pose, resulting in a form that lacks in beauty and coherence if the artist does not have sufficient training to compensate for this deficit.<sup>228</sup> Moreover, Goeree notes that working from life is most profitable when the artist's prior training and understanding of the subject informs his practice.<sup>229</sup> Acknowledging a gap between theory and practice, Goeree offers the contents of his text as a means of bridging this divide.

At the outset of his chapter on the muscles, Goeree summarizes the connections between different areas of study for the artist, which are unified in the represented figure, “Just as we have said before that the beauty and *welstand* of figures depend especially on good proportion, so one must determine that the best and most accurateness of actions in the

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<sup>227</sup> “But some may say, one can after all see the aforesaid represented in the models of life, and if one draws academy-figures; and that it is easy to follow after? We answer; although all the muscles appear in such a manner in life that even the worst novice knows how to draw them precisely, that such can provide no more to the understanding of the variable movement and abilities of the muscles; than if one ignorant in the art of singing, is able to reproduce the musical notes he saw in a songbook accurately, while not knowing with which tones and according to what rhythm they should be cried out.” [Maar sal mogelijk ymant seggen, men kan alle ‘t gesejde immers in de modellen van ‘t leven, en als men Akademie-beelen teykent, vertoon sien; en dat is ligt na te volgen? wy antwoorden; of schoon alle de muskelen soodanig in ‘t leven gesien werden dat selfs de minste aankomeling die stiptelijk weet te volgen, dat sulx niet meer tot verstant van de veranderlijke beroering en vermogen der muskelen in haar dienst sou kunnen geven; dan of een onkundige in de zangkonst, de musijck noten die hy in een zangboek zag nauwkeurig na maakte, en ondertussen niet en wist met wat toonen en volgens wat kadans sy moesten uytgegalmd werden.] (Goeree, *Menschkunde*, 11-12).

<sup>228</sup> “...if now such person, remains so long in that action, until the muscles begin to become weary, there arrives a change in some manner [...] such that when their muscles relax and lose their first strength, decay and lameness will immediately be seen in the action.” [...aldien nu soodanigen Mensch, soo lang in die Actie blijft, tot de Muskelen vermoeyd beginnen te werden, soo komt ‘er eenigsints Verandering ontrent (...) sulx dat waneer de eyge Muskelen in haar eerste kragt beginnen te verslappen en op te houden, terstont daar en verval en Lammigheid in de Actie sal gesien werden.] (Goeree, *Menschkunde*, 393).

<sup>229</sup> “The general menschkunde will speak to the improvement of these both [prior study and working from life], one cannot avoid highly praising its usefulness and necessity.” [Invoegen dat die van de algemeene Menschkunde sal spreken tot verbetering van die beyde, niet ontgaan en kan der selver nuttigheyd en nootsaak hoogelijk aan te prijzen.] (Goeree, “Voor-reden aan den Bescheiden Leser,” *Menschkunde*, unnumbered page).



figures are advanced through the good and true knowledge of the muscles.”<sup>230</sup> Consistently encouraging the creation of beautiful and graceful figures through the mastery of these subjects, Goeree refers to the concept of *welstandt* in his chapters on appearance, action, and anatomy. However, his use of this term deviates from Van der Gracht’s and Van Hoogstraten’s accounts. Adhering to Van Mander’s and Van der Gracht’s instructions for a harmonious relation among the body’s parts, particularly in the depiction of a specific action, Goeree emphasizes the concept of decorum in his application of *welstandt*. Basing his assessment of this quality in the depiction of musculature, Goeree explains, “One must take into account the qualities of people, namely in sex, age, and stature, when muscling the figures,”<sup>231</sup> and relates the artist’s ability to follow a natural appearance as promoting a beautiful and *welstandig* figure. This alliance of actions with the subject’s age, sex, and occupation is discussed in Van Mander’s fourth chapter of *Den Grondt*, upon which model Goeree expands.<sup>232</sup> Using the term with greater frequency and in relation to a larger number

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<sup>230</sup> Italics mine. [Even als we voren hebben geseyd dat de Schoonheyd en Welstand der Beelden voornamelijk afhangd van de goede Proportie, soo moetmen vaststellen dat de beste en meeste werkelijkheid der Actien in de Beelden bevorderd werd door de Goede en Waaragtige kennis der Muskelen.] (Goeree, *Menschkunde*, 392).

<sup>231</sup> “. . .so that their properties are in every sort of figure applied after the general course of nature, well-shaped and beautiful.” [Men moet in het Musklen der Beelden ook altijd wel in agt nemen de Hoedanigheyd van Persoonen nameljk in Geslagt, Ouderdom en Gestalte; op datmen yder soort van Beelden, haar eygenschap na den gemeenen Loop der Nature, welstandig en schoon mogte toepassen.] (Goeree, *Menschkunde*, 408); Prior to this statement, Goeree aligns *welstand* with decency (*welvoegzaamheyd*) (Goeree, *Menschkunde*, 314).

<sup>232</sup> “Such moving action, walking or stirring / one sees naturally represented in a man / as much as when in a standing posture / in our things this will appear / in children, men and female figures / Our labors will be crowned with *welstandig* / On one side of a figure we ought not make an / arm and leg stretch forth.” [Sulcke roerend’ acty/loopend’ oft gaende / Sietmen den Mensche natuerlijck vertoonen / Soo wel werckend’ als in postuere staende / In onsen dinghen dit wel gade slaende / Soo in kinders / Mannen / als Vrouw persoonen / Sal onsen arbeydt *welstandich* becroonen / Op een sijd/ eens Beeldts wy niet en behooren / Arem en been uyt te doen steken vooren.] (Karel van Mander, *Den Grondt der Edel Vry Schilderconst* [Haarlem: Passhier van Wesbusch, 1604], 4:10); The association of *welstand* with decorum precedes Van Mander, see Dethlefs, Hans Joachim. “‘Wohlstand’ and ‘Decorum’ in Sixteenth-Century German Art Theory,” *Journal of Warburg and Courtauld Institutes*, Vol. 70 (2007), 143, 147, 152.

of subjects, Goeree's explanation and use of this *welstand* complements the writings of his predecessors but relates it to more subjects and areas of study for the artist.

For example, Goeree explicitly associates an artist's ability to produce a *welstandig* figure with his proficiency in the art of proportion, a connection that is not made in Van Hoogstraten's discussion of the subject. Goeree's advice on this topic generally follows the model that Dürer and Van Hoogstraten promote, though he does not seem as concerned as his predecessors with following a particular set of rules.<sup>233</sup> Including a variety of human forms for his reader, which also derive from Dürer and Van Hoogstraten, Goeree applies this form of measurement to moving and stilled bodies and addresses the resulting appearance of delineated figures. He explains,

A figure will become more *welstand*, when the weight of the body is mainly to one side, leg and foot, as the position of this following image demonstrates clearly. And as this must be observed in every action and movement, it is also of utmost necessity to observe this in resting or still figures, because the whole *welstand* therein depends on an effective quiet stance of the limbs.<sup>234</sup>

Referring his reader to an illustration that is labeled as "a figure in his simple *welstand*,"<sup>235</sup> which shows a forward-facing male nude in a *contrapposto* pose, Goeree is the only author

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<sup>233</sup> "And although those, who have spoken of the proportion of the human figure, learn that the body must be defined with 7, with 8, and with 9 heads (under which the proportion of 8 heads is held for the most beautiful), however, one must not think that one is always obliged to accurately follow one of the said Measurement-Laws, that one is not able to deviate from it [...] One must then note that the Proportion-Rules only serve to determine and secure the matter." [En alhoewel die geen, welk van de Proportie der Menschbeelden hebben gesproken, leeren datmen de Lichamen met 7 met 8 en met 9 Hoofden moet bepalen, (onder welk de Proportie van 8 Hoofden, wel voor de Schoonste gehouden werd) egter en moet menniet meenen datmen altijd verpligt is, een van de geseyde Maat-Wetten soo stipt te volgen, datm'er niet van sou mogen afwijken (...) Men moet dan aanmerken, dat de Proportie-Regels alleen dienen, om van de saak yts vast en seker te stellen.] (Goeree, *Menschkunde*, 59).

<sup>234</sup> "Hierom sal dan een Beeld meer *welstand* bekomen, wanneer de swaarte des Lichaams meest op d'eene zijde, Been en Voet over gegaan schijnd, gelijk de stand van dit volgende Beeldeken duydelijk aanwijst. En gelijk sulx in alle actien en bewegingen moet gesien werden, soo is sulx ook in rustende of stil-zijnde Beelden, ten uystersten noodig waar genomen, om dat de geheele *welstand* daar in, van een Werklijk stil staan der Leden af hangd." (Goeree, *Menschkunde*, 243).

<sup>235</sup> "een Beeld in Sijn eenvoudige *Welstand*" (Goeree, *Menschkunde*, 244).

of our three to visually document the concept of *welstandt*, and his image gives pictorial form to the grace, beauty, and corporeal coherence he promotes throughout his text [Fig. 15]. Copied after Nicholas Poussin's print for Leonardo da Vinci's *Tratatto della Pictura* (Paris, 1651), in which it illustrates "the grace of the limbs,"<sup>236</sup> the use of this plate to demonstrate *welstandt* in the *Menschkunde* explicates further the meaning of this term in Goeree's treatise [Fig. 16].<sup>237</sup> Placing his weight on his left leg and relaxing his right, Goeree's figure rests his right hand on his hip, while his left arm extends away from the side of his body. The figure's balance is made evident through the inclusion of a dotted line that divides his form vertically. Moving from the model to a painter's practice, Goeree explains that an artist's inability to represent a figure in such a manner is a detriment to his work and thus encourages artists to study the body in motion and at rest, informed by anatomical knowledge.<sup>238</sup>

#### **vi. Teaching with Text and Image**

Initiating his chapters on the anatomical structure of the body with a discussion of the skeleton, Goeree includes a plate with two depictions that support his instructions for his reader [Fig. 17].<sup>239</sup> Goeree's depiction of this subject draws on Vesalius's first and last

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<sup>236</sup> "della gratia delle membra" (Leonardo da Vinci, *Trattato della Pittura* (Paris: Jaques Langlois, 1651), 63).

<sup>237</sup> "we [...] are indebted the good hand of the great master painter Nicolas Poussin" [we (...) aan de goede hand van den Grooten Schildermeester *Nicolaas Poussijn* verschuldigt zijn.] (Goeree, *Menschkunde*, 17).

<sup>238</sup> "Because even if it would be possible in life to do such a simple position, or a balanced motion of the limbs, this shall represent no *welstand* or grace, and much less praiseworthiness in the art of painting." [Want of sulx in een simpele stand, of in een gelijkzijdige beweging der Leden, in 't Leven souw kunnen gedaan werden, egter sal sulx geen *welstand* noch gracie vertoonen, en noch veel min prijs-waardig in de Schilder-Konst zijn.] (Goeree, *Menschkunde*, 245-246).

<sup>239</sup> The name G. van de Gouwen appears on the frontispiece of the text as the engraver, but name of the artist is not known.

osteological plates, which show the skeleton from the front and back, but the seventeenth-century author combines these views on one page. It is possible that these figures were based on Van der Gracht's text, of which Goeree was aware, but those depicted in the *Menschkunde* include a greater number of labels, suggesting that the author informed his work with material found in anatomical atlases. Given that Goeree's illustrations are not reversed images of Vesalius's plates, it is unlikely that his artist used the sixteenth-century anatomist's text as the source for these images. Instead, I suggest that the *Menschkunde* follows Van der Gracht's model and were copied after Casserius's prints. A copy of Andrianus Spigelius's (1578-1625) *Opera Omnia* (Amsterdam, 1645) is listed in the sales catalogue of Goeree's library, indicating his awareness of these images, and he recommends Spigelius alongside Van der Gracht in the *Menschkunde*.<sup>240</sup> However, Goeree makes these illustrations his own by placing his skeletal figures in a new landscape setting and re-labeling the figures with numbers, rather than letters or symbols. Basing his organizational structure on that of anatomical atlases, these numbers correspond to an explanatory register that provides the names for the different parts of the body and is comparable to those found in Van der Gracht and Van Hoogstraten.

At the beginning of his tenth and eleventh chapters, which address the muscles and bones, Goeree includes a short discussion of the function of each system within the human body, which is then expanded through his images and their accompanying registers. This approach enables Goeree to treat his subject in more depth than either Van der Gracht or Van Hoogstraten, resulting in a publication numbering more than four hundred *octavo* pages in length – in contrast to the thirty *quatro* pages of *Polymnia*, or the forty-four *folio* pages of

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<sup>240</sup> *Catalogus variorum, insignium & rarissimorum, Inquavis Facultate & Lingua Librorum [...] door Wilhemus Goeree* (Amsterdam: Janssonius van Waesberge, 1711), 8 no. 90; Goeree, *Menschkunde*, 429.

text in the *Anatomie*.<sup>241</sup> Locating the origins of movement in the skeletal structure, Goeree explains that the bones serve three primary functions: they provide support for the body, offer protection to the internal organs, and are fundamental to the body's movement.<sup>242</sup> Goeree distinguishes between stationary bones, such those of the skull, and bones that provide mobility. These are of greatest interest to the author, particularly as they affect the external appearance of the subject.

While the bones may be integral to the way that a figure moves, Goeree goes into greater detail explaining the function and appearance of the muscles, as these are more immediately visible to the artist. In his myological plate, Goeree returns to Vesalius's example [Fig. 18]. His first figure (A) is a reversed image of Vesalius's first table in his second book (*Tab. I Lib. II*), but the torso of Goeree's version has been enhanced, particularly the oblique muscles. A similar treatment is visible in Goeree's figure B, which reverses Vesalius's second *écorché* figure. In particular, the membrane that covers the back has been removed, revealing the individual muscles underneath, all of which appear flexed, and the muscles of the legs are also more crisply outlined and defined. This trend continues

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<sup>241</sup> In a letter to J. Tideman of 's-Gravenhage, Gerard de Lairese notes the Goeree's tendency towards long-windedness, though it is not clear to which book this comment makes reference (Gerard de Lairese, "Onuitgegeven Brief van Gerard de Lairese," (Amsterdam, 27 May 1692), in Fr. F.O. Obreen, *Archeif voor Nederlandsche Kunstgeschiedenis*, 4e Deel, (Rotterdam, 1881-1882), 225.

<sup>242</sup> "Beforehand one must observe that the bones have several necessities for the system of the human body [...] Firstly they serve the body's firmness and surety; secondly to protect some internally situated parts; such as the skull and brain, and the sinew of the mind and other more noble parts; as also the ribs and shoulder blades, the interior parts of the breast. Thirdly are the bones serviceable to one's gait, and the neat and certain order of the limbs in all sorts of movement..." [Voor af moetmen aanmerken dat de Beenen tot het gestel van 's Menschen Lichaam verscheide noodzakelijkheden hebben (...) Eerstelijc soo dienen sy tot des Lichaams stevigheyd en vastigheyd: Ten tweeden om eenige binnen gelegen Deelen te beschermen; Gelijk het Bekkeneel de Herssenen, en de Zenuwen der Sinnen en meer andere Edele Deelen; als mede de Ribben en Schouderbladen, de inwendige Deelen van de Borst. Ten derden zijn de Beenen dienstig tot de Gang, en het net en seker bestuuren der Leden in allerhande beweging...] (Goeree, *Menschkunde*, 378).

in Goeree's final figure, which corresponds to Vesalius's ninth table (*Tab. IX Lib. II*) and offers a view of the human body from behind.

These adjustments are notable, as Goeree cautions his reader against excessive study of *écorchés*, which can produce figures that “resemble a dried hake, or through the swelling of the muscles are like a sack of turnips,” citing Hendrick Goltzius's (1558-1617) *Great Hercules* (1589) as an example to be avoided [Fig. 19].<sup>243</sup> Contrary to this advice, Goeree's flayed figures display the knobby appearance that the author abhors, an alteration that is made all the more evident when comparing Goeree's figures with those found in Vesalius. In Goeree's figures, the removal of the membrane and amplification of the muscles enable the reader to more easily identify individual parts and perceive how they connect. This depiction supports Goeree's aim in teaching his reader about the form and function of the muscles, fulfilling the role that he designates to his representations of flayed figures as tools for artists.<sup>244</sup> However, unlike Van Hoogstraten and Van der Gracht's illustrations, which aid the artist in identifying the different parts of the body and serve as examples from which

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<sup>243</sup> “Ook en moeten de Menschbeelden geen uytgedroogde Stokvissen gelijken, noch door de geswollentheyd der Muskelen soo Knobbelig niet zijn als een sak met knollen.” (Goeree, *Menschkunde*, 406). This statement likely derives from Van Hoogstraten. See note 194.

<sup>244</sup> “And after we have designated the properties and the way to express all kinds of emotions and passions, we will explain the inside and outside of the human figure, that is, dissect his flesh and bone, and point out the location, usage, and ability of all the bones, joints and muscles thereabout, through which a healthy and sensible man can perform all his actions following the control of his will [...] with greater use for the art of painting, we will contribute a sufficient number of illustrations, which will be able to explain some of our thoughts further than our words...” [En na datwe dan d'eygenschappen, en de middle om allerhande passien en hertstochten, uyt te drukken sullen aangewesen hebben, so sullen wy d'inwendige en uytwendige leest des menschen-beeld, dat is sijn vleesch en been, ontleiden en verklaren, en aanwijzen de plaats, den dienst en vermogen van alle de beenen gewrigten en muskelen daar om heen, door welck een gesont en verstandigh mensch na het bestuur van sijn wil, alle sijn actien uytvoeren kan (...) met meer nut der Schilderkunde souw konnen verrigt werden, sullen wy een tamelijck getal verhoog-schetsen by brengen, die eenige van onse gedaghten nader dan onse woorden sullen konnen aanwijzen...] (Goeree, *Menschkunde*, 16).

an artist could make copies, Goeree's images provide a model suited to anatomical instruction but which should not necessarily be emulated.

Instead, these plates have more of an illustrative function concerning the basic structure and movement of the human body, while visually aligning Goeree's work with notable examples. The problem of scale is enhanced by the small format of the images and the combination of multiple figures per plate, which challenge the viewer to see all of the body's parts clearly. In the case of the hands and feet, Goeree addresses the size of his prints and acknowledges that they are insufficient for a complete treatment of these features. Identifying one of his principle aims as supplying the artist with general knowledge, Goeree notes that it is not necessary for him to depict all of the unseen muscles or bones, though he does include a short written description of these parts in his text.<sup>245</sup> To supplement the information available, Goeree directs his reader to the works of Van der Gracht and Spigelius, displaying his familiarity with these texts.<sup>246</sup> In his discussion of the muscles and

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<sup>245</sup> "We cannot demonstrate due to the smallness of our draughts, therefore we will make only a short description of the same." [Die wy om de kleynheyd van onse vertoogschetsen niet wel en konnen aanwijzen, daarom sullenwe alleen een korte beschrijvinge van de selve doen.] (Goeree, *Menschkunde*, 420).

<sup>246</sup> "And these are the most important visible muscles that we deemed necessary to illustrate for practitioners of art and painters, in concurrence with the ones that we see most in life; the other internal muscles or those that lie concealed under the uppermost, we deem here not necessary to examine, as those do not serve our intention. Those who want to investigate those precisely, view the books of Spigelius, van der Gracht, some plaster casts and others." [En dit zijn soo de voornaamste sigtbare Muskelen die wy hebben noodig geagt den Schilder en Konst-Oeffenaar voor te stellen, overeenstemmende met de meeste diemen in 't leven komt te sien: d' Andere inwendige Muskelen ofte die onder de bovenste verborgen liggen, achten wy hier niet noodig t' onderzoeken, alsoo die tot ons voornemen niet en dienen. Die de selve wil Naukeurig onderzoeken, Besie de Boeken van *Spigelius Bartholinus*, *van der Gracht*, eenig *Boetseersels* en andere...] (Goeree, *Menschkunde*, 429); Goeree includes a similar recommendation of Jacob van der Gracht in his *Schilderkonst*, "Let us add some of the physics of things, such as Pliny, Jonston, and the others about the nature of beasts; the philosophical writings, from R. Descartes, Hobbes, Regius, Berlicom, and the like, as also several who wrote about the menschkunde or anatomy, as Vesalius, Spigelius, Veslingius, vander Gracht, and Thomas Bartholinus" [Later ons eenige tot de Natuer-kunde der dingen by-vogen, als *Plinius*, *Jonston*, ende andere van de Natuere der Beesten; de Philosophische schriften, van *R. Descartes*, *Hobbes*, *Regius*, *Berlicom*, en diergelijcke, als oock verscheyde die vande Menschkunde of *Anatomie* gheschreven hebben, als *Vesalius*, *Spiegelius*, *Veslingius*, *vander Gracht*, en *Thomas Bartholinus*...] (Goeree, *Schilder-Konst* 1670, 49).

bones, Goeree encourages consultation of his myological and osteological plates, either as examples of a particular gesture, such as lifting the arms, or to determine the specific location of the named muscles.<sup>247</sup> Through these visual aids the reader is able to appreciate how a range of actions bring different internal movements into focus and the relationship between the muscles in the body. However, the presentation of this information places greatest authority in the author's written word, even to the detriment of his images.

### **vii. Authoring Authority**

Goeree's format distinguishes his work from that of Van der Gracht and Van Hoogstraten, but the three texts are united in their concern with the representation of corporeal movement and the training an artist required for success. Showing a level of specificity in his discussion of this subject that exceeds earlier works, Goeree's emphasis on written instruction is likely the product of his repeated insistence that an artist should train his mind before the hand.<sup>248</sup> This advice reiterates Van der Gracht's sentiments but contradicts Van Hoogstraten's advice that the skills of both the head and hand should be developed

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<sup>247</sup> "And because we could also demonstrate with some examples how the said knowledge of the muscles can profit the painter in the expression of the action and functions of the figures, we have postponed until here [...] through a good knowledge of the designation, location and use of the Muscles, in advance may prepare and are made suitable..." [En op dat wy nu ook met eenige staltjes soudē aanwijzen hoedanig de geseyde kennis der Muskelen der Schilder kan te bate komen int uytdrukken der Actien en werkingen der Beelden, soo hebben wy tot hier toe uytgesteld (...) door een goede Kennis van de Benaming, Plaats en gebruyk der Muskelen, te vooren mogte afgeregt en bequaam gemaakt zijn...] (Goeree, *Menschkunde*, 429-430).

<sup>248</sup> "...most faults and budding mistakes are made as much in the command as in the obedience, depending not only on large parts of ignorance of general knowledge, but also especially from that of the menschkunde [...] There and above that everyone performs his activities, almost only by imitating their predecessors, through cowardous aping; and thus is merely an artist through simple execution, trained in his hands, instead of in his brain." [...de meeste Faalgrepē en botte Mislagen die soo in 't gebieden als in 't gehoorsamen begaan werden, hangen niet alleen grootdeels af van de Onkunde der algemeene Wetenschappen, maar ook bysonderlijk van die der Menschkunde (...)] Daar en boven dat yder byna sijn Doeningen, alleen uyt navolging sijner Voorgangers, door een bloote na Aping, verrigt; en alsoo slegts een Konstenaar door simpele uytwerking werd, waar van hy eer in sijn Handen, dan in sijn Herssens geoeffend is.] (Goeree, "Voor-reden aan den bescheiden leser," *Menschkunde*, unnumbered page).



simultaneously.<sup>249</sup> Gijsbert van de Roemer attributes this distinction to the divergent intellectual traditions in which these authors operated and identifies Van Hoogstraten as belonging to one of the last vestiges of Renaissance humanism, while Goeree is more closely affiliated with Dutch Classicism and the New Philosophy, which placed greater emphasis on order and governing rules.<sup>250</sup>

However, it is possible that the divergence in these authors' approaches could have also been the product of their distinct professions. Although both were clearly well-read, Van Hoogstraten was a practicing artist, and his comment that,

Some other writers [...] who did not wield the brushes, have produced many works: But they are, saving their grace, not up to the task, and even though they hit the target many times with fine phrases, they frequently, as did Alexander, make Apelles' pupils laugh,<sup>251</sup>

expresses his views concerning advice given by those outside of the profession. The publication date of Goeree's *Menschkunde* exempts it from being the target of this comment, but the same cannot be said for Goeree's texts on painting and drawing. Goeree worked as a book printer and seller but in his *Inleyding to de Al-gemeene Teyken-konst* (Middelburg, 1668, 1670; Amsterdam 1697) he writes that he "speaks from experience,"<sup>252</sup> alluding to his familiarity with drawing without offering any additional details. However, he maintained

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<sup>249</sup> Van de Roemer, "Regulating the Arts," 195; "Attend therefore to those parts, as if you are tracing their moral nature, but with a painterly eye, more skillful in showing, than telling; so that, the hand as well as the mind, becomes fluent and skilled." [Let dan op die deelen, als of gy haren zeedenaert naspeurde, maer met een schilderachtich oog, vaerdiger tot uitbeelden, als tot uitspreken; op dat, zoo wel hand als verstant, flux en vaerdich worde.] (Van Hoogstraten, *Inleyding*, 46; trans. Ford, "Grondt & Inleyding").

<sup>250</sup> Van de Roemer, "Regulating the Arts," 186.

<sup>251</sup> "Voorts hebben sommige andere [...] Schrijvers, die de pinseelen niet gevoert hebben, veel arbeys aengewent: Maer zy zijn, behoudens hare gratie, de zaek onmachtich, en schoonze menichmael met heerlijke Speuken het doelwilt treffen, zoo doen zy dikwils, met *Alexander*, Apelles leerlingen lacchen." (Van Hoogstraten, *Inleyding*, 2-3 [A2]; trans. Ford, "Grondt & Inleyding").

<sup>252</sup> "ick spreecke van ondervindinge." (Goeree, *Al-gemeene Schilder-Konst*, 59).

several relationships with artists, including his son, Jan Goeree (1670-1731), who trained as a painter under Gerard de Lairese (1641-1711).<sup>253</sup> These contacts may have contributed to the information found in his treatises, but the diverse range of texts Goeree cites speaks to his investment in written sources and his level of knowledge engages with existing art literature in circulation at this time.

Goeree's profession in the book trade may have also contributed to the precision with which he arranged his treatise and the instructions he provides for its organization. Though he divides the muscles and bones into separate chapters, Goeree is careful in his arrangement of information and encourages his reader to navigate between the different images and textual accounts provided in the *Menschkunde*. To this end, he includes instructions for how his images should be bound into the book, specifying that the print of the bones should extend from the left and the muscles to the right.<sup>254</sup> When bound properly, this approach makes it possible to evaluate the two plates simultaneously and compare several different views of the human body while reading the pertinent text. In the registers that accompany these illustrations, Goeree meticulously references other bones or muscles

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<sup>253</sup> Kwakkelstein, *Willem Goeree*, 26.

<sup>254</sup> "For that reason we then also want the illustration of the bones to the left, and the draughts of the muscles to the right-hand outside of the book, so that one can, during the entire description of the same, view one against the other [and] compare, to the reader's great advantage." [Gelijkwe dan ook daarom willen dat de Afbeelding der Gebeenten na de Slinker, en de Verdoog-Schetsen der Muskelen ter regter plaats na de Regter-Hand buyten 't Boek op geslagen sal werden, op datmen die, geduurdende de geheele Beschrijving der selve, tegens den anderen soude kunnen besien, vergelijken en groot nut daar van hebben.] (Goeree, *Menschkunde*, 378); "For that reason we have also ordered the bookbinder to keep [the illustrations] of the skeletons at the left and the muscles at the right-hand side of the book; so they can be used together and with more benefit." [Waarom wy den Boekbinder ook hebben geordineerd de Geraamten na de Slinker en die van de Muskelen na de Regter hand buyten 't Boek te laten uyt gaan; omse dus met meerder Nutt tot en met malkander te kunnen gebruyken.] (Goeree, *Menschkunde*, 411); An example of binding that follows Goeree's instructions can be found in the Special Collections of the University of Amsterdam, though it is evident that not all copies were produced following the author's specifications, or may have been "corrected" by later binders. Also, the skeletal and muscular figures differ in both pose and number, preventing a direct one-to-one correlation between the prints – as is the case with Vesalius's paper cut outs.

to which a specific part relates and provides the proper name, figure label, and number for these complementary elements, encouraging his reader to navigate between the registers and two plates. This task is made easier though the shared structure of the text and plates, as the registers for both the muscles and bones are separated into sub-sections following the limbs and members of the body from head to foot, numbered in ascending order. This method facilitates quick reference between the muscular and skeletal systems of the body and encourages the reader to reinforce the text with visual instruction.

Goeree may not have been a professional artist, or even anatomist, but his treatise makes reference to a range of well-known experts, whom he cites as a means of providing information for his reader and securing his role as an authoritative source. For example, in his discussion of technical methods used by artists he draws on Junius, Van Mander, Dürer, Leonardo da Vinci (1452-1519), Jean Cousin (c. 1522-1595), Gian Paolo Lamazzo (1538-1592), Simon Vouet (1590-1649), Pieter de Jode II (1606-1674), and Jan de Bisschop (1628-1671), among others. In several cases, the publications of these artists are listed in the sales catalogue of Goeree's library upon his death, suggesting the book publisher's familiarity with these materials.<sup>255</sup> Similarly, he uses biographical anecdotes and the works of well-known modern masters, including Goltzius, Masaccio (1401-1428), Antonio Pollaiuolo (1433-1498), Michelangelo Bounarroto (1475-1564), Raphael Sanzio da Urbino (1483-1520), and Nicolas Poussin (1594-1665), to help explain certain concepts and serve as examples for young artists, emulating the writings of Van Mander and Van Hoogstraten.

Goeree does not stray from this method in his treatment of anatomical sources; he repeatedly references the publications, theories, and knowledge of physicians and anatomists

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<sup>255</sup> *Catalogus [...] Wilhemus Goeree*, 33, 35, 50, 53, 63.

throughout the *Menschkunde*. At times, he vaguely refers to the profession with turns of phrase such as, “as the anatomists attest to us,” or identifies a specific part of the body as being “named by the anatomists.”<sup>256</sup> In some cases, Goeree displays his erudition through well-known passages drawn from notable physician’s texts, as is the case in his eleventh chapter, in which he describes the construction of the muscles using the metaphor of cheese-making, an analogy he borrows from Vesalius’s *Fabrica*.<sup>257</sup> In others, he refers to these experts by name, citing Spigelius, Alexander Benedictus (c. 1430-1512), Johannes Bauhinus (1541-1613), Andreas Laurentius (1558-1609), Daniel Sennertus (1572-1637), Nicolas Tulp (1593-1674), Job van Meekeren (1611-1666), and Cornelis Bontenkoe (1644-1685). With the exception of Laurentius, none of these experts are addressed in the work of Van Hoogstraten or Van der Gracht; their inclusion in the *Menschkunde* demonstrates Goeree’s breadth of knowledge in his accumulation of source material and the increased primacy awarded to anatomists in the later seventeenth century. Through this method, Goeree offers evidence of his learning, while associating his advice with the expertise of recognized authorities on the subject.

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<sup>256</sup> “als ons d’ontleder getuygen” (Goeree, *Menschkunde*, 381); “en worden by d’ontleders [...] genoemd” (Goeree, *Menschkunde*, 414).

<sup>257</sup> “...simple flesh covering the fibers, which is held together by fibers no differently than in cheese baskets and strainers in which people skilled in such work coagulate milk. Imagine, therefore, that the scattered fibers of nerve and ligament correspond to rushes, blood to the milk, and the flesh is analogous to cheese, for as one produces from milk, so is the other from blood.” (Andreas Vesalius, *De humani corporis fabrica libri septem: The Fabric of the Human Body: An Annotated Translation of the 1543 and 1555 Editions*, vol. 1, D.H. Garrison and M.H. Hast eds. and trans. [Basel: Karger, 2014], 453 [fol. 220]); “One believes that the muscles, or muscles which are properly the flesh, and with the bones liquids, veins and entrails make up the entire body, are made of skin-like and ligament having fibers, threads or vessels [...] between which the flesh is enclosed, that is formed there of flowing blood in the manner of cheese-curdling.” [Men gelooft dat de Muskelen of Spieren die eygentlijk het Vleesch zijn, en met de Beenen Vogten, Vaten en Ingewanden ‘t heel Lichaam uytmaken, gemaakt zijn van Vel-achtige en Ligament hebbende Fibren, Draden of Veselingen (...) tussen welk het Vlees besloten zit, dat daar van het doorvloyende Bloed op de Wijse van Kaas-stremmig in geformeerd werd.] (Goeree, *Menschkunde*, 393-394).

### viii. Completing the Equation: René Descartes and Nicolas Steno

In his final chapters, Goeree's discussion of muscular movement most explicitly references the works of the natural philosophers René Descartes (1596-1650) and Nicolas Steno (1638-1686). Of considerable significance for Goeree is the distinction between voluntary and involuntary movements. Relying on Descartes' theory of movement, as found in the *Treatise on Man* (Paris, 1664), Goeree explains that the rational soul distributes a flow of animal spirits from the brain through the nerves, or small pipes (*kleyne pijpjes*), causing the muscles and tendons to produce a particular action.<sup>258</sup> The rational soul, or commander, ensures that certain functions of the body, such as breathing, are continuous and do not rely on the will of the individual. The soul also determines the amount of spirits required to perform a certain action. Building on this premise, and continuing to rely on Descartes, Goeree emphasizes the connection between the numerous muscles of the body. He notes that the action of one part necessitates a response in another, so that while some muscles contract others must extend, and therefore knowledge of this relationship is required for a complete understanding of how movement is achieved.<sup>259</sup> In his description of the myological plates, found at the end of the chapter, Goeree returns to the representation of intrinsic movements. Focusing on the breath, he explains how the muscles of the torso respond to this action,

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<sup>258</sup> "The ways in which the limbs can be moved, must be noted in four; first the thinking soul as commander. Secondly the animal-like spirits, as the helpers and servants, thirdly the muscles, sinews and tendons, as the laborers and instruments; and fourthly the deed itself managed by that limb or limbs..." [De Middelen waar door de Leden kunnen bewogen werden, moet men viersints aanmerken; eerst de denkende Ziel als den Gebieder. Ten tweeden de dierlijke Geesten, als de Helpers en Dienstboden, ten derden de Muskelen Zenuwen en Pesen, als de Arbeyders en Werktyugen; en ten vierden de Daad selve door dat Lid of Leden die bestuurd werden...] (Goeree, *Menschkunde*, 395); René Descartes, "Treatise on Man," in *The Philosophical Writings of Descartes*, vol. 1, John Cottingham et al. ed. and trans. (Cambridge: Cambridge University Press, 1985), 99-101.

<sup>259</sup> Goeree, *Menschkunde*, 396.

using his illustrations as supporting examples and emphasizing the necessity of a firm understanding of their functions in order to produce a convincing image.<sup>260</sup>

In the *Menschkunde*, the writings of the Danish anatomist, Nicolas Steno (1638-1686), who studied at Leiden University from 1660-1664, supplement the information taken from Descartes. Drawing on theories found in the *Elements of Myology* (Florence, 1667), Goeree cites Steno's use of mathematics and observations from empirical evidence, specifically the dissection and examination of animal muscles, as indications of the anatomist's credibility. Using these methods, Steno proposes a new shape for the muscle, replacing the conventional spindle-shape with an oblique-angled parallelepiped, the tendons of which form two tetragonal prisms [Fig. 20 and 21].<sup>261</sup> The flesh of the muscle is composed of "motor-fibers",

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<sup>260</sup> "If you want your figures to appear lively to catch breath, allow the right abdominal muscle named *Rectus* and the sacred loin muscle or *Sacro Lumbus* to expel the wind of breath, and narrow the trunk: so that your figures engaged in this act appear to inhale their breath strongly. Allow the great indented *Seratus Major* and *Obliquus Externus* to do such, and uncover the trunk with the ribs [...] without doubt, the praised painter *Antonius Pallaivola* [Antonio del Pollaiuolo], had observed this very well in his strong archer [drawing his bow] as has been noted before elsewhere." [Wild gy dat u Beelden levendig schijnen te Adem-halen, laat de Regter Buyk-spier *Rectus* geheeten (38) en d'heylige Lende-Spier of *Sacro Lumbus* (18) de Wind des Adems uytjagen, en de Romp schijnen te vernauwen: of so u Beelden in eenige daad, den Adem sterk moeten schijnen in te trekken; Laat den grooten getanden *Seratus Major* (36) en *Obliquus Externus* (37) sulx doen, en de romp met de ribben t'ontdekken, schijnen wy'er te maken: gelijk buyten twijffel, dien gepresen Schilder *Antonius Pallaivola*, in zijn sterk spannenden Boogschutter seer wel had waargenomen als vooren elders in aangemerkt.] (Goeree, *Menschkunde*, 430-431).

<sup>261</sup> Goeree does not use these specific terms, which have been taken from Steno's text, and instead uses the term *Teerling* (die, cube); "{The new muscle structure} Relying on this basis I represent a muscle as a collection of motor fibers arranged so that the flesh in the middle forms an oblique parallelepiped and the tendons form two opposite tetragonal prisms." [{"Musculi Systema nouum} Huic fundamento innixus musculum repraesento per *fibrarum motricium collectionem ita conformatam, ut mediae carnes parallelepipedum obliquangulum constituent, tendines vero opposite duo prismata tetragona componant.*] (Nicolas Steno, "Specimen of Elements of Myology," in *Steno on Muscles*, Troels Kardel trans. (Philadelphia: The American Philosophical Society, 1994), 94-95); "The ingenious Steno who has done many precise examinations about this matter; is of the opinion that until today no one has known about the wondrous manner of the muscles' movement. He has attempted to explain the fabrication and form thereof in a mathematical fashion: This manner will be briefly given: He includes firstly the muscle under a whole different category than the general theory: because he says that the fleshy part, commonly called the belly, is a *scheef-hoekige even-wijd-grond* [acute-angled Parallelepiped], that is, a figure that has six flat quadrangular sides, whereof two overlap one another, are parallel, so that all the sides form rectangles." [Den Schranderen *Steno* die veel naukeurige ondersoekingen ontrent dese stoffe heeft gedaan; meend datmen tot op heden de wonderlijke maniere van beweging der Muskelen niet en weet. Hy heeft het Maaksel en de Form daar van op een Wiskundige wijze pogen te verklaren: Welke maniere uyt hem beknoptelijk aldus voorgesteld werd: Hy bevat eerstelijk de Muskel onder een heel andere Gedaante, dan de Gemeene Leere: want hy segt dat het Vleesigh

as Steno locates the movement of the muscle in the fibers of the structure, rather than the tendons.<sup>262</sup> These first two premises were more easily accepted and adapted by contemporary anatomists. For example, this geometric structure of the muscle is reprinted in Bidloo's *Anatomia Humani Corporis* (Amsterdam, 1685).<sup>263</sup> However, Steno's argument for the contraction of the muscle was met with significantly greater criticism by John Mayow (1641-1679), Giovanni Alfonso Borelli (1608-1679), and Johann Bernoulli (1667-1748) and eventually fell from reference.<sup>264</sup> Contradicting the belief that the swelling of the muscle was caused by an influx of some other material, such as animal spirits, thus changing the volume of the muscle, Steno suggested that the fibers of the muscle shortened and thus became thicker. He maintains that this is not on account of any new material entering the flesh and does not affect the mass of the muscle, as was previously thought.<sup>265</sup>

Goeree's selection of Steno's and Descartes' theories is more explicit and detailed than the allusions found in Van Hoogstraten's text and Goeree's choice to align his work with these natural philosophers is notable considering the mixed response they received in the second half of the seventeenth century. At the time of the *Menschkunde*'s publication,

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gedeelte, gemeenlijk den Buyk genoemd (...) dat is, een Figuur welke ses platte Vierhoekige Zijden heeft, waar van de twee die tegen malkander overstaan, Evenwijdig zijn; soo nogtans dat al de Zijden met malkander regte hoeken maken.] (Goeree, *Menschkunde*, 399).

<sup>262</sup> The predominant role of the tendons in the movement of body was suggested by Galen (131-201 A.D.), Niccolò Massa (1485-1569), and Hieronymus Fabricius (1537-1619). This perception was contested by Vesalius (Troels Kardel, "Elements of Myology in Historical Perspective," in *Steno on Muscles*, Troels Kardel trans. [Philadelphia: The American Philosophical Society, 1994], 4-5); Steno, "Specimen of Elements of Myology," 97-99.

<sup>263</sup> Kardel, "Elements of Myology," 29-32.

<sup>264</sup> Kardel, "Elements of Myology," 42.

<sup>265</sup> "I thus think it is amply demonstrated in every muscle that when it contracts swelling occurs, even if no new substance enters the muscle." [Atque ita quidem abunde demonstratum puto in omni musculo, dum contrahitur, tumoreni contigere, etiamsi nulla noua musculo accederet materia.] (Steno trans. in Kardel, "Specimen of Elements of Myology," 148-149).

Cartesianism was under scrutiny due to the appearance of more radical veins of philosophy, such as Spinozism, particularly in the universities and among orthodox Calvinists. Despite this conflict, awareness of and allegiance to Descartes's ideas remained strong in the Dutch Republic.<sup>266</sup> Notably, Goeree's religious affiliations lay with the Cocceians, a branch of Calvinism that was strongly allied with seventeenth-century Cartesians and Goeree's admiration for Descartes is clearly communicated in both the *Menschkunde* and his later publication, *Kerklyke en Weereldlyke Historien* (Church and Worldly Histories; Amsterdam, 1705).<sup>267</sup> Moreover, a copy of the complete works of Descartes, which was published in 1692, is included in the sales catalogue of Goeree's estate upon his death, indicating Goeree's continued interest in Descartes's theories.<sup>268</sup> In contrast, Steno's theory of muscular structure was widely discredited in the late-seventeenth and early-eighteenth centuries, in part due to its perceived incommensurability with the more traditional theories of movement, as exemplified by Descartes.<sup>269</sup> While Steno rejects some of the particulars of Descartes' understanding of human anatomy, Sebastian Olden-Jørgensen notes that the

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<sup>266</sup> Wiep Bunge, *From Stevin to Spinoza: an essay on philosophy in the seventeenth-century Dutch Republic* (Leiden: Brill, 2001), 34-64; Jonathan Israel, *The Dutch Republic: Its Rise, Greatness, and Fall, 1477-1806* (Oxford: Clarendon Press, 1995), 889-890.

<sup>267</sup> Kwakkelsteijn 1998, 22. Despite the frequent use of the term "Cartisio-Cocceian" alliance, it has been noted that the two groups had little in common philosophically or theologically, with the exception of both being "new" branches of religion and philosophy that sought support from one another during a period of dispute. See Bunge, *Stevin to Spinoza*, 45, 53; Erik Jorink, *Reading the book of nature in the Dutch golden age, 1575-1715* (Leiden: Brill, 2010), 93-94; Israel, *The Dutch Republic*, 893-899.

<sup>268</sup> *Catalogus [...] Wilhemus Goeree*, 53, no. 202.

<sup>269</sup> Kardel, "Elements of Myology," 3; In particular, John Mayow, *Tractus quinque* (Oxford, 1674), Giovanni Alphonso Borelli, *De motu animalium* (Rome, 1680), and Johann Bernoulli, *De motu musculorum* (Basel, 1694), Albrecht von Haller, *Elementa physiologiae corporis humani* (Lausanne, 1762); Kardel, "Elements of Myology," 32-39.



Cartesian scientific method and view of the body as a machine informed Steno's analysis of the muscles and, therefore, we should not understand the two as entirely contradictory.<sup>270</sup>

In particular, Goeree seems most attracted to the role of mathematics in Steno's theory. The Danish anatomist asserts, "that unless myology becomes part of mathematics, the parts of a muscle cannot be distinctly designated, nor can its motion be considered adequately."<sup>271</sup> Both Steno and Descartes use mathematical evidence to support their arguments; Goeree's inclusion of these experts in his discussion of anatomy is harmonious with his interest in mathematics as a guiding principle for artists in their study of the body. In the *Schilder-konst*, Goeree equates different stages and elements of an artist's training with the *artes liberales* and specifically links arithmetic with anatomy, as characterized by perceived numerical relations between different parts of the body.<sup>272</sup> Ratios are also the foundation of the body's proportions; Goeree explains in the fourth chapter of the *Menschkunde* that these change with each movement, necessitating a full understanding of the body's functions, which he seeks to provide in his later chapters.<sup>273</sup> While the division of the body into ideal ratios has its roots in Vitruvius, the equation of mathematics with anatomy was not a given. Similarly, although geometry has a long-standing role in the training of artists in this period and is frequently used in drawing books and art treatises, the degree of specificity with

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<sup>270</sup> Sebastian Olden-Jørgensen, "Nicholas Steno and René Descartes: A Cartesian perspective on Steno's scientific development," *The Revolution in Geology from the Renaissance to the Enlightenment*, Gary D. Rosenberg ed. (Boulder: Geological Society of America, 2009), 150-151.

<sup>271</sup> Steno, *Opera*, 2:154, trans. in Domenico Bertoloni Meli, "The Collaboration between Anatomists and Mathematicians in the Mid-Seventeenth Century with a Study of Images as Experiments and Galileo's Role in Steno's 'Myology'," *Early Science and Medicine*, vol. 13, no. 6 (2008), 700.

<sup>272</sup> Van de Roemer, "Regulating the Arts," 189.

<sup>273</sup> Van de Roemer, "Regulating the Arts," 196.

which Goeree treats this subject, focusing on the structure of the muscles themselves, is new in early-modern art literature. Goeree uses the writings of his contemporaries and the certainty of mathematics as presented in their analyses of the human body, to solidify the reputability of his own advice on this subject.

The *Menschkunde*'s inclusion of this form of argumentation is in keeping with the changing methods used to make claims about the natural world in the seventeenth century. In his analysis of the transformative practices of natural philosophy in the early modern period, Peter Dear explores the engagement between physics and mathematics as the two disciplines became increasingly intertwined in mid-seventeenth century with the introduction of physio-mathematics.<sup>274</sup> He attributes this shift to the rise of the mechanistic view of the world and the consequent integration of art and nature. This new partnership made room for contrived or artificial practices in the study of nature, amplifying the acceptability of a mathematical understanding of the world. Building on Dear's thesis of collaboration, Domenico Bertoloni Meli explains that anatomists, including Jan Swammerdam (1636-1680) and Nicolas Steno, drew on the expertise of mathematicians in the seventeenth century. These two disciplines are rarely linked in modern scholarship but Meli demonstrates that, on several occasions, anatomists invited mathematicians to contribute to studies of the body through experiments, instruments, and mathematical methods, making it possible that the relationship between the two fields may have been more pronounced to a seventeenth-century audience than previously thought.<sup>275</sup>

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<sup>274</sup> Peter Dear, *Discipline and Experience: The Mathematical Way in the Scientific Revolution* (Chicago: University of Chicago Press, 1998), in particular, 153-161, 168-179.

<sup>275</sup> Bertoloni Meli, "The Collaboration between Anatomists and Mathematicians," 690-692, 696-706.

Moreover, in this period mathematics became a language of certainty, both in the methods employed and its emphasis on the assessment of quantitative elements.<sup>276</sup> The study of mathematics in the seventeenth-century Netherlands reached its peak in the period of roughly 1630-1680, the time during which Goeree was raised, came into maturity, and published his writings on art.<sup>277</sup> Examining the application of this science during the seventeenth and eighteenth centuries, Geert van Paemel notes that while a mathematical method is frequently used in philosophical arguments during this period, it is rarely applied in its formal capacity. More frequently, it is employed as a means of popular appeal, drawing on the period association of mathematics with truth.<sup>278</sup> In the context of the *Menschkunde*, we can appreciate the integration of Descartes and Steno's theories of the body as a deployment of this persuasive tool. At once, Goeree displays his knowledge of these early-modern natural philosopher's arguments, while grounding his advice in their expertise. Through this strategy, Goeree's work could resonate with his audience of learned gentlemen and art lovers, who were likely familiar with the field of mathematics, including Constantijn Huygens (1596-1687), to whom the text is dedicated.<sup>279</sup>

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<sup>276</sup> Dear, *Discipline and Experience*, 31; Michael Mahoney, "The mathematical realm of nature," *The Cambridge History of Seventeenth-Century Philosophy*, vols. 1-2, Daniel Garber and Michael Ayers eds. (Cambridge: Cambridge University Press, 1998), 704; J.A. van Ruler explicitly connects these two components of mathematics with Descartes (J. A. Van Ruler, *The Crisis of Causality: Voetius and Descartes on God, Nature and Change* [Leiden, New York, Köln: Brill, 1995], 165-166).

<sup>277</sup> On the practice of mathematics in the seventeenth-century Netherlands see Gerard Alberts et al., "Mathematics in the Netherlands: A Brief Survey with an Emphasis on the Relation to Physics, 1560-1960," *A History of Science in the Netherlands*, Klass van Berkel et al. eds. (Leiden: Brill, 1999), 367-404.

<sup>278</sup> Geert Vanpaemel, "The Culture of Mathematics in the Early Dutch Enlightenment," in *The Early Enlightenment in the Dutch Republic, 1650-1750*, Wiep van Bunge ed. (Leiden: Brill, 2003), 204, 206, 207.

<sup>279</sup> Alberts, "Mathematics in the Netherlands," 3.

For Goeree, Descartes and Steno serve as authoritative sources for very different kinds of knowledge. Whereas Descartes is used to explain how movement is performed, whether consciously or not, Steno's theory describes the form and function of the muscle itself. In both cases this knowledge is framed within the aim of providing useful information for the artist, at least in the opinion of the text's author. In this endeavor, the *Menschkunde* offers greater specificity than either the *Anatomie* or *Inleyding* and locates Goeree's analysis of the body more firmly in the writings of his contemporaries, while functioning within shifting perceptions of authority towards the end of the seventeenth century.

### ***C. Conclusion***

Introducing anatomical study to artists and *liefhebbers*, and tailoring his subject to suit this new audience, Van der Gracht's *Anatomie* both deviated from existing art literature in the seventeenth-century Netherlands and set a new expectation for later publications. With two editions printed within thirty years of each other and the familiarity of artists with this work into the eighteenth century, we can view Van der Gracht's text as essentially cornering a market concerning theoretical instruction on the body's physical construction.<sup>280</sup>

Distinguishing itself from the contents of drawing and model books through the integration of sixteenth-century anatomical atlases' format and pictorial style, the *Anatomie* encouraged the visual association of its plates with the products of renowned physicians. However, Van der Gracht's augmentation of these materials makes evident his perception of the distinct requirements for artists. He offers his reader numerous plates and descriptions of the body's

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<sup>280</sup> Notably, De Lairese does not recommend Van Hoogstraten or Goeree in his early-eighteenth century treatise and directs his reader to Van der Gracht instead. The present dissertation does not include an analysis of artists' responses to Van Hoogstraten's and Goeree's anatomical figures or instructions, and future research will investigate their use and audiences.

internal workings but removes the more detailed information found in anatomical atlases. Limiting his discussion to the muscles and bones, his text and images serve the creation of convincing representations of the body in motion and the harmonious depiction of its parts, but do not address the systems responsible for corporeal operations. Responding to the example of the *Anatomie*, the publications of Van Hoogstraten and Goeree take up the subject of anatomical study for artists in the second half of the seventeenth century. However, their treatments of this material demonstrate that although anatomical instruction was deemed necessary for the training of an artist, the extent of study was not regularized. Notably, the way in which each author integrates this topic into his larger discussion of painting and the body serves as a means of advancing his personal and professional agenda.

For Van Hoogstraten, this results in a publication that is designed to replace the works of those who came before, including Van der Gracht. His execution of new plates that draw on the example of anatomists, combined with the *écorché* figures found in early-modern drawing books, offered his reader a new example to emulate. Whereas Van der Gracht makes evident his relationship to sixteenth-century anatomical examples, Van Hoogstraten situates the study of anatomy within new restrictions and consequently produces a commentary on his predecessors. Limiting his treatment of the body to four figures and condensing his explanation of these forms, Van Hoogstraten engages with this subject as a means of legitimizing his new system of proportion and as a basis for an artist's ability to persuasively portray the passions. Though severely curtailed, the presence of this subject in the *Inleyding* is notable, as it is the first documented example of anatomy's inclusion within a universal program of study for an artist in the Netherlands.

Van Hoogstraten's curriculum for an artist's education informs Goeree's approach to this topic but the bookseller and publisher does not place the same limits on his treatment of anatomy. Aligning himself with Van Hoogstraten's model in his selection of five skeletal and muscular figures, Goeree also associates himself with Van der Gracht in his return to the familiar examples of Vesalius. Identifying anatomical knowledge as the basis upon which an artist is able to produce beautiful and graceful figures, particularly in motion, Goeree also demonstrates his allegiance with existing early-modern art literature. However, when it comes to providing the requisite tools for achieving this aim, Goeree is the most generous of these three authors. Integrating the study of the muscles and bones with early-modern theories of movement and mechanics, Goeree offers the most extensive explanation of the body's form and function, while simultaneously displaying his erudition. However, given that Goeree redirects his reader back to the images of Van der Gracht and other early-modern anatomists concerning the visibility of the body's structures in his small-scale plates, it is questionable how practical his anatomical instruction was for working artists in this period. The emphasis placed on pictorial examples in the *Inleyding* and *Anatomie* make even more apparent the distinction between the works authored by artists and that of a learned gentleman, and highlights the priority given to the written word in Goeree's approach to this topic.

As such, these three examples demonstrate the distinct purposes that anatomical study could serve in early-modern publications addressed to artists in this period. However, in their shared emphasis on the depiction of convincing figures in motion, we can perceive an alliance among these sources, which distinguishes these works from the aims of their anatomical exemplars. Finding new tools in the products of physicians, art literature

associated itself with expertise drawn from a range of fields and adapted itself to accommodate the changing subjects of study made available.

## CHAPTER THREE

### Dissection by Design: Marten Sagemolen's Drawings for Johannes van Horne

#### i. Introduction

The vibrancy of Marten Sagemolen's (c. 1620 – 1669) colored anatomical drawings, which he produced for the professor of anatomy and surgery at Leiden University, Johannes van Horne (1621 – 1670), sets them apart from the black-and-white printed images that are usually found in anatomical atlases or art literature [Figs. 73, 80-95, 98-104, 109].<sup>281</sup>

Depicted in hues of red, orange, pink, and brown, with subtle shading produced through a mixture of media, including chalk, *gouache*, and pigmented washes, the muscles and bones appear to project from the page and mimic the appearance of the cadaver. Interspersed among the sheets of *écorché* and skeletal figures, annotations in the hand of the artist document the circumstances under which the drawings were produced. In printed works, this type of information is most often recorded in the anatomist's preface and typically diminishes the artist's role. Therefore, the preservation of this information from the perspective of the artist is as precious as the drawings themselves.

In his inscriptions, Sagemolen insists that his delineations were executed after dissections that he had himself conducted. We can align these assertions of anatomical experience and knowledge with those of Jacob van der Gracht (1593-1651) and interpret Sagemolen's statements as seeking to elevate the status of the images, their maker, and

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<sup>281</sup> There are several variations of Sagemolen's name, including Martinus Saeghmeulen, Zaagmolen, and Saagmolen. For the purposes of this project I have selected the spelling that the artist consistently uses in his annotations.



owner through claims of authoritative expertise.<sup>282</sup> However, in contrast to Van der Gracht's manual, which does not suggest that the artist produced his images based upon direct involvement with the dissected body, new archival evidence supports Sagemolen's claims to anatomical experience. This makes him the first documented example of an artist-anatomist in the seventeenth-century Netherlands and his drawings are an important counter-example to the evidence found in period art literature. Sagemolen's draughts also act as a unique foil to printed anatomical publications and provide the opportunity to consider the role of content, medium, and the context of display in relation to the involvement of the artist and anatomist in the production and function of anatomical images.

In contrast to Sagemolen, Van Horne's voice is relatively absent from the drawings, and he does not contribute to our understanding of their use or his role in their creation, leaving this task to his image-maker, who identifies the anatomist as the patron and facilitator of the images. In the past, copies of Sagemolen's annotations, archival records, diaries, and letters have informed our understanding of these works, given that the drawings were believed to have been lost in the nineteenth century.<sup>283</sup> Based on this evidence it has been assumed that the drawings were designed in preparation for a printed anatomical atlas.<sup>284</sup> However, the physician's printed publications are nearly devoid of illustrations, with the exception of one full-page image in his *Novus ductus chyliiferus* (Leiden, 1652) and images of the reproductive organs that he prepared with Jan Swammerdam (1637-1680) [Fig. 74].

Documents indicating that Van Horne planned to have Sagemolen's works printed do not

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<sup>282</sup> Tim Huisman also views Sagemolen's annotations in this light. (Tim Huisman, *The Finger of God: Anatomical Practice in 17<sup>th</sup>-Century Leiden* [Leiden: Primavera Pers, 2009], 74).

<sup>283</sup> Paule Dumaître, *La Curieuse Destinée des Planches Anatomiques de Gerard de Lairesse* (Amsterdam: Rodopi, 1982), 81-95; Huisman, *The Finger of God*, 73-74.

<sup>284</sup> Huisman, *The Finger of God*, 74.

survive and the recent rediscovery of the manuscripts in 2016 made possible the first visual analysis of their contents. Taking this new evidence into consideration, my assessment of these drawings challenges previous interpretations and proposes that their very materiality is central to their role as working objects of knowledge-production concerning the anatomical body.

This chapter analyzes these images for the first time and situates them within the pictorial tradition of anatomical illustration and Sagemolen's *oeuvre*. I find that the formal qualities of the drawings are not easily commensurable with the printed medium. Although they reference early-modern anatomical woodcuts and engravings, the large format, volume, and use of color in Sagemolen's drawings would be costly and challenging to translate to a published volume. The fact remains that prints made after the draughts do not exist and, therefore, viewers engaged with the images more or less in their present form, as there have been losses. The drawings themselves are worn from use and contain annotations in multiple hands and media, some formal, others corrective, which suggest the constant handling and reworking of the images. Moreover, the vital role played by the drawings' material elements in the viewer's experience of the works suggests that their function differed from that of an anatomical atlas. I propose that they were most effective when used with other anatomical objects, particularly those found in Van Horne's collection. In following chapter, I reconstruct the contents of Van Horne's anatomical cabinet and the activities that occurred therein and suggest that the drawings were best suited to the focused audience of medical students and learned gentlemen who were granted access to Van Horne's home. I argue that Sagemolen's drawings were designed as unique tools that could function both as a contained

system, as indicated by pictorial devices and strategies within the images themselves, and in tandem with other objects found in the anatomist's collection.

### ***A. The Manuscripts and Their Maker***

#### **ii. Past and Present**

In preparing for the exhibition *Eindelijk! De Laïresse* at the Rijksmuseum Twenthe (10 September 2016 – 22 January 2017), the Bibliothèque Interuniversitaire (BIU) de Santé in Paris investigated additional holdings in their collection, including a set of four manuscripts that were annotated in a seventeenth-century Dutch hand and bore the name “De Laïresse” on the spine of one of the volumes. With the aid of Hans Buijs at the Foundation Custodia, Jean-Francois Vincent and his colleagues were able to identify the artist and anatomist responsible for these works.<sup>285</sup> Their attribution was confirmed through Tim Huisman's thorough research on the history of Leiden University's anatomy theater, in which Huisman includes translations for Herman Boerhaave's (1668-1738) eighteenth-century transcription of Sagemolen's annotations.<sup>286</sup> Retracing the provenance for these manuscripts from Boerhaave's ownership, with the aid of Paule Dumaître's study of Gerard de Laïresse's

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<sup>285</sup> An overview of the drawings and their provenance are given by Jean-François Vincent and Cloé Perrot (Jean-François Vincent and Cloé Perrot, “La myologie de Johannes Van Horne et Marten Sagemolen: Quatre volumes de dessins d'anatomie du Siècle d'or retrouvés à la Bibliothèque interuniversitaire de santé (Paris),” V2 [31 august 2016] <<http://www.biusante.parisdescartes.fr/ressources/pdf/van-horne.pdf>> [2 September 2016]). My thanks to Dr. Jean-François Vincent, Cloé Perrot, and Stephanie Charreaux for sharing this discovery with me during my visit to the BIU Santé and allowing me to work through the manuscripts despite their fragile condition.

<sup>286</sup> Writing about Van Horne's atlas several years prior to the rediscovery of Sagemolen's drawings, Huisman's research is largely informed by the Leiden University Curator's Archives, Boerhaave's transcription, and Ole Borch's letters and travel journal (Huisman, *The Finger of God*, 73-74); A photocopy of Boerhaave's transcription of the annotations is held at the Erfgoed Leiden en Omstreken (Herman Boerhaave. *Overgeschreven aantekeningen van de schilder Martin Sagemolen bij zijn anatomische tekeningen gemaakt voor Prof. Johannes van Horne, 1654-1665, en van Jacob Willemsz. inzake het leren van de anatomie*, ELO 7000-79 portefeuillefolio Boerhaave, H.). The original is found in the Kirow Institute, Petersburg.

(1641-1711) preparatory draughts for Govard Bidloo's (1649-1713) *Anatomia Humani Corporis* (Amsterdam, 1685), Vincent found that they were sold together with the *Anatomia* drawings and were eventually overshadowed by these more famous works and subsumed under De Lairese's name.<sup>287</sup> During the period of 1739-1796, the drawings changed hands at least four times before coming to the BIU Santé and at some point within these transactions their identity was lost, along with a portion of the original contents. Complementing the work of Dumaître, Huisman, and Vincent concerning the history of these drawings, my research makes new contributions to the provenance of these manuscripts following Van Horne's death and proposes a new interpretation for their design and function.

Though knowledge of the existence and location of the drawings faded over the last two hundred years, their original significance within Van Horne's collection is marked by their repeated identification in archival documents that were drawn up in the last year of the physician's life. A testament and inventory written by the notary Dirck Verhagen and signed by Van Horne on 28 December 1669, describes the volumes as, "three costly and one less costly book of drawings."<sup>288</sup> They are bequeathed to Herman van Friessem (1639-1696), husband to Van Horne's youngest sister, Jacoba van Horne, and a doctor in Amsterdam, a

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<sup>287</sup> Vincent, "La myologie de Johannes Van horne," 14-20; Dumaître, *La Curieuse Destinee*, 81-91.

<sup>288</sup> "...een geraamte van een mensch vol van letters met drie kostelycke ende een wat mindren kostelycke boeken zynde anatomische teeckeningen." (Erfgoed Leiden en Omstreken [ELO] 0506, Dirck Verhagen 28 December 1669, no. 176; Universiteit van Amsterdam [UVA], MS II A 20). This folder includes transcriptions of several seventeenth-century archival documents pertaining to anatomy and is also referenced in Huisman's study, though he does not investigate the provenance of the drawings following Van Horne's death; The sales catalogue for Van Horne's collection also lists the drawings as being contained in four volumes: "...ac quatuor voluminibus distinctam..." (*Catalogus Instructissimae in omni material ac lingua Bibliothecae Nobilissimi & Celeberrimi Viri D. Joannis van Horne* [Leiden: Ex Officina Arnoldi Doude, 1670], last page). All translations in this chapter are mine, unless otherwise indicated.

familial connection between these physicians that has previously gone unrecognized.<sup>289</sup> This testament confirms that the volumes contained anatomical drawings, and also notes several loose drawings that were kept together with the books in a “certain carved and painted chest.”<sup>290</sup> In this document, Van Friessem is granted permission to maintain the rarities as he chooses.<sup>291</sup> A later inventory specifies that the drawings were to be sold at auction and had been advertised in the weekly bulletin, but notes there were very few inquiries, so that they remain instead under the trusted guardianship of Van Friessem.<sup>292</sup> The status of the drawings is corroborated by a notice at the end of the 1670 sales catalogue for Van Horne’s library, which records a set of four volumes that contain “the admirable anatomy of the muscles of the whole body, painted in living colors.”<sup>293</sup> The text states that the sale of these items was to take place separately from the public auction, and recommends that interested

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<sup>289</sup> Stadsarchief Amsterdam (SAA), *Doop-, Trouw en Begraafboeken* (DTB) 485, 178.

<sup>290</sup> “...anatomical rarities, namely three costly and one less costly book of drawings [...] All of the loose drawings contained in a certain carved and painted chest where the aforementioned three costly books lie together...” [...annatomische rariteyten, namentlick drie kostelicke ende een wat minder bouck sijde teeckeningen [...] alle de losse teeckeninghen gelegen in seeckere graeuwe geschilderde kist alwaer de voors drie kostelijcke boucken mede in gelegen syn...] (ELO 0506, Dirck Verhagen 28 December 1669, no. 176; UVA MS II A 20).

<sup>291</sup> “...thence Dr. Harmanus van Friesen, here named, has the free disposition to hold the [books] for himself or to honor another...” [...daer van sal de Heer Dr. Harmanus van Friesen hier naergenomt hebben de Libre ende vrije dispositie om deselve voor sich selven te houden oft aen andere te vereeren...] (ELO 0506, Dirck Verhagen 28 December 1669, no. 176; UVA, MS II A 20).

<sup>292</sup> “...being anatomical drawings the same as were previously announced in the weekly paper, also in a catalogue and otherwise everywhere made publicly offered for sale, have very few able to avail, where fore the same still unsold are left and are the same before rest in the trusty keeping of the executer van Friessem.” [...synde anatomische teeckeningen deselves naer voorgaende bekentmaeckinge bij de weeckelicxe karante, item bij een catalogus ende andesints alomme gedaen openbaerlick sijnde geveijlt, hebben seer weijnick konnen gelden, waeromme deselve noch onvercocht sijn gelaeten, ende syn deselve voorts gelaten in de getrouwe bewaeringe van den executeur van Friesem.] (Dirck Verhagen, 19 December 1670, UVA MS II A 20).

<sup>293</sup> “admirable anatomy of the muscles of the whole body, painted in living colors, and in four separate volumes” [Anatomen admirandam musculorum totius Corporis, vivis coloribus depictam, ac quatuor voluminibus distinctam] (*Catalogus Instructissimae [...] D. Joannis van Horne*, last page).

parties attend the second day.<sup>294</sup> Two years later, Jan Swammerdam (1637-1680), a former student of Van Horne, noted that certain prepared specimens that were once in Van Horne's collection could now be seen in the home of Van Friessem, confirming that several of the professor's former anatomical rarities were in the possession of his heir, although Swammerdam does not note the drawings in particular.<sup>295</sup> A detailed inventory of Friessem's belongings was drafted following his death, but it focuses on precious goods, such as gold, silver, jewelry, and paintings, and does not make any reference to other types of items, such as books or drawings, which were surely found in the physician's home.<sup>296</sup> Between the 1670s and early eighteenth-century, at which time the drawings are found in Boerhaave's collection, there is no record of their precise location.

Neither the sales catalogue of Van Horne's library nor the notarial records indicate the volume or scope of the drawings; instead, an undated inventory drafted by Boerhaave is our most informative document concerning the contents and organization of these works [Table I].<sup>297</sup> He provides a list of subjects and count of the drawings held in each volume and

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<sup>294</sup> "Finally, separate from the public auction is also the admirable anatomy of the muscles of the whole body [...] Therefore, they advise all who possess desire for anatomy to also be present on the second day of the auction." [Publicâ denique auctione distrahere etiam animus est Anatomicen admirandam musculorum totius Corporis [...] Monentur itaque omnes qui Anatomiae cupiditate tenentur, ut secundo auctionis die praesentes sese sistant.] (*Catalogus Instructissimae [...] D. Joannis van Horne*, last page).

<sup>295</sup> Jan Swammerdam, *Miraculum Naturae sive Uteri Muliebris Fabrica* (Leiden: Severinum Matthaei, 1672), 35.

<sup>296</sup> SAA 5075, Michiel Servaes, no. 5055, akt. 39.

<sup>297</sup> The drawings must have passed to at least one other owner between Van Horne and Boerhaave, but at present there is no record of the seventeenth-century arrangement of the *tomi*. Given that archival documents from Van Horne's life list the drawings as being held in four volumes (see above, ELO 0506, Dirck Verhagen 28 December 1669, no. 176), but Boerhaave records seven, it is likely that they were rebound into their current arrangement following the anatomist's death (A photocopy of Boerhaave's records of Sagemolen's drawings is held in the Boerhaave Museum (Herman Boerhaave, *Handschriften Boerhaave over anatomische tekeningen van Martinus Sagemolen of Saegmolen*, Arch 388). The original is held in the Kirow Institute, St. Petersburg (Kirow no. 30, 101-107).

identifies the drawings as being held in seven volumes or *tomi*, four of which were *in folio*, and two *in quarto* with tortoise bindings and gilded imprint.<sup>298</sup> Comparing the more than 250 drawings held in the BIU Santé manuscripts to this document for the first time in nearly two hundred years, I found that approximately two-thirds of the original illustrations have survived and, remarkably, many of them remain bound in their early eighteenth-century order. The first *tomus*, which Boerhaave identifies as containing 25 illustrations of the male form, seen from the front and back and executed in a large format, remains intact and corresponds to MS 30 in the BIU Santé collection [Table II].<sup>299</sup>

Remnants of paper and glue in MSs 29 and 27 indicate partial losses, but in general these manuscripts follow the contents listed for *Tomus IV* and *VI* and focus on isolated views of the torso, limbs, hands, and feet. In addition, the annotations that are transcribed in Boerhaave's inventory of *Tomus IV* correspond to those found in MS 29, and confirm both the attribution of the drawings and the eighteenth-century volume's content. Three sets of illustrations of the head that were originally bound in *Tomus V* are now rebound in MS 28, which otherwise corresponds to *Tomus II*, though it is missing four sets of illustrations of the torso and full-length body. Unfortunately, the remainder of *Tomus V*, which included illustrations of the tongue, larynx, penis, vulva, and anus, and the entirety of *Tomus III*, which addressed the brain, mouth, salivary duct, and penis, and *Tomus VII*, which replicates images in *Tomus VI*, are lost. Given the emphasis that is placed on the muscular and skeletal structure of the body in the surviving images, the missing works, with the exception of the

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<sup>298</sup> Boerhaave, Arch 388 (Kirov no. 30, 101-107); Huisman, *The Finger of God*, 74.

<sup>299</sup> "...in maxima forma habet XXV Tabulas. Tu his/hic nulla verba appicta. Tabulae sola anteriora & posteriora pingunt..." (Boerhaave, Arch 388, fol. 101).

salivary duct and brain, would have likely further elucidated the muscular structures of the body, and their relation to the skeleton. We are fortunate that such a large proportion of the drawings have remained intact and offer the potential for comprehensive analysis.

### **iii. Marten Sagemolen as Artist-Anatomist**

Sagemolen's name and works are rarely found in modern scholarship. In this section, I reconstruct the artist's biography and *oeuvre* to situate his anatomical drawings within his training as a painter, his anatomical education, and his relationship with his patron. Van Horne's reasons for hiring Sagemolen to produce these works is not indicated in the annotations of the BIU Santé manuscripts, but Sagemolen's work as a history painter, and therefore a specialist in rendering figures, may have contributed to his appeal. Born in Oldenburg, Germany, Sagemolen is first recorded in Leiden in 1640 as a witness to a notarial act.<sup>300</sup> His reasons for traveling to the Netherlands are unknown, but family ties and the prosperous art market of the northern Netherlands may have been compelling motivations. Anthony (1621-1691) and Reynier Hals (1627-1672), the sons of the painters Dirk (1591-1656) and Frans Hals (d. 1666) respectively, are listed as Sagemolen's cousins in an inventory that was drawn up at their request following Sagemolen's death in 1669, and in 1656, Sagemolen's sister, Trijntje (1631-n.d), married Anthony who was a painter in Amsterdam.<sup>301</sup> On at least one occasion Reynier served as an art dealer for Sagemolen's works and, after the death of Sagemolen and his second wife Geertje Claes Breker (n.d.),

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<sup>300</sup> A. Bredius and N. de Roever, "Iets over Martinus Saeghmolen," *Oud Holland* (Amsterdam: Gebroeders Binger, 1888), 124; ELO 0506, no. 200, fols. 154r-155r, Prot. Not. A. Paedts, 8 June 1640; My thanks to Martin Jan Bok and Pieter Bakker who graciously shared their archival research on Martin Sagemolen and his family at an early stage in my project.

<sup>301</sup> Bredius and De Roever, "Iets over Martinus Saeghmolen," 125-127; SAA 5075, no. 3890 (film 3996), fols. 203-207, L. Fruyt, 28 November 1669; SAA, DTB 476, fol. 363.



Anthony and Trijntje served as guardians for two of Sagemolen's daughters, Lucretia and Altje.<sup>302</sup>

Sagemolen is among the earliest members of the Guild of St. Luke in Leiden following its formal organization in 1648. Although he only paid dues for two years, he appears to have remained in the city until 1654. At that time, he and his family suddenly left their home on the Doelensteeg, a mere block from the anatomy theater, and fled to Amsterdam in an attempt to avoid the plague.<sup>303</sup> He stayed in Amsterdam until his death in 1669.<sup>304</sup> The earliest known date for his employment by Van Horne is 9 February 1652, at which time the professor appealed to the Curators of Leiden University to request financial support for the drawings. On 28 February of the same year, Van Horne served as a witness at the baptism of Sagemolen's daughter Lucretia, making it likely that the two had been acquainted for some time prior to this event.<sup>305</sup> Evidence of the continued contact and friendship between artist and anatomist is suggested by Van Horne's presence as a witness at the baptism of

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<sup>302</sup> The sale occurred 27 June 1667 (A. Bredius, "Oorkonden over Reynier Hals," *Oud Holland*, vol. 41 [1923], 260); Presumably, Sagemolen married Grietje Jurrieans before the birth of their first son Marten in 1644 (SAA, DTB 141, fol. 185). She likely died following the birth of their last child, Johannes, in 1662 (SAA, DTB 146, fol. 3). Sagemolen remarries Giertje Brekers, the widow of Jan Adriaensz., in Amsterdam in 1664 and becomes a citizen of Amsterdam in the same year (Bredius and De Roever, "Tets over Martinus Saeghmolen," 124; SAA, Tr.b. 485, fol. 461; SAA, Poorterboek 2, fol. 344). Both Sagemolen and Giertje Brekers died in 1670, and Sagemolen's children who are still minors go to live with their aunt and uncle (SAA Weesboek 33, fol. 37v; Bredius, "Oorkonden over Reynier Hals," 261).

<sup>303</sup> In his hurry to leave, Sagemolen seems to have forgotten to inform his landlord, the Leidsche Schutterij, that he would no longer be paying rent, leaving us with a helpful record (Bredius and De Roever, "Tets over Martinus Saeghmolen," 124; P. Leendertz ed., *De Navorscher Nederlands archief voor genealogie en heraldiek, heemkunde en geschiedenis* (Amsterdam: J.C. Loman Jr., 1870), 509).

<sup>304</sup> While in Amsterdam, Sagemolen seems to have taken on students, including Jan Luyken and Michiel van Musscher, who are named by Arnold Houbraken (Arnold Houbraken, *De Grootte Schouburgh der Nederlandsche Konstschilders en Schilderessen*, het III deel [The Hague: J. Swart, C. Boucquet, and M. Gaillard, 1753], 63) and Nicolaas Piemont (Bredius and De Roever, "Tets over Martinus Saeghmolen," 123).

<sup>305</sup> ELO 1004, no. 280-282, Dopen Lutherse Kerk, 28 February 1652; AC1 24 fols. 250v-251r and fol. 285r.

Sagemolen's youngest child, who was also named Johannes, on 6 January 1662 in the Lutheran Church in Amsterdam, approximately two years after the latest dated annotation on the drawings.<sup>306</sup>

Clues to Sagemolen's activities between Leiden and Amsterdam are found in guild and notarial records, sales catalogues, and inventories, which suggest that the artist produced works on a range of subjects, including genre painting, still lifes, *tronies*, and landscapes, although he was best known as a figure painter and specialized in history painting.<sup>307</sup> At approximately the same time that Van Horne's drawings are first documented in the archives of the Curators of Leiden University, Sagemolen undertook a commission to decorate the coffered ceiling in the home of a Leiden cloth merchant, Abraham le Pla [Fig. 75].

Surviving to the present day, the ceiling of the house at Pieterskerkgracht 9, a short walk from the artist's home, features garlands of flowers, fruit, and vegetables, entwined with animals, *putti*, instruments, and reclining human and mythic forms, which are executed in monochromatic oil paint. The beams surrounding the coffers are also decorated with

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<sup>306</sup> SAA, DTB 146, 3; Each of Sagemolen's children were baptized in a Lutheran church.

<sup>307</sup> Heyderick van der Stock purchased a "geselschapie" on 23 May 1644 for 14 – 11 – 0 (D. O. Obreen, "De Boeken van het Leidsche St. Lucas Gilde", in *Archief voor Nederlandsche Kunstgeschiedenis*, vol. V [Rotterdam: W. J. Van Hengel, 1882-1883], 175); Seventeen works by the artist were inventoried upon his death. See, Bredius and De Roever, "Iets over Martinus Saeghmolen," 125-127, and SAA 5075, no. 3890 (film 3996), fols. 203-207, L. Fruyt, 28 November 1669; A work featuring Venus, Ceres, Pallas and Mars, which was painted c. 1664, is recorded in *Catalogus einer schönen Sammlung auserlesener Cabinet; Mahlereyen und Portraits, welche in einem bekannten Sterbeause in der Neustädter Fuhrentwiete, an der Ecke der Neustraße, den 12ten April 1775 an die Meistbietenden verkauft werden sollen durch den Makler Johann Hinrich Neumann. Hamburg, gedruckt bey Heinrich Christian Grund* (Hamburg, 1775) (lot 20); On 27 June 1667, Reynier Hals and Dirck Smith purchased "een Samaritaentge," presumably depicting the Good Samaritan, from Sagemolen, and sold it to Joannes Haarewijns, master surgeon (Bredius, "Oorkonden over Reynier Hals," 260-61); Houbraken notes that he had seen a large Last Judgment by the painter (*De Grootte Schouburgh*, 63); A scene of Moses and the brazen serpent, which has been in the collection of Appleby Bros. in London, has also been attributed to Sagemolen. <<https://rkd.nl/en/explore/images/274604>> (5 April 2107); A landscape by Sagemolen is listed in *Catalogus van een fray cabinet met konstige schilderyen* (Amsterdam: Theodorus Crajenschot en Jan Willem Smit, 1785), 112; Two paintings done by Sagemolen, a scene of tric-trac players and a merry company painting, are recorded in *Catalogue de Tableaux Anciens des Diverses Écoles* (Paris, 1876) (16).

garlands of flora and shells. Signing one of his inset works, Sagemolen makes a distinction between his contributions to the coffers and the garlands that are featured on the beams, writing, “Questi quadrati / et non le trabi ha depinto M. Sagemolo”<sup>308</sup> [Fig. 76]. In the context of the changing art market and the rise of *kladschilders* in the second half of the seventeenth century, Pieter Bakker interprets the inclusion of this note as a sign of respect for the distinct realms of figural and ornamental painters. Recognizing the different levels of education that these groups often possessed within the painter’s profession, Bakker comments that the *kladschilder* was unlikely to have understood Sagemolen’s inscription, making it a sort of joke for those who could read Italian.<sup>309</sup> By extension, the short text also displays Sagemolen’s learning, which is supported pictorially in the painted ceiling through his allusion to classical forms, knowledge of varied plants and animals, and the human figure.

An inventory drawn up following Sagemolen’s death offers further insights into the artist’s training, life, and works. In addition to Italian, his command of Dutch is confirmed in the annotations of the BIU Santé manuscripts and two drawings of garlands that are now in The Metropolitan Museum of Art, which are identified as being made in 1653 in the

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<sup>308</sup> “These panels and not the beams were painted by M. Saegmolen.” (trans. in Piet Bakker, Margriet van Eikema Hommes and Katrien Keune, “The coarse painter and his position in 17<sup>th</sup>- and 18<sup>th</sup>-century Dutch decorative painting,” in *Studying 18<sup>th</sup>-century paintings and works of art on paper: CATS Proceedings, II, 2014, Copenhagen*, Helen Evans and Kimberley Muir eds. [London: Archetype Publications, 2015], 75); Bakker translates the noun “trabi” as “travi” for beams, but the term could refer to any part of the ceiling woodwork. Given that the garlands that ornament the beams are stylistically comparable to those within the coffers, and that both elements come into proper perspective from the same viewpoint, it is possible that Sagemolen’s distinction refers to the faux marble frames that surrounded the coffers. This treatment is also preserved in a room on the floor above, though the garlanding is absent; Jan Droge, *De bouw- en bewoningsgeschiedenis van Pieterskerkgracht 9* (Leiden: Ars Aemula Naturae, 1982), p27-28.

<sup>309</sup> Piet Bakker, “Crisis? Welke crisis?: Kanttekeningen bij het economisch verval van de schilderkunst in Leiden na 1660,” *De Zevntiende Eeuw*, vol. 27 no. 2 (2011), 266, note 105.

“Doelesteg” for Anton Andries [Fig. 77].<sup>310</sup> The artist’s literacy is also indicated by the presence of approximately “100 books in folio, quarto, and octavo from different authors”<sup>311</sup> in his home. Knowledge of stories from antiquity and the Bible would have been considered an asset for the history painter, and a list of seventeen paintings that the artist produced documents the prevalence of these subjects within his *oeuvre*. Images of the Old and New Testament are the most numerous, followed by allegorical and moralizing scenes, particularly those that address the subject of judgment. Works found in various rooms of the house share these themes, specifically, a *vanitas* painting, a scene of the Last Judgment, an image of Mary, and an *Ecce Homo*.<sup>312</sup>

The artist’s inventory and known works from his *oeuvre* also testify to Sagemolen’s interest in anatomical subjects and demonstrate that it extended beyond the drawings produced for Van Horne. In the *voorhuis* hung a painting of the Art of Medicine, announcing the artist’s interest in this field to visitors. Meanwhile, the loft and studio contained, “a large section of anatomical drawings” and “twelve plaster *tronies*, both large and small, seven plaster torsos, nineteen plastered arms, hands, and feet.”<sup>313</sup> The use of plaster casts as tools for artists is well documented in the seventeenth-century Netherlands. In his *Den Grondt*, Van Mander promotes these objects as a means through which artists can

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<sup>310</sup> Martinus Saeghmolen, *Study of a Garland of Fruits and Vegetables* (c. 1653), accession no. 2013.938b.

<sup>311</sup> “Omtrent 100 boecken soo in folio, quarto en octavo ended at van verscheyde autheuren” (SAA 5075, no. 3890 [film 3996], fol. 205, L. Fruyt, 28 November 1669).

<sup>312</sup> Bredius and De Roever, “Iets over Martinus Saeghmolen,” 125-127.

<sup>313</sup> “...een vierehoute kist, daerin bevonden een groot deel teekeningen van anatomie...” and “...twaelff gepleysterde tronies, soo groot als cleyn, seven gepleysterde buycken, negentien gepleysterde soo armen, handen als voeten.” (Bredius and De Roever, “Iets over Martinus Saeghmolen,” 126).

work out light and shade, while De Lairese, writing at the end of the century, recommends the use of plaster anatomical casts over examples provided in books.<sup>314</sup> Depictions of artists' studios also include these types of objects, as is seen in Willem Goeree's (1635-1711) and Frederik Bloemaert's (1614-1690) frontispieces for their published art treatises on the human body [Figs. 78-79]. In these images, parts of the body are shown hanging from shelves and walls and, in particular, Bloemaert's example from his *Het Tekenboek*, or *Artis Apelleae Liber* (Utrecht, 1650-56), most closely resonates with the pieces described in Sagemolen's inventory. Given that this record was produced almost ten years after the drawings for Van Horne were completed, it is difficult to determine whether these tools and models may have informed the artist's drawings for the anatomist, or whether they were a bi-product of his employment.

In particular, one of Sagemolen's extant paintings offers evidence for the mutually supporting nature of his figural painting and anatomical study. At the same time that the artist was working on his drawings for Van Horne, he produced a scene of the flaying of Marsyas by Apollo, which is signed and dated 1658, and was, in 2016, in the collection of Dr. Moritz Julius Binder in Berlin.<sup>315</sup> The flayed figure of Marsyas is placed in the center of

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<sup>314</sup> Karel van Mander, *Den Grondt der edel vry schilder-const* (Haarlem: Paschier van Wesbusch, 1604), Ch. II, line 12; "Nevertheless your knowledge of anatomy obtained from plaster is pure, so is it still much better than the book, and that is the first, and principle plaster statue which you necessarily have." [Doch kund gy een Anatomie in playster krygen de zuiver is, zo is 't noch veel beeter als het Boek, en dat is het eerste, en voornaamste playster beeld die gy noodich hebt.] (Gerard de Lairese, *Grondlegginge ter Teekenkonst* [Amsterdam: Willem de Coup, 1701], 57); Philips Angel also refers his reader "to the anatomies of Master Hendrick and Master Cornelis van Haarlem, who have left you flayed plaster casts, for want of anything else..." (Michael Hoyle and Hessel Miedema, "Praise of Painting," *Simiolus: Netherlands Quarterly for the History of Art*, Vol. 24, No 2/3 [1996], 248).

<sup>315</sup> The work was included in Christie's "Tableaux 1400-1900" sale (Paris, 14 September 2016) as Lot 32, but the auction results do not include a price realized, suggesting that it did not sell. An image of this painting can be found on the RKD website and is published in Chloé Perrot, "Vers un approche pluridisciplinaire des dessins de myologie inédits de Van Horne et Sagemolen: quelque aspects techniques," *Fecit ex Natura: Le métier d'illustrateur des sciences médicales du XVIIe au XXe siècle* [Paris: BIU Santé, 2017], 16 fig. 4.

canvas, the vibrant red of his exposed muscles in sharp contrast with the pale bodies of Apollo, the Muses, and *putti* that surround them. Writhing in agony, he is held upright by ropes, but they have not been tied so tightly as to restrict his movement. Instead, he tosses back his head and his open mouth releases a silent cry.<sup>316</sup> His face is obscured from view by his arm, and the concealment of his features in combination with his lifted chin and parted lips mimic the pose of Sagemolen's figures in his drawings for Van Horne, particularly his first flayed figure in MS 30 [Fig. 73]. The appearance of the body's physiological structure and its coloring are also comparable, but these qualities are put to separate ends, which are suited to the display and use of these distinct works.

In contrast to the images produced for the Leiden professor of anatomy, in which the act of dissection is suggested but not depicted, the painted satyr is in the process of being flayed. Blood streams from his flesh and pools at his feet. The god Apollo is shown coming to the end of his task and collects his opponent's skin with his back turned to the viewer. Distinct from other early-modern paintings of this subject, which typically portray the musical competition between these figures or the first cut of Apollo's knife, Sagemolen shows Marsyas with his skin almost entirely removed, a motif that was more common in print.<sup>317</sup> The immediacy of the red and white used to represent the muscles draws our

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<sup>316</sup> Potential precedents for Sagemolen's Marsyas include a print of the same subject by Theodoor Galle, which was executed after the design of Jan van der Straet. In his printed drawing book, Paulus Pontius also includes flayed figure bound to a tree, which was done after Peter Paul Rubens. Sagemolen's depiction of Marsyas, in human form, not as a satyr, nearly flayed, with his head back, obstructing his face, is shared with these prints, and in particular, the pose of Rubens' figure includes many similarities with Sagemolen's work.

<sup>317</sup> Though Sagemolen's depiction of this subject is unusual, at least three comparable representations are found in Paulus Pontius's print after Peter Paul Rubens of an *Anatomical study of a man who is bound to a tree* (c. 1616-1657), Theodore Galle's engraving after Jan van der Straet's *Apollo flaying Marsyas* (1581-1612), and Melchoir Meier's engraving, *The Flaying of Marsyas* (1581). The pose of the figures, in particular the turn of the head away from the viewer is common to the first two listed works, and Van der Straet and Sagemolen both choose to depict Marsyas in human form.

attention to this figure, while the depicted onlookers signal the surprise, horror, and sorrow that this act has wrought. Focusing on Marsyas's fate as the result of his wager with Apollo and the Muse's judgment, this image is consistent with the moralizing themes of the artist's *oeuvre*. However, Apollo was also associated with the plague and healing, and the depiction of Marsyas in a fully flayed state enhances the association with medical training and practice. The narrative element of this work also distinguishes it from the anatomical drawings, which are generally devoid of a setting, other figures, or expression on behalf of the dissected subject. The depictions of comparable *ecorché* figures in distinct pictorial genres demonstrates the mitigation of the viewer's empathetic response through the absence of narrative content.

At the same time, similarities between the figures make a compelling visual case for the applicability of Sagemolen's anatomical training to his practice as a painter. Information concerning the artist's anatomical study and his involvement in Van Horne's project is included in the annotations found in the Paris manuscripts and Boerhaave's record of the missing volumes. In some cases, these references are short and limited to the artist's name, his role as the painter or inventor of the image, and the date, as is seen in a series of legs done in *grisaille*, which are discussed below. In this respect, the annotations follow a formula comparable to inscriptions found in early-modern prints. In others, the artist acknowledges his patron, Van Horne, and again, does not stray far from what one might expect in relation to period examples. However, the emphasis that Sagemolen places on his efforts in preparing and executing the drawings is notable, and simultaneously documents and promotes the artist's contributions to the project. In contrast, Van Horne's name is often mentioned in reference to his rank and position as the patron of the works, but it is unclear

whether he had a direct role in their production. Whereas the artist includes his own name in every annotation, the physician is only mentioned three times.

Acknowledged with the same frequency as the works' patron but awarded greater significance in the creation of these works, is God. In *Tomo IV* Sagemolen explains, "This anatomy of the thigh, leg, and foot, have I, Marten Sagemolen, drawn with God's help, with my own hands anatomized and examined, being assisted by delight and sorrow, and drawn in the year 1654"<sup>318</sup> [Fig. 80]. Boerhaave records a comparable statement in *Tomo V*, "I, Martin Sagemolen of Oldenburg, have drawn and examined these human faces from life (*na het leven*) with great diligence; anatomized with God's help, and without human help; [and] similarly the whole human body, from the head to under the feet. Such I have accepted to do, and also completed, for the Honorable gentleman Johannes van Horn, professor at Leiden."<sup>319</sup> In testifying to his first-hand experience with and observation of a natural specimen, which is supported through the term *na het leven*, Sagemolen assumes a witnessing role that lends credibility to the contents of his images.<sup>320</sup> Together with the date,

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<sup>318</sup> "Dese anatomye de dygen, been en veten hebbe ic / Maerten Sagemolen geteykent met godes / hulpe met eeygen handen geantomeseert / en ondersocht tehulpe hebbende lust en droufheit en / geteykent int Jahr 1654" (Marten Sagemolen, *External Leg No. 1, MS 29*, 1654. BIU Santé, Paris). My thanks to Eric Jan Sluijter and Nicolette Sluijter-Seijfferts for kindly looking at my translations of Sagemolen's annotations and Boerhaave's transcription, and for their thoughtful suggestions and comments.

<sup>319</sup> "Ik Marten Sagemolen van Oldenburg heb dese menschelyke aangesigten geteekend, en na het leven, med groote naarstigheit ondersogt; met Godes hulp, end sonder der menchen hulp geanatomiseerd; als ok het geheele lighaam der menschen, van het hoevd, tot onder de voeten. Sulks ik dan hebbe aangenomen te doen, en ook voltrokken, voor den Eerwaardige Heere, Heere Joannes van Hoeren, professor te Leyden..." (ELO 7000-79 portefeuillefolio Boerhaave, H.). Here, I have translated *aangesigten* as faces rather than views. Boerhaave's inventory indicates that *Tomus V* held images of the head, and the artist expands his statement to include the whole body later in this inscription.

<sup>320</sup> Peter Parshall, "Imago Contrafacta: Images and facts in the Northern Renaissance," *Art History*, vol. 16 no. 4 (December 1993), 565-567; Martin Kemp, "Temples of the Body and Temples of the Cosmos: Vision and Visualization in the Vesalian and the Copernican Revolutions," in *Picturing Knowledge: Historical and Philosophical Problems Concerning the Use of Art in Science*, Brian Baigrie ed. (Toronto: University of Toronto Press, 1996), 43.



circumstances of the depiction, and even an occasional location, Sagemolen's acknowledgement of God appends a layer of divine authority to his description of the means by which the drawings were produced. Concerning his depictions of the foot in the same volume, Sagemolen writes, "These then the great lord God through me, poor sinner, has drawn, and [I] have endeavored [to render] there in, the virtue and also the wealth of nature as much as I was able. Martin Mahler or Sagemolen 1654."<sup>321</sup> Given the prevalence of religious subjects in the artist's *oeuvre*, and their display in his home, these statements can also be interpreted as a genuine declaration of Sagemolen's piety and (moderate) humility. The acknowledgement of dissection as a means of glorifying and coming to know God through the study of his creation were well established in early-modern anatomical publications, but here Sagemolen seems to credit his technical success to heavenly assistance.

A second annotation, preserved in Boerhaave's inventory, confirms Sagemolen's anatomical knowledge and his claims to experience with dissection, though it has not been previously included in modern scholarship on this artist. Recorded in *Tomus V*, on the same page that contained Sagemolen's statement that he had anatomized and drawn human faces from life, was a type of informal contract (in that it does not seem to have been notarized) between the artist and the author of the agreement, Jacob Willemze (Willemse). The subject specifies that he will pay Sagemolen 100 *rijksdaalders* (240-250 *guilders*) for instruction in anatomy, and 50 *guilders* for instruction in the art of painting. The agreement was to last for one year, with the instructor receiving half of his pay at the beginning and the rest upon

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<sup>321</sup> "Dese dan heerd de groote god door mij arme sondaar geteekend, en heb daar in de deugd, als ook de rykdan der nature so veel bedragt, als ik gekunne heb Marten Mahler of Sagemolen 1654." (ELO 7000-79 portefeuillefolio Boerhaave, H.).

completion.<sup>322</sup> Unfortunately, no date is included and there is no elaboration concerning the identity of the subject.

However, the nature of the contract suggests a few possibilities for its creation. Sagemolen's fee for instruction in painting is consistent with contracts between masters and their pupils in the seventeenth century and Willemse may have been an apprentice who sought training in both painting and anatomy.<sup>323</sup> Notably, the cost of anatomical instruction is nearly four times that of painting and may indicate the higher expenditure required for cadavers. Unfortunately, the name "Jacob Willemse" does not appear in the Leiden painter or surgeon's guild records and an individual by this name, of either profession, is not listed in the city's archival records, though several can be found without a specified occupation. Medical students are known to have paid for additional training, and study under an artist would have also provided the opportunity for one to learn how to record his findings in images. However, the Leiden University student register (*Album studiosorum Academiae*) does not offer corroborating evidence for the years in question (1650-1660). The cost of this training, at approximately 300 *guilders* in total, is the roughly the equivalent of what many laborers earned in a year; therefore, it is also possible that Willemse may be located within

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<sup>322</sup> "I Jacob Wilemze confess, have made an agreement with Martin Sagemolen, that I Jacob Willemse will learn anatomy: Martin Sagemolen will receive 100 rijksdaalders, and for painting, 50 guilders. Of this, he will receive half now in hand, as we begin, and the other half when I have learned fully the art of anatomy the 50 guilders will be given, as the year has passed, (because) a year has been settled upon, that I Jacob will also do my best, to witness more, I have this written, and undersigned Jacob Willemze." [Ik Jacob Wilemze beken, verding gemaakt te hebben med Maerten Sagemolen, dat ik Jacob Willemze sal leeren de anatomy: daar voor sal Maerten Sagemolen ontvangen honderd ryksdaalders, en voor het schilderen, 50 gldens. Naar van de helvt sal ontvangen op hand, all wi beginnen; de andere hebt, als ik sal hebben volleerd de kunst van de Anatomy de vijftig gulden sal gegeven werden, als het jaar omit daar voor een jaar tyd gesteld is, dat ik Jacobus ook mijn best sal doen, tot meer getuigen is, heb ik dit selv geschreeven, en onderteekend Jacob Willemze.] (ELO 7000-79 portefeuillefolio Boerhaave, H.).

<sup>323</sup> Ronald de Jager, "Meester, leerjongen, leertijd: Een analyse van zeventiende-eeuwse Noord-Nederlandse leerling contracten van kunstschilders, goud- en zilversmeden," *Oud Holland*, vol. 104, nr. 2 (1990), 96-103.

the broader category of a learned gentleman, or a *leifhebber*, which Sagemolen identifies as benefiting from his drawings in one of his inscriptions. While it may be challenging to glean much information concerning the identity of Sagemolen's pupil, the contract provides important evidence for the artist's claims to practical anatomical knowledge and offers a remarkable record for this type of instruction outside the regulations of the surgeon's guild.

## ***B. The Tomi as Tools of Knowledge Production***

### **iv. Corporeal Conduct**

Sagemolen's annotations address some of the challenges faced during the production of these works, particularly concerning the expense and effort of the enterprise, but his comments often emphasize his own role to the point of occluding Van Horne's involvement. For example, in *Tomus IV* (MS 29) the artist writes, "These anatomies of the arms, I, Martin Sagemolen, have examined and anatomized from different bodies, with great costs and trouble, yet it must be so, in the year 1654"<sup>324</sup> [Fig. 81]. In this note, Sagemolen records the use of multiple subjects for the creation of the drawings and indicates that this was not accomplished without some expense and difficulty, which he implies were his burdens alone. Similar language is often found in the prefaces of anatomical atlases and serves to ennoble the efforts of the author and encourage the viewer to consider the physical study of the body that informed the creation of the images. Sagemolen's drawings are also distinguished as novel representations that drew on the variable example of life and make

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<sup>324</sup> "Dese anatomiserde armen hebe / ic Marten Sagemolen ut verscheyden / Mensen under socht en geatomesert / met groten kostung en Moyten doch / dat met so gaen Anno 1654" Trans. mine. (Marten Sagemolen, *Front view of Arm No. 2, MS 29*, 1654. BIU Santé, Paris)

evident the artist's role in this process.<sup>325</sup> Through these seemingly small comments, Sagemolen documents the monetary and intellectual value of the drawings, in which he includes his own services, and solidifies his association with these works for posterity. In this section, I investigate the claims made in Sagemolen's annotations and situate the drawings' subjects and production within early-modern anatomical practice.

Despite his statements to the contrary, Sagemolen's access to bodies was likely dependent upon the professional and social ties, and financial resources, of Van Horne. The physician was a member of an affluent merchant family and received of a salary that ranged from 600 to 800 *guilders* a year during the period in which the drawings were produced. This financial security, and comments made by the professor's students concerning his generosity, make it unlikely that Sagemolen was expected to carry the financial burden of this enterprise.<sup>326</sup> In fact, Van Horne appealed to the Curators of Leiden University in 1652 to subsidize the "excessive expenses" that the anatomist had already undertaken, and notes that he expected these costs to continue for some time. In response, he was granted 200 *guilders*, which was appended to his salary annually from 1654.<sup>327</sup> The particularities of the

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<sup>325</sup> Lorraine Daston and Peter Galison have described the late-seventeenth and early-eighteenth century approach to natural history and anatomical drawings as "truth to nature", which they identify as privileging a standardized model for study. In many respects, Sagemolen's images follow this type, but the artist also includes particularized details of his subjects, which I interpret as making reference to his direct study of the cadaver as a means of assuring the viewer of his observation of the subject, a strategy that is also seen in Gerard de Lairesse's images for Govard Bidloo, as will be discussed in the following chapter. (Lorraine Daston and Peter Galison, "The Image of Objectivity," *Representations, Special Issue: Seeing Science*, no. 40 [Autumn, 1992], 84-85; Lorraine Daston and Peter Galison, *Objectivity* [New York: Zone Books, 2007], 58-68).

<sup>326</sup> Swammerdam refers to Van Horne as a "Mecaenas" (Swammerdam, *Miraculum Naturae*, 43); Jelle Banga, "Johannes Hornius, Van Horne," *Geschiedenis der Geneeskunde en van hare Beoefenaren in Nederland, eerste deel* (Leeuwarden: W. Eekhoff, 1868), 443; Gerrit Lindeboom, "Dog and Frog, Physiological experiments at Leiden during the 17<sup>th</sup> Century," in *Leiden University in the Seventeenth Century: An Exchange of Learning*, Th. H. Lunsingh Scheurleer and G.H.M Postbumus Meyjes eds. (Leiden: Universitaire Pers Leiden/E. J. Brill, 1975), 286-287; Huisman, *The Finger of God*, 76.

<sup>327</sup> AC 1 24, fols. 250v-251; AC 1 25, fol. 29v; AC 1, 341 fol. 454v.

stipend's allocation are not provided, but it was likely used to cover the artist's wages and the costs of materials, including the acquisition of anatomical subjects. Therefore, we should regard Sagemolen's annotations with a degree of caution and recognize that one of their primary functions was the promotion of their author.

The archives of the University record the costs of public dissection, which included the acquisition of cadavers, and materials needed for dissection and an appropriate burial. For example, Pieter Pauw's (1564-1617) dissections on four separate occasions list expenses as ranging between nine and eleven *guilders* per subject, but the price could double or triple if the body had to be retrieved from another city. In his analysis of these records, Huisman finds that university's annual expenditure on public dissections was approximately fifty pounds (37.5 *guilders*), though this would fluctuate according to the availability of cadavers. These figures represent the payments for an official dissection and compensation to the anatomy servant for transportation, cloths, candles, coal, and burial costs.<sup>328</sup> In these cases, the provincial and municipal authorities provided the body but, understandably, cases of private acquisitions and their associated expenses did not produce comparable documentation.

Moreover, access to anatomical subjects was monitored and the right of dissection was officially only awarded to surgeons and physicians – making Sagemolen's instruction in this subject all the more notable. In 1593, just prior to the opening of the anatomy theater in Leiden, the States of Holland and West Friesland issued a decree that the bodies of executed

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<sup>328</sup> Huisman, *The Finger of God*, 191-195, n. 452; H.J. Witkam, *De Dagelijkse Zaken van de Leidse Universiteit van 1582 tot 1596, eerste deel* (Leiden, 1970), 25-31, nos. 31-34; J.E. Kroon, *Bijdragen tot de Geschiedenis van het Geneeskundig Onderwijs aan de Leidsche Universiteit 1575-1625* (Leiden: Van Doesburgh, 1911), 136.

criminals in cities within this province should be directed to the University for dissection.<sup>329</sup> However, in practice this often proved challenging, as Pauw's request to the University Curators the following year indicates, in which he notes a lack of subjects and encourages stronger enforcement in the acquisition of bodies.<sup>330</sup> Ongoing difficulties are documented in the 1678 request of the Senate of the University to the Curators, which asked for renewal of the 1593 decree, given that professors of anatomy were facing challenges obtaining subjects. The renewal occurred in 1681, but acquisitions remained a complicated process, as is recorded in a 1684 complaint from the professor of anatomy, Carolus Drelincourt (1633-1697), that the city magistrates were preventing the anatomy servant from collecting subjects and insisted that the anatomy professor himself be present.<sup>331</sup> The situation was rectified through a letter of permission, but it illuminates the obstacles put in place at various levels of government concerning access to cadavers, even when the inquiring party had the legal right.

Beginning in 1636, with the establishment of the Collegium Medico-Practicum, students of medicine and their professors were offered access to an additional source for dissection.<sup>332</sup> Following a long-held ideal in anatomical practice, Otto Heurnius (1577-1652) specified that cadavers should be those of foreigners or without relations, though Huisman

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<sup>329</sup> Kroon, *Bijdragen tot de Geschiedenis*, 134-135.

<sup>330</sup> Witkam, *De Dagelijkse Zaken*, 23-24, no. 29.

<sup>331</sup> P.C. Molhuysen, *Bronnen tot de Geschiedenis der Leidsche Universiteit, derde deel, 8 Febr. 1647-18 Febr. 1682* (The Hague, Martinus Nijhoff, 1918), 265-266; P.C. Molhuysen, *Bronnen tot de Geschiedenis der Leidsche Universiteit, viere deel, 18 Febr. 1682-8 Febr. 1725* (The Hague, Martinus Nijhoff, 1920), 29; Huisman, *The Finger of God*, 89-90.

<sup>332</sup> See Harm Beukers, "Clinical Teaching in Leiden from its Beginning until the End of the 18<sup>th</sup> Century," *Clinical teaching, past and present*, vol. 21, ¼, (1989), 139-152.

has demonstrated that in actuality this was true for just over half of those examined.<sup>333</sup> These dissections differed from those conducted in the anatomy theater and catered to a smaller audience, focused on determining the cause of death and the abnormalities of the subject rather than a general discussion of human anatomy. In the mid-seventeenth century, anatomists who were eager to conduct research also turned to hospitals for suitable specimens. For example, in 1677, in Amsterdam, Govard Bidloo inquired after subjects, presumably in preparation for his anatomical atlas. In the preface to his finished work, the author alludes to the challenges he faced when trying to obtain suitable specimens, “Truly it is lamentable that one denies us the use of cadavers, of which no one but the worms have benefit.”<sup>334</sup> Making a similar complaint, Gerard Blaes (1627-1682) made a request to the regents of the Amsterdam Binnengasthuis for subjects in preparation for a publication. Both anatomists received cadavers for their projects, but by 1681 the hospital strengthened their regulations, as they found that bodies were being given to doctors for dissection without the appropriate permissions.<sup>335</sup> Amid this stiff competition for bodies, Van Horne’s professional standing and affiliation with Leiden University likely made possible his access to anatomical

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<sup>333</sup> Huisman, *The Finger of God*, 116, 126-127; Molhuysen, P.C. *Bronnen tot de Geschiedenis der Leidsche Universiteit, tweede deel, 8 Febr. 1610 - 7 Febr. 1647* (The Hague, Martinus Nijhoff, 1916), bijlage 620, 312-313; Alexander Benedictus’s, “Of the uses of public anatomies, the selection of a cadaver, and the arrangement of an adequate theater,” which was published in Verona in 1497, is often cited in modern scholarship concerning regulations of the anatomy theater. Though complementary guiding principles are found in the Amsterdam surgeon’s guild’s records, these focus more on behavior, and do not include stipulations concerning the origins and appearance of the subjects (see William S. Heckscher, *Rembrandt’s Anatomy of Dr. Nicolaas Tulp: An Iconological Study* [Washington Square; New York University Press, 1958], 182-183; B. W. Th. Nuyens, *Het Ontleedkundig Onderwijs en de Geschilderde Anatomische Lessen van het Chirurgijns Gildete Amsterdam in de Jaren 1550 to 1798* [Amsterdam: P.N. van Kampen & Zoon, 1928], 15-16; SAA 366, no. 228, fol. 15).

<sup>334</sup> “Waarlijk het is te beklagen dat men ons het gebruyck der lijken ontzeid, waarvan niemand dan de wormen nut hebben.” (Govard Bidloo, *Ontleding des Menschelijken Lichaams* [Amsterdam: Wed. Van Someren, 1690], 4).

<sup>335</sup> Luuc Kooijmans, *Death Defied: The Anatomy Lessons of Frederik Ruysch*, trans. Diane Webb (Leiden: Brill, 2011), 159.

subjects, while lending Sagemolen's engagement with these cadavers a certain amount of decorum.

When producing images for anatomical study, the artist could not simply work from any subject available, and the appearance of the figures in the drawings produced for Van Horne follow a normative ideal, featuring a well-proportioned, male body.<sup>336</sup> As such, they conform to the preferred type seen in public dissection and early-modern anatomical prints. In his *De humani corporis fabrica* (Basel, 1543), Andreas Vesalius (1514-1564) explains that the description of irregularities can pose a challenge to an individual unfamiliar with the human body, and he specifies in his discussion of the azygos vein that,

...I would think that such arrangements of veins that occur only quite rarely should be considered by the student of Anatomy in just the same way as when sometimes a sixth finger in the hand or some other monstrosity comes to our attention. But whenever I see them in public dissections, I pass over them in silence as if they were not there, lest undergraduates believe they are observed in all bodies.<sup>337</sup>

Later, the author provides a more complete explanation of his selection of bodies for dissection, and specifies that,

For a public dissection it is good to have a body provided that is as well compounded as possible for its sex and of middle age, so that you will be able to compare other bodies to it as to a statue of Polyclitus. In private dissections, which occurs more frequently, it will be useful to dissect any cadaver, so you may consider what kind of body it too is, and understand the difference between one body and another and the true nature of many diseases.<sup>338</sup>

The normative body offered a universal model against which deviations could be compared and judged, and the images in Vesalius's atlas support his method of generalized instruction

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<sup>336</sup> Sachiko Kusakawa, *From Counterfeit to Canon: Picturing the human body, especially by Andreas Vesalius*. Preprint vol. 281 (Berlin: Max-Planck-Institut für Wissenschaftsgeschichte 2004), 22-29.

<sup>337</sup> Andreas Vesalius, *De humani corporis fabrica libri septem* (Basel: Ex officinal Joannis Oporini, 1543), fol. 280/380; *The Fabric of the Human Body: An Annotated Translation of the 1543 and 1555 Editions*, vol. 2, Daniel H. Garrison and Malcolm H. Hast eds. and trans. (Basel: Karger, 2014), 747.

<sup>338</sup> Vesalius, *Fabrica*, fol. 548, Garrison and Hast trans., *The Fabric of the Human Body*, vol. 2, 1115.



through a universal type.<sup>339</sup> Given that Sagemolen's drawings were likely designed to function within a site of more particularized investigation, as will be discussed in chapter four, the selection of an ideal form against which variations could be compared is complementary to Vesalius's description of cadavers.

The canonical body had a long tradition in anatomical illustrations and was also the preferred model for early-modern artists. In an inscription in *Tomus IV* (MS 29), Sagemolen identifies both professions as benefiting from his illustrations, though his description of painters is not the most complimentary [Fig. 82],

With this anatomy, I have endeavored to satisfy, to the best of my abilities, three sorts of artists (*konsteneren*). First and foremost the very learned gentleman Johannes van Horne: after that also the anatomical artists, and also *liefhebbers* of the same: then after that the blunt and dull painters, who are eager for knowledge but want to take no hand in the matter. There after, and thirdly, the high soaring and most [...] engravers and stone hewers.<sup>340</sup>

Sagemolen writes that his works can serve three sorts of *kunsteneren* and groups Van Horne, who is identified as the primary benefactor, with other anatomists (both professional and amateur), followed by painters, and finally, printmakers and sculptors.

The particular use of these types of images for anatomists is examined further below, but their service to artists requires some consideration. Here, notably, the illustration that

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<sup>339</sup> On Vesalius's idealized figures see Glenn Harcourt, "Andreas Vesalius and the anatomy of antique sculpture," *Representations*, 17 (1987), 28-61; Nancy Siraisi, "Vesalius and Human Diversity in *De humani corporis fabrica*," *Journal of the Warburg and Courtauld Institutes*, Vol. 57 (1994), 65-69; Sachiko Kusukawa, "The Uses of Pictures in the Formation of Learned Knowledge: The Cases of Leonhard Fuchs and Andreas Vesalius," in *Transmitting Knowledge: Words, Images, and Instruments in Early Modern Europe*, Sachiko Kusukawa and Ian Maclean eds. (Oxford: Oxford University Press, 2006), 84-91; Sachiko Kusukawa, *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-century Human Anatomy and Medical Botany* (Chicago, University of Chicago Press, 2012), 214-221.

<sup>340</sup> "In dese anatomye hebbe ic gelic ic uit beter en weet drierley konsteneren sucken te voldoen / Voren erst, en vor alle, den hogen geleerden Min heren Johannes van hooren: darna den oc / den antomichen konsteneren – als oc allen liffhebberen der selven: daer na dan den bootten en / stumpen schilders welck wel weetgirich sint mar willen darum geen handen an den / plogh schlaan: darna en ten derdien den hoch gedraunden meest welnitigen beltschnideren / en Aehen houweren vaeret wel." Trans. mine. (Marten Sagemolen, *Frontal view of Legs, No. XII, MS 29*, c. 1652-1660. BIU Santé, Paris).

bears this annotation was likely to be of little help to practitioners of the pictorial arts, given that it depicts the innermost muscles of the thighs – a far cry from the more traditional three views of the external musculature that was favored in the later works of Samuel van Hoogstraten (1627-1678) and Goeree. At the same time, Sagemolen's identification of a need for further study of this subject is in keeping with Van der Gracht's comments and his inclusion of various layers of the body's muscles in his *Anatomie der wtterrijke deelen van het menschelijk Lichaam* (The Hague, 1634). These conflicting comments and selections of images may indicate two distinct perceptions concerning the degree of anatomical study that artists required in the seventeenth-century Netherlands. Sagemolen's choice of this image to bear this particular annotation serves as an allusion to the type of knowledge with which most painters were reluctant to engage, particularly in contrast to the types of figures that are found elsewhere in the manuscripts.

Following a standard form of representation in early-modern anatomical atlases, *Tomus I* (MS 30) includes images that are more consistent with an ideal figural type that is often found in drawing books and art theoretical treatises. A nude figure is shown from the front and back, and contributes to the viewer's understanding of how the inner structure of the body informed its outer appearance [Figs. 83 and 84]. In the case of the posterior figure, a measuring stick marked with numbers is held in his left hand. This object makes reference to the study of proportions, and is also found in period images and drawing books, including those of Albrecht Dürer (1471-1528), Pieter de Jode (1606-1674), Jean Cousin (1500-1593), and Crispijn van de Passe (c. 1597-1670).<sup>341</sup> The figure's attribute supports Sagemolen's

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<sup>341</sup> Albrecht Dürer, *Vier Bücher von menschlicher Proportion* (Nuremberg: Hieronymus Formschnyder, 1528); Pieter de Jode, *Varie figure academice* (Antwerp: Joan. A. de Poutre, 1629); Crispijn van de Passe, *'t Light der teken en schilderkonst* (Amsterdam: Johan Blaeu, 1643).

comment that his project could also serve painters, engravers, and sculptors, and may also refer to a concern among anatomists with the proportionate body as a model and the canonical body on display, which follows the preference of Vesalius.<sup>342</sup> Boerhaave's record of the drawings acknowledges this component and describes the depictions of the muscles in the now-lost third *tomus* as preserving the perfect proportions of the body.<sup>343</sup>

Sagemolen's rather severe treatment of painters, members of his own profession, and his distinction of this type of artist from those that produced prints or sculpture, is more curious. In particular, his description of painters as "blunt and dull" but inquisitive (*weetgerig*) suggests that those without knowledge of anatomy were an uninformed group. His comment that this profession is reluctant to participate in manual practice supports my earlier interpretation of Van der Gracht, Goeree, and Van Hoogstraten's publications. However, Sagemolen's repeated insistence on his active participation in dissection, and his critical commentary on the standard of knowledge among members of his profession offer evidence of an alternative approach to this type of study in the seventeenth-century Netherlands. As such, the representations of the cadaver in the *tomi* must be viewed as a construction that was informed by both Sagemolen's pictorial and anatomical training, rather than the exclusive anatomical knowledge of Van Horne.

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<sup>342</sup> On the proportionate body, see Vesalius's earlier comment concerning Polycleitus and Siraisi, "Vesalius and Human Diversity," 70-71; Kusakawa, "The Uses of Pictures," 84-85; Kusakawa, *Picturing the Book of Nature*, 214-218; Santing, Catrien. "Andreas Vesalius's *De Fabrica corporis humana*, depiction of the human model in word and image," *Netherlands Yearbook for History of Art/Nederlands Kunsthistorisch Jaarboek. Body and Embodiment in Netherlandish Art*, Ann-Sophie Lehmann and Herman Roodenburg eds. (Zwolle: Waanders Publishers, 2008), 61.

<sup>343</sup> "A perfect man always maintaining proportion" [Virilem perfectorum semper servandes proportione] (Museum Boerhaave, Arch 388, fol. 101).

## v. Representational Strategies

The progression through muscle, sinew, and connective tissue seen in Sagemolen's images makes reference to several pictorial forms recognizable to a learned viewer in this period, specifically Van Horne's students and visitors to his cabinet. The inclusion of multiple views of the subject presented from different angles replicates the experience of the figure in the round and was common to both anatomical atlases and the depiction of *écorché* figures in art literature. Similarly, the dedication of certain images to the entirety of the human form, while others feature details of the torso or particular limbs, is found in many sixteenth- and seventeenth-century anatomical publications, including Vesalius, Juan Valverde de Amusco (1525-1587), Julius Casserius (1552-1616), and their copyists.<sup>344</sup> Analyzing the formal qualities of Sagemolen's drawings and situating them within their pictorial tradition for the first time, I find that these works follow an established format for the division of and progression through the body seen in other anatomical volumes. This enabled their function within a framework of familiarity and expectation, comparable to that at play in the examples from art literature examined in the preceding chapters. At the same time, these volumes also include techniques and strategies that are particular to the flexibility of their medium and mark them as distinct within the genre of anatomical images. This duality makes the drawings commensurable with more generalized depictions of the human form and ideally suited to the particular environment of Van Horne's anatomical cabinet, as I explore in the next chapter.

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<sup>344</sup> Juan Valverde de Amusco, *Anatomia del corpo humano* (Rome: Per Ant. Salamanca, et Antonio Lafreri, 1560); Julius Casserius, *Tabulae anatomicae* (Venice: Evangelista Deuchinus, 1627).

Vesalian-style illustrations famously show *écorchés* set against a landscape, in a range of poses, as their flesh is progressively peeled from the body and arranged around the figure to demonstrate the layers of muscle and bone that comprise the human form [Fig. 43]. This model informs Sagemolen's approach to his subject, but he deviates in notable ways and includes new details that make evident the role of the drawings as tools of study. The figures that occupy the pages of MS 30 (*Tomus I*) serve as a comprehensive example of the pictorial techniques used in several of the other volumes [Fig. 85]. The cadaver is shown standing against a blank page, and only six of the images in this *tomus* include any indication of spatial construction. In the few instances where this occurs, it is most often alluded to through a shadow cast by the figure, though one of the drawings includes a stump on which removed parts of the body are displayed [Fig. 86]. As layers of muscle are removed, they are spread out around the figure and arranged to occupy the surrounding empty space, so that the cadaver appears to be unfurling before our eyes. In some cases, the muscles maintain their shape as seen in the preceding image, for example, in the depictions of the head found in MS 28 (*Tomus V*) [Fig. 87 and 88]. Their unnatural rigidity of form contradicts their appearance in life and allows the viewer to better visualize their relationship to the body. The drawings do not replicate the body, they are conscientious representations designed to systematize and clarify its parts.

Consequently, the portrayal of the *écorché* figure's dissected muscles challenge the viewer's ability to equate the depicted body with the reality of dissection. Their hovering forms contradict the pull of gravity that is seen in life and other early-modern anatomical images, such as those of Vesalius, which show the muscles draping off the body. Rather than hang from the animated *écorché* figure, the arrangement of muscles and limbs in

Sagemolen's works contradict the viewer's interpretation of the subject's pose. The position of the body suggests that the figure is standing upright, perhaps suspended for the purpose of study, while the artist's vivid coloring, naturalistic shading, and the near absence of labels encourages the viewer to conceive of the body in the round. However, the decorative arrangement of the muscles and inclusion of a shroud over the face of the subject suspends the illusion of a cadaver transcribed by the artist. These features position the viewer above the body as it would appear on the anatomist's table, particularly when the drawings lie flat. The combination of views within the same image is almost reconcilable, but the uneasy juxtaposition of the figure's pose and the suggestion of spaces signal that the images do something different from the flesh and bone cadaver and underscore the function of these objects as tools of learning and study.<sup>345</sup>

Among the brightly colored pages of Van Horne's manuscripts, a set of monochromatic drawings stand apart and serve to reinforce the drawings' position as educative tools.<sup>346</sup> A

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<sup>345</sup> These elements should not be perceived as a failing of the artist, as his command of perspectival techniques is demonstrated in the La Pla ceiling panels, which rectify when viewed from the former main entrance to the room.

<sup>346</sup> *Grisaille* painting has a rich history in northern Europe, and modern scholarship has connected this technique to devotional observances, the *paragone* between painting and sculpture, a commentary on social class, and constructs of power, none of which can be immediately reconciled with the potential concerns or aims of Sagemolen or his anatomist (Molly Teasdale Smith, "The use of grisaille as a Lenten observance," *Marsyas: Studies in the Histories of Art*, vol. 8 (New York: Institute of Fine Arts, New York University, 1959), 43-54; J. Patrice Marandel, "Introduction," *Grey is the Color: An Exhibition of Grisaille Painting XIIIth-XXth Centuries*, exh. cat. (Rice Museum, Huston, Texas: 19 October 1973 – 19 January 1974), 13-24; Annelies Plokker, *Adrien Pietersz. van de Venne (1589-1662): De grisailles met speukbanden* (Leuven: Acco, 1984); Mariët Westermann, "Fray en Leelijk: Adriaen van de Venne's invention of the ironic grisaille," *Nederlands Kunsthistorisch Jaarboek*, vol. 50 (2000), 221-257; Sophia Rochmes, "Philip the Good's grisaille book of hours and the new court style," *Simiolus*, no. 1/2 (2015/2016), 17-30). From a technical standpoint, early-modern artists, including Pieter Bruegel the Elder (1525-1569), Peter Paul Rubens (1577-1640), and Rembrandt (1606-1669), used the medium to produce preparatory works for prints (Julius S. Held, *Rubens: Selected Drawings*, vol. 1 (London: Phaidon Press, 1959), 41; Egbert Haverkamp-Bergemann, "The sketch: Its functions in the hands of three masters: Rubens, Rembrandt, Jan Brueghel," in *Painterly Painting*, Thomas B. Hess and John Ashbery eds. (New York: Macmillan, 1971), 57-74). This function is more convincing in the case of the BIU Santé drawings, particularly given the consistent annotations, which are in keeping with period methods for acknowledging the designer of early-modern prints. However, this purpose cannot be confirmed, given that no such prints are known to exist, nor do we see any marks that would indicate the transfer of these

series of at least twenty-one views of the leg (thirteen surviving) in MS 29 (*Tomus IV*) deviate from the predominant pattern identified above [Figs. 89 and 90]. In these works, the subject is typically labeled, but the corresponding registers and explanations are rarely included, with the exception of the consistent inscription “Marten Sagemolen invenit 1660” that appears in the shadow cast by the leg. The play of light and allusion to a construction of space also distinguishes these works from their companions and continues in the form of the limb itself, which is depicted using brown and black ink, monochromatic washes, *gouache*, and lead white highlights. Effective modeling and the use of light and shadow indicates the contrasting textures of the body’s frame and fabric, even hinting at the grain of the muscle, and encourages the viewer to consider the subject in the round. The absence of color, tonality, and use of shading prevent these works from being considered alongside the other drawings in the manuscripts.

In her recognition of the diverse applications of monochrome *grisaille* Charlotte Schoell-Glass proposes that the medium be accommodated within a larger framework of visual distinction or difference. She interprets the restricted color palette as a conscious choice of the artist, through which the viewer’s attention is drawn to the status of the material object as a representation, and “reflect within their [the artists’] works the condition of their potential and their limitations, the potential and limitations, that is, of mimesis.”<sup>347</sup> Within the corpus of Sagemolen’s volumes, these images are only one component of a

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drawings to a copper plate – though, admittedly, this process could have been done manually. Moreover, at least ten years elapsed between the completion of the drawings and Van Horne’s death, which would have allowed sufficient time for the anatomist to have plates cut and printed, had he chosen to do so.

<sup>347</sup> Charlotte Schoell-Glass, “*En grisaille – Painting Difference*,” *Text and Visuality: Word & Image: Interactions* 3, Martin Heusser et al. eds. (1999), 201; See also Paul Philippot, “Les grisailles et les <<degrés de réalité>> de l’image dans la peinture flammande des XV et XVI siècles,” *Bulletin des Musées Royaux des Beaux-Arts de Belgique*, vol. 4 (1966), 225-242.

system of representational strategies that testify to the artist's awareness of his medium and his desire to encourage the viewer's interaction with these drawings as objects of learning.

At the same time, the volumes also include pictorial details that assure the viewer of Sagemolen's direct observation of his model and enhance the perceived validity of their proffered information. For example, the images of the musculature of the head in MS 28 (*Tomus V*) are marked by different facial features and "expressions", which illustrate the variety of subjects studied by the artist. Moreover, the representations of the torso in profile, contained in the same volume, show the lower section of the cadaver draped in dark grey cloth, the color of which corresponds to inventories from the Leiden anatomy theater, specifying that dark cloths were used to wrap the cadaver, while white linen covered the dissection table.<sup>348</sup> The depiction of a shroud over the face of the subject similarly references practice during dissection. Given that the facial muscles are depicted in other images and that the artist had the capacity to change his model's recognizable features, therein preventing the creation of a portrait-likeness of the deceased, the inclusion of this fabric can be interpreted as a choice that performs a specific role within the image – in this case, as a marker of direct observation. These elements reinforce the artist's role as witness to the dissected body and complement the statements made in his annotations.

#### **v. Images at Work**

Boerhaave's inventory lists the contents of the eighteenth-century *tomi* but does not explain the system of organization at play between the volumes or indicate the various functions of the works. Through the comparison and analysis of the surviving manuscripts

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<sup>348</sup> "A black cloth to lay the subject upon." [een swart laecken om op t'subieet te leggen.] (Henricus Joannes Witkam, *Catalogues of all the chiefest rarities in the publick anatomie hall of the university of Leyden* [Leiden, 1980], 10).



with one another, I have identified repeated forms, poses, and views of the body, which are likely the product of a set of templates, as is suggested by the remnants of transfer techniques such as pouncing and incising. Showing parts of the body in the same position and format as they advance through different states of dissection, this strategy helps to maintain consistency as the viewer moves through the multitude of images divided over several *tomi* and enables easy comparison between the volumes. However, the use of different media, stylistic approaches, and markings on the pages distinguishes the *tomi*. Consequently, I interpret the design of these manuscripts as facilitating their functions as both a contained system of knowledge-production and images that could be used alongside other objects in Van Horne's collection. In these capacities, I propose that their pictorial and material qualities contributed to and informed the viewer of their role as educative tools.

The arrangement of the drawings as recorded by Boerhaave and supported by the BIU Santé manuscripts, suggest that the *tomi* were organized according to content and style. In his inventory, Boerhaave uses the Latin term *accuratus* to convey the care with which certain works were prepared and identifies the first three volumes as encompassing the myology of a perfect man.<sup>349</sup> In the manuscripts, certain illustrations, particularly those found in MS 28 and 30 (*Tomi I, II, V*) can be identified as more naturalistic, and their skillful use of coloring and shading in *gouache*, brown ink, and black chalk often create a convincing sense of volume and texture. In contrast, the figures in MS 27 and 29 (*Tomi VI and IV*) are strongly outlined in black ink, and colored chalk is used together with lightly tinted washes and lead white to draw attention to the pertinent parts of each figure. In some examples, it is unclear whether these illustrations have been finished, as certain areas are

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<sup>349</sup> Museum Boerhaave, Arch 388, fols. 101, 102; see note 337.

only outlined in pencil or are not colored. In the cases where color is applied, it is often in a lighter wash, which facilitates a clearer view of the labels that mark the body, and often correspond to annotations and registers that surround the figure.<sup>350</sup> Therefore, I identify the images in MS 28 and 30 as adhering to an ideal form of representation, in which the body is shown in a manner comparable to its appearance in life. These images are supported by complementary drawings in MS 27 and 29 that are not as highly finished and perform a more didactic function concerning nomenclature and structural relationships within the body.<sup>351</sup> The instructive role of the companion volumes is indicated further in *Tomus IV* (MS 29), in which Boerhaave twice notes that the names of the different parts have been included and can be used to understand the illustrations in the preceding three *tomi*.<sup>352</sup>

The use of a naturalistic style aligns the works with well-established conventions for the representation of anatomical and natural history subjects in the mid-seventeenth century. I interpret the juxtaposition of this style with schematic representational forms as marking these images as working objects.<sup>353</sup> In his assessment of the construction of authority in

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<sup>350</sup> The images of the head in MS 28 deviate from this model and feature naturalistic images that contain labels. Their smaller, quarto format also marks them as distinct from the larger works, and they were likely contained within their own volume in the seventeenth century. Boerhaave also records other images of the head that do not survive, and it is difficult to determine with the current evidence whether they featured alternative material or offered a complementary, schematic representation.

<sup>351</sup> The *grisaille* drawings operate somewhere between these two categories.

<sup>352</sup> "...images of the muscles but with the names [...] hence it serves as an excellent understanding of the former." [...iconas muscularum sed cum nominibus (...) unde inservit prioribus intelligendis quam optime.] (Museum Boerhaave, Arch 388, fol. 101).

<sup>353</sup> On the use of a naturalistic style in early-modern natural history images see, Erwin Panofsky, *Perspective as Symbolic Form*, trans. Christopher S. Wood (Cambridge: MIT Press, 1991); Samuel Y. Edgerton Jr. "The Renaissance Development of the Scientific Illustration," in *Science and the Arts in the Renaissance*, John W. Shirley and F. David Hoenerig eds. (London: Associated University Presses, 1985), 172; James Ackerman, "Early Renaissance 'Naturalism' and Scientific Illustration," in *Distance Points: Essays in Theory and Renaissance Art and Architecture* (London; Cambridge, Mass: M.I.T. Press, 1991), 185-207; Kusakawa, *Picturing the Book of Nature*, 5-8; Kemp, "Temples of the Body," 43; Pamela Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: Chicago University Press, 2004), 8-9,

early “scientific” illustrations, Bert Hall draws attention to an early-modern concern regarding the potential for deception that accompanied images, particularly given the conventions of naturalism, the elegant appearance of which was designed to convince period viewers. He explains that this could both reinforce and operate separately from the image’s functional capacity, or its service as an instrument of knowledge.<sup>354</sup> Often these two elements of an image were not mutually exclusive, but Sagemolen draws greater attention to the distinct functions of his drawings through the use of style and materials for his naturalistic and didactic images, which enforces their specific roles. I propose that one makes reference to the body as it might appear in life, while the other identifies the image a tool of study and knowledge production, specifically through the use of clear outlines, flat coloring, and labels. At the same time, both depictions include clues to their mutually supporting functions as instruments of learning.

These distinctions signal an attention to the role of the object as a means of conveying various kinds of information, and the mutually dependent relationship that existed among the *tomi*. With its oversized illustrations of the full human figure that progress from the nude form to the skeleton, *Tomus I* (MS 30) serves as a kind of master volume to which the other *tomi* correspond [Table II]. Boerhaave points to this relationship in his account of *Tomus VI* (MS 27), which includes large-scale schematic illustrations that match the works found in *Tomus I*, though they are fewer in number. My inspection of the manuscripts found that *Tomus IV* (MS 29) also contains illustrations of the lower portion of the male body that

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151; Brian W. Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2006), 201-202.

<sup>354</sup> Bert Hall, “The Didactic and the Elegant: Some Thoughts on Scientific and Technological Illustrations in the Middle Ages and Renaissance” in *Picturing Knowledge: Historical and Philosophical Problems Concerning the Use of Art in Science*, Brian Baigrie ed. (Toronto: University of Toronto Press, 1996), 28-29.

correspond to the full-scale figures found in *Tomus I*. Placing the three *tomi* together, the viewer could examine and compare depictions of the human form that (i) imitated its appearance in nature (MS 30), (ii) offered a schematic view with names and explanations (MS 27) [Figs. 91 and 92], and (iii) provided a more focused illustration of particular subjects of interest, for example, the legs (MS 29) [Figs. 93-95]. Further study of the manuscripts shows that this pattern is repeated with other parts of the body held in different volumes. Each set of illustrations is identified with image numbers that correspond across the different *tomi*, so that the viewer can more easily navigate between the various volumes. Moreover, surviving drawings from *Tomus II* and *Tomus V*, which are now contained in MS 28, indicate that Sagemolen and Van Horne also included more naturalistic views of the different parts of the body which complement the large-scale drawings of *Tomus I* (MS 30), but also offer the opportunity to study with greater specificity [Tables I and II].

The use of multiple formats and different styles of representation within one volume is relatively common in early-modern anatomical publications. However, the direct relationship between the *tomi*, which is created through the use of a repeatable template that strengthens the connection between the different images and fosters a working method between them, is apparently unique to these drawings. This type of construction is later seen in Bernard Siegfried Albinus's *Tabulae Sceleti et Musculorum Corporis Humani* (Leiden, 1747), which has been viewed as a novel construct of the anatomist and his artist, Jan Wandelaar (1690-1759).<sup>355</sup> In this printed publication, the naturalistic plates appear without

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<sup>355</sup> James Elkins, "Two Conceptions of the Human Form: Bernard Siegfried Albinus and Andreas Vesalius," in *Artibus et Historiae*, Vol. 7, No. 14 (1986), 94-95; Robert Beverly Hale, *Albinus on Anatomy* (New York: Dover Publications, 1988), 17; K.B. Roberts and J.D.W. Tomlinson. *The Fabric of the Body: European Traditions of Anatomical Illustration* (Oxford: Clarendon Press, 1992), 327.

labels or marks, so that they do not obscure the artist's depiction. On the facing, or overlying page (depending on the choice of the binder), a linear, labeled depiction of the anatomical figure is included [Fig. 96]. This decision also helped to avoid any misunderstanding caused by the details of the naturalistic plates, such as shading.<sup>356</sup> In other cases, gradations of tone are used to highlight particular details in the eighteenth-century prints, a technique that is comparable to the application of color in Van Horne's images and serves in both cases to draw the viewer's attention to particular elements of the depiction [Figs. 97 and 98]. This observation was not possible prior to the rediscovery of Van Horne's manuscripts and, given that the BIU Santé drawings resided with Boerhaave during the years that Albinus studied under the professor at Leiden University, it is possible that he saw these works during his tutelage and that they informed his later anatomical enterprise.

#### **vii. Material Matters**

Placing emphasis on the relationship between parts of the body and their function, Sagemolen uses his medium in a manner that was not possible in printed anatomical atlases and reinforced an empirical method of study. In MS 27, 28, and 29 (*Tomi VI, II, and IV*) several series of double-sided illustrations of the arms encourage the viewer to learn through sight and touch. On the recto, the viewer is presented with a more highly finished image and its simplified, labeled counterpart occupies the verso, inviting the viewer to flip the drawing to identify the specific parts of the limb's musculature [Figs. 99 and 100]. The two representations are precisely matched on either side of the page, indicating the care with which these drawings were prepared.<sup>357</sup> In MS 27, the drawings address the anterior and

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<sup>356</sup> Hale, *Albinus on Anatomy*, 17.

<sup>357</sup> The artist's technique is not possible to assess from the drawings alone, though when held up to light it is clear that they align perfectly. Therefore, it is logical that the double-sided mirror-images of the arm may

posterior views of the arms and progress through the limb's musculature to the bone over the course of eighteen latitudinal sheets. In the versions of these drawings found in MS 28 and 29, we are presented with a profile view that has been affixed across the width of the page and is attached to a corresponding view of the chest [Fig. 101]. This placement makes it appear as though the arm is attached to the body as it would be found on a human specimen and the limb can be manipulated so that different parts of the torso become visible. In MS 29, the space under the arm has been cut out meticulously along the outline of the chest in Nos. 2, 3 and 4, and encourages the perception that the arm is attached at the shoulders [Figs. 102 and 103]. This type of inventive and interactive use of media in Sagemolen's drawings is found throughout the manuscripts and reinforces their position as working objects of knowledge production.

The viewer is also invited to participate in the process of dissection and interact with the drawings on a smaller scale through the inclusion of movable flaps within the images of the legs. Borrowing a device that is more commonly found in printed depictions of the body, several of these images include flaps at the knee joint that can be flipped to reveal the underlying structure [Fig. 104]. The earliest examples of comparable movable images are found in thirteenth-century *volvelles* that were designed for astronomy and geometry, but with the advent of the printing press this type of paper-play expanded to include printed games or moralizing broadsides.<sup>358</sup> Particularly popular in Sagemolen's native country of

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have been produced by holding the sheet against a light and tracing the image on the reverse of the page, as Chloé Perrot suggests (Perrot, "Vers un approche pluridisciplinaire," 20); In one case the matching image was achieved by drawing the arm on two separate pages and then gluing them together to create a double-sided image, but this is not consistent throughout the volumes, and most are drawn on a single sheet of paper [Fig. 100].

<sup>358</sup> Meg Brown, "Flip, Flap, and Crack: The Conservation and Exhibition of 400+ Years of Flap Anatomies," *The Book and Paper Group Annual* 32 (2013), 6.

Germany, in the first half of the sixteenth century the format was adopted for anatomical publications, now known as fugitive sheets, which were widely disseminated in a broadside format that featured a seated man and woman whose abdomens could be opened to reveal the viscera [Fig. 105].<sup>359</sup> This strategy is also found in Vesalius's *Epitome* (Basel, 1543), which featured different structures, systems, and parts of the body that could be cut out and arranged in a single figure, and was likely directed towards a more specialized audience. A set of detailed flap-anatomies of the male and female bodies that was published by Stephan Michelspacher, were acquired by Otto Heurnius in 1618 and displayed in the anatomy theatre's collection at Leiden University [Fig. 106].<sup>360</sup> The proliferation of these different models means that by the seventeenth century the association of the moveable flaps with anatomical subjects was a popular and familiar device, and its adoption by Sagemolen illustrates the role played by these models in this project.

Addressing Andrea Carlino's interpretation of fugitive sheets as simplified and outdated illustrations that were targeted towards a general audience, Susan Dackerman argues that these types of images should be viewed as "tools of persuasion" that encourage a hands-on experience and exploration of the body.<sup>361</sup> In their adoption of this feature, Sagemolen's

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<sup>359</sup> The term derives from Ludwig Choulant, *History and bibliography of anatomic illustration* (Chicago: University of Chicago Press, 1852), 29, 156-67; for a history of these prints see J. G. de Lindt, "Fugitive anatomical sheets," *Janus*, vo. 28 (1924), 78-91; Andrea Carlino, *Paper bodies: A catalogue of anatomical fugitive sheets, 1538-1687* (London: Wellcome Institute for the History of Medicine, 1999); Suzanne Kathleen Kaar Schmidt, "Printed Scientific Objects," in *Altered and Adorned: Using Renaissance Prints in Daily Life* (Chicago: Art Institute of Chicago; New Haven: Yale University Press, 2011), 82-89; Susan Dackerman, "Introduction: Prints as Instruments," and "Cat. 11," in *Prints and the Pursuit of Knowledge in the Early Modern Period* (New Haven: Yale University Press, 2011), 19-36, 68.

<sup>360</sup> Huisman, *The Finger of God*, 48; Karr Schmidt, 82-89; Godfried Basson, "Declaratie van Godfried Basson voor Leveranties aan de Bibliotheek en Anatomie (12 August 1618)," in J. A. Barge, *De Oudste Inventaris der Oudste Academische Anatomie in Nederland* (Leiden: H.E.S. Kroese, 1934), 28-29.

<sup>361</sup> Dackerman, *Prints and the Pursuit of Knowledge*, 28-31; Lindt, "Fugitive anatomical sheets," 78-79; Carlino, *Paper Bodies*, 46, 108.

drawings invite the audience to interact with their content in a manner that mimics exploration of the body during an anatomical demonstration. Turning the page of each volume, the viewer progresses through multiple stages of dissection and is asked to lift particular muscles and limbs to enhance their understanding of the body's structure. As such, these works correspond to Lorraine Daston's concept of an epistemic image, or universalizing images of a subject that serves to both depict and replace their subject, and enabled the proliferation and communication of ideas among a particular community.<sup>362</sup> Daston's definition is clearly developed in relation to printed works but in their adoption of several techniques from this medium, and their display within Van Horne's cabinet where they could be seen by visitors and students and used in tandem with specimens, Sagemolen's drawings demonstrate that this type of representation was not limited by medium.

These formal qualities of the drawings inform my interpretation of their use and indicate that they were not intended for the printer's press. Reproducing the drawings in a comparable size would require multiple plates to produce a single image, and given the variety and number of the images, this would only be accomplished at great expense. This is not to say that the associated costs of printing were always prohibitive. Luxury volumes of illustrated natural histories and anatomical subjects were published with greater regularity into the eighteenth century, but this was often accomplished through the investment of multiple printers, as was the case for Govard Bidloo, or by subscription, as we see with

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<sup>362</sup> Lorraine Daston, "Epistemic Images," in *Vision and its Instruments: Art, Science, and Technology in Early Modern Europe* (Pennsylvania: The Pennsylvania State University Press, 2015), 17-18; Christoph Lüthy and Alexis Smets propose an alternative definition for "epistemic images" (Christoph Lüthy and Alexis Smets, "Words, Lines, Diagrams, Images: Towards a History of Scientific Imagery," *Early Science and Medicine* 14 (2009), 300, fn. 2; For a discussion of this term see, Alexander Marr, "Review Essay: Knowing Images," *Renaissance Quarterly* 69 (2016), 1005-1006.



Albertus Seba (1665-1736).<sup>363</sup> However, the inclusion of double-sided printing for the arms and joint flaps, would have further complicated their production in print. When the device is found in woodcuts and engravings, it is typically used for individual sheets and broadsides, cases in which the publication focused on a limited number of images and employed cost-saving tactics. Moreover, compiling more than 300 images with the precision seen in the BIU Santé manuscripts would have been a monumental undertaking, in contrast to the example of Vesalius's figure in his *Epitome*, the assembly of which is left to the owner.

The artist's use of color plays a vital role in the drawings, which would have been lost upon translation to print. In the highly-finished, naturalistic, works vibrant hues serve to enhance the illusion of the life, while paler pigments tint the didactic, companion images, and create a visible distinction between the two. In several of the latter, color is only applied to the subject of interest, directing the viewer's attention. In the mid-seventeenth century, replication of these effects would have entailed expensive hand-coloring, or the more imprecise methods of stenciling and stamping.<sup>364</sup> Together, the integration of flips, double-sided image, and color, for works of this scale would have posed a formidable expense, and though Van Horne was a member of a wealthy family, and likely could have absorbed these costs, the inclusion of these types of movable and not-easily-replicable devices indicates that the anatomist did not plan to translate Sagemolen's drawings to print.<sup>365</sup> Instead, the works

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<sup>363</sup> On the costs of producing and printing anatomical and natural history texts see, Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: University of Chicago Press, 2014), 83-84, 88, 90-91, 161; Kusakawa, *Picturing the Book of Nature*, 50-63, 200.

<sup>364</sup> Kusakawa, *Picturing the Book of Nature*, 69-83.

<sup>365</sup> Using the Leiden municipal tax register, Huisman estimates that Van Horne's assets in 1666 were valued at approximately 10,000 guilders, and the anatomist's later bequests supports this assessment of his financial circumstances, making the cost of a publication on this scale possible (Huisman, *The Finger of God*, 72).

would have operated as a unique tool that reached their full potential when used alongside other representations of the body in Van Horne's cabinet of anatomical rarities.

### ***C. Conclusion***

Experimenting with the physical presence of color and form, Sagemolen used the paper on which his two-dimensional drawings were rendered as a means of transposing the limits of representation and suggest the three-dimensional capacity of the body. This treatment is not synonymous with the information that could be gained through dissection but makes evident the relation between different parts of the body and alludes to the mechanism of the shoulder or the layers of muscle and bone. Such organization and interrelation among the drawings, and the use of double-sided images of this size, does not occur in anatomical atlases from this period. In choosing to work with drawings, Van Horne and Sagemolen used a medium that did not face the financial and technical restrictions of print and offered greater range in the representational strategies that could be used for conveying information about the body.

The complex set of strategies deployed in the *tomi* make claims on behalf of the artist and his images in a way not seen in anatomical atlases or the adopted images of artists' manuals and art-theoretical treatises. We are reminded both visually and verbally of Sagemolen's direct observation of his subjects, which reinforces the drawings' relationship to the body and awards them a level of credibility that enables their use as reliable tools for study. While the drawings make reference to established formats and devices, they do not directly replicate any known source and their unique depiction of the body suggests that they were informed by their maker's combined training in both the pictorial and anatomical arts. At the same time, the works include select, familiar devices from anatomical prints. As a

result, the volumes accommodate comparison between the drawings and published works and adopt the reputability of canonical anatomical images. However, their use of color and somewhat incommensurable construction of space mark these objects as unique, and I interpret these features as evidence of an awareness that the drawings could perform in a manner that is particular to their medium and distinct from their subject. These devices mark the drawings as working objects, which were capable of functioning as an independent system or in tandem with other objects found in the anatomist's cabinet.

**Table I: Tomi Contents and Proposed Relationships among Volumes**

*Handschriften Boerhaave over anatomisch tekeningen van Martinus Sagemolen of Saegmolen*,  
Museum Boerhaave Leiden photocopy; Arch 388A, Kirow no. 30, 101-107).

<b>Tomus</b>	<b>Size</b>	<b>Contents</b>	<b>BIU Santé MS</b>	<b>Matching MS/Tomus *</b>
I	Folio	- 25 tables of full body from front and back	MS 30	See App. II
II	Folio	- 14 images of the muscles from the front and side - 8 images from the left side, including thorax, shoulder with clavicle and arm - 7 images of the shoulder, arm, and wrist - 8 inserted images	missing	Unknown
II	Folio	- 8 images of all muscles on the left side of the upper body (5 flesh, 3 bone) - 8 images of all muscles of the left side with 4 images of arms attached and 4 additional depictions of the arm - 7 images of the right side of hip, leg, and foot – internal view - An image of the left hip, leg, and foot – internal view - 8 images of the left side of hip, leg, and foot – external view	MS 28	MS 29/IV MS 29/IV MS 29/IV unknown MS 29/IV
III	quarto with tortoise binding and gilding	- 11 images of all the muscles, tendons, and bones on the left side - 9 images of all the same external views - 12 images of the foot - images of the brain - images of the mouth - 5 images of the pelvis and penis	missing	Unknown
IV	Folio	- labeled images - 5 images of muscles of the left side of the chest, arm, and hand - 7 images of the same side with moveable arms - 6 images of the right side of hip, leg, and foot – internal view - 5 external views with names (6 images of left side in MS) - 12 images of muscles of the front of the lower half of the body - 6 images of the muscles from the right side of the hip, leg, and foot – internal view (grisaille) (2 are missing from MS) - 6 the same in the same way - 5 muscles of the right pelvis, leg, and foot seen from the back “colore nigo” (1 missing from MS)	MS 29	MS 28/II MS 28/II MS 28/II MS 28/II MS 27/VI Unique Unique Unique

		<ul style="list-style-type: none"> <li>- 4 of the same from left and right the front (1 survives in MS; sepia)</li> <li>- 17 images of the muscle of the shoulder, arm, and hand (12 survive in MS)</li> </ul>		<p>Unique</p> <p>Unique</p>
V	Quarto	<ul style="list-style-type: none"> <li>- 6 images of the face seen from the front</li> <li>- 2 images of muscles of lower jaws, neck and head from the front</li> <li>- 6 muscles of the face and neck from side</li> </ul>	MS 28	<p>Unique</p> <p>Unique</p> <p>Unique</p>
V	Quarto	<ul style="list-style-type: none"> <li>- 10 images of the muscles of the lower jaw, tongue, and head from the front</li> <li>- 10 muscles of the larynx and lower jaw</li> <li>- 17 images of the bones, muscles, and tendons of the foot</li> <li>- 8 images of the penis</li> <li>- 1 image of the vulva and anus</li> <li>- 1 image of the lower pelvis area</li> <li>- 3 images of the mastoids and vertebrae of the neck</li> </ul>	missing	Unknown
VI	Folio	<ul style="list-style-type: none"> <li>- 8 images of the muscles of the neck, chest, abdomen (7 in MS)</li> <li>- 36 images of the shoulder, arm, wrist and fingers (18 double-sided)</li> <li>- 11 images of all the muscles below the pelvis seen from the front (10 in MS)</li> <li>- 10 images of all muscles of the head, neck, and back, seen from behind (7 survive in MS)</li> <li>- 34 images of the muscles of the shoulder, arm, wrist, and fingers (18 double-sided) (15 survive in MS)</li> <li>- 10 images of all muscles below the pelvis seen from behind (9 survive)</li> <li>- 14 images of all the muscles from the front and back, as seen in <i>Tomus I</i></li> </ul>	MS 27	<p>VII</p> <p>VII</p> <p>VII</p> <p>VII</p> <p>VII</p> <p>VII</p> <p>MS 30/I</p>
VII	not given	<ul style="list-style-type: none"> <li>- 8 images of the neck, chest, abdomen, and pelvis from the front</li> <li>- 9 images of the shoulder, arm, wrist, and hand</li> <li>- more of the same</li> <li>- 11 images of the lower pelvis and feet from the front</li> <li>- 10 images of the neck, thorax, and lumbar pelvis from the back</li> <li>- 9 images of the shoulders, arm, and wrist</li> <li>- more of the same</li> <li>- 8 images of the pelvis from the back</li> </ul>	missing	<p>MS 27/VI</p> <p>MS 27/VI</p> <p>MS 27/VI</p> <p>MS 27/VI</p> <p>MS 27/VI</p> <p>MS 27/VI</p>

\*Given that some materials are lost, this framework can only serve as a suggestion.

**Table II: Tomus I, “31 Rhineland inches tall”<sup>366</sup>/ BIU Santé MS 30 as Master Volume**

<b>Table:</b>	<b>Subject:</b>	<b>Corresponding MS, Table, Subject:</b>
No. 1	Anterior skeleton outline	MS 27, No. 10, frontal legs
No. 2	Anterior nude man	
No. 3	Anterior flayed man with head from front (no. 1)	MS 27, No. 1, frontal legs MS 27, No. 1, frontal flayed man MS 28, No. 2, frontal left arm MS 29, No. 2, frontal head
No. 4	Anterior flayed man with head from front (no. 2)	MS 27, No. 2, frontal torso MS 27, No. 2, frontal legs MS 27, No. 2, frontal flayed man MS 28, No. 1 and 2, frontal legs MS 29, No. 1, frontal head
No. 5	Anterior flayed man (no. 3)	MS 27, No. 3, frontal torso MS 27, No. 3, frontal legs MS 28, No. 3, frontal legs MS 28, No. 3, frontal left arm
No. 6	Anterior flayed man (no. 4)	MS 27, No. 4, frontal torso MS 27, No. 4, frontal legs MS 28, No. 4, frontal legs MS 28, No. 4, frontal left arm
No. 7	Anterior flayed man (no. 5)	MS 27, No. 7, frontal torso MS 27, No. 3, frontal flayed man MS 28, No. 6, frontal left arm
No. 8	Anterior flayed man, arm removed (no. 6)	MS 27, No. 8, frontal torso MS 27, No. 7, frontal legs MS 28, No. 7, frontal legs
No. 9	Anterior flayed man with stump (no. 7)	MS 27, No. 8, frontal legs MS 27, No. 4, frontal flayed man MS 28, No. 7, frontal head MS 28, No. 9 and 10, frontal legs
No. 10	Skeleton “a arte [...] perfecta”	See No. 1
No. 11	Skeleton with labels, with skull in profile, left arm recto	See No. 1
No. 12	Outline of posterior skeleton	MS. 27, No. 9, rear legs
No. 13	Posterior nude man	
No. 14	Posterior flayed man with knee flaps (no. 1)	MS 27, No. 1, rear legs, with knee flaps MS 27, No. 1, rear flayed man, with knee flaps
No. 15	Posterior flayed man with knee flaps (no. 2)	MS 27, No. 2, rear torso MS 27, No. 2, rear legs, with knee flaps MS 27, No. 2, rear flayed man, with knee flaps MS 28, No. 4, rear left arm
No. 16	Posterior flayed man with knee flaps (no. 3)	MS 27, No. 3, rear torso MS 27, No. 3, rear legs, with knee flaps MS 27, No. 3, rear flayed man, with knee flaps
No. 17	Posterior flayed man (no. 4)	MS 27, No. 4, rear legs

<sup>366</sup> Boerhaave, Arch 388A, Kirow no. 30, fol. 103.

		MS 27, No. 4, rear flayed man
No. 18	Posterior flayed man (no. 5)	MS 27, No. 5, rear legs MS 27, No. 5, rear flayed man MS 28, No. 5, rear left arm
No. 19	Posterior flayed man (no. 6)	MS 27, No. 6, rear torso MS 27, No. 6, rear legs MS 27, No. 6, rear flayed man MS 28, No. 6, rear left arm
No. 20	Posterior flayed man (no. 7)	MS 27, No. 7, rear torso MS 27, No. 7, rear legs MS 27, No. 7, rear flayed man MS 28, No. 7, rear left arm
No. 21	Posterior flayed man (no. 8)	MS 27, No. 8, rear torso MS 27, No. 8, rear flayed man MS 28, No. 8, rear left arm
No. 22	Posterior flayed man (no. 9)	MS 27, No. 9, rear torso MS 27, No. 9, rear flayed man MS 28, No. 9, rear left arm
No. 23	Posterior flayed man (No. 10)	MS 27, No. 10, rear torso MS 27, No. 10, rear flayed man
No. 24	Posterior skeleton, naturalistic	See No. 12
No. 25	Posterior, labeled skeleton, with left arm removed	See No. 12

## CHAPTER FOUR

### Contexts of Inquiry: Collections, Dissections, and Images

#### i. Introduction

Several visitors' accounts of Johannes van Horne's (1621-1670) collection include descriptions of Marten Sagemolen's (c. 1620-1669) drawings and make it possible to identify his quarters as the site in which the images were stored and used.<sup>367</sup> At the time of his marriage to Anna van Ulst in 1662, Van Horne is identified as residing on the Papengraft, making this the likely location for the visits of Samuel de Sorbière (1615-1670) and Ole Borch (1626-1690) in 1660 and 1661 respectively. The professor's home served as both a cabinet for his anatomical rarities and a location in which he instructed students privately, making it likely that his pupils viewed the drawings in this setting. This audience of university students and travelers would have also been familiar with Leiden University's anatomy theater, a second center of collection that Van Horne oversaw in his professional capacity as the professor of anatomy, and De Sorbière's and Borch's travel accounts describe the two sites together.<sup>368</sup> Therefore, when reconstructing a framework for interpreting these drawings, I consider how the body was discussed and represented in both locations of dissection and study. By contrasting these spaces, we can better identify the

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<sup>367</sup> Tim Huisman makes this suggestion but does not address how different objects in the collection functioned together (Tim Huisman, *The Finger of God: Anatomical Practice in 17<sup>th</sup>-Century Leiden* (Leiden, Primavera Pers, 2009), 75).

<sup>368</sup> Ole Borch to Thomas Bartholin, Epistola LXV, 9 January 1662. In Thomas Bartholin, *Epistolarum medicinalium, à doctis vel ad doctos scriptarum, Centruia III* (The Hague: Petrum Gosse, 1740), 264; Ole Borch and H. D. Schepelern ed., *Olai Borrichii Itinerarium 1660-1665: The Journal of the Dutch Physician Ole Borch* (London and Copenhagen: E.J. Brill and C.A. Reitzels Forlag, 1983), 61, 90, 96-97, 116; P.J. Blok, "Drie Brieven van Samuel Sorbière over den Toestand van Holland in 1660" in *Bijdragen en mededeelingen*, v. 22 (1901), 62, 66.



particularities of Van Horne's collection and the drawings' role therein. The public theater served a larger audience and addressed a general understanding of the body, supported by an encyclopedic collection of the known world.<sup>369</sup> In this space, the instructor, his students, distinguished guests, the cadaver, and *artificialia* and *naturalia* come into contact with one another to inform the acts of looking, learning, conversing, and touching that took place. These relationships and activities also occurred in Van Horne's cabinet, but this environment promoted a more nuanced, experimental, and particular form of study than the university anatomy theater. I argue that within this system of reciprocally informing objects, the drawings could be used with prepared specimens, prints, three-dimensional models, and the body itself to educate students of anatomy and aid Van Horne in his instruction.

### ***A. Van Horne and Leiden University***

#### **ii. Anatomical Instruction and Display at Leiden University c. 1600-1650**

In her study of Dutch medical collections around 1600, the majority of which were held in and around Leiden, Claudia Swan identifies the collector himself as the common denominator for the objects brought together in private cabinets.<sup>370</sup> The Leiden University anatomy theater is distinct among medical collections in this period, in that it was not the

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<sup>369</sup> On encyclopedic collecting practices see: Guiseppe Olmi, "Dal 'teatro del mondo' ai mondi inventariati. Aspetti e forme del collezionismo nell'eta moderna," in *Gli Uffizi: Quattro secoli di una galleria*, Paola Barocchi and Giovanna Ragionieri eds. (Florence, 1983), 233-269; Thomas DaCosta Kauffman, *The Mastery of Nature: Aspects of Art, Science, and Humanism in the Renaissance* (New Jersey: Princeton University Press, 1993), 181-184; Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994); Mark A. Meadow, "Introduction," *The First Treatise on Museums: Samuel Quiccheberg's Inscriptiones 1565*, Mark A. Meadow and Bruce Robertson trans. (Los Angeles: Getty Research Institute, 2013), 1-40.

<sup>370</sup> Claudia Swan, "Making Sense of Medical Collections in Early Modern Holland: The Uses of Wonder," in *Making Knowledge in Early Modern Europe: Practices, Objects, and Texts, 1400-1800*, Pamela H. Smith and Benjamin Schmidt eds. (Chicago: The University of Chicago Press, 2008), 200.

product of an individual's efforts but was curated and managed by successive professors of anatomy between 1594 and 1821. As such, the collection underwent several different phases and guiding hands, which informed its contents and organization. The anatomy theater was also a space sanctified by the *Staten Generaal* and the city of Leiden. In this capacity it acted as a civic center, as is argued by Jan Rupp, and therefore must also be distinguished from the ways in which we consider the cabinets of doctors, apothecaries, and learned gentlemen.<sup>371</sup> Drawing on the rich body of modern scholarship concerning this space, supported by period prints, city descriptions, and inventories, I trace the history of the theater and its contents in this section. I investigate how both the displayed objects and range of activities that occurred within the space, most notably anatomical demonstrations, operated within a referential framework through which knowledge about the body was produced.<sup>372</sup>

Housed in the Faliiede Bagijnenkerk, this space of display and dissection had been built between 1591-1594 under the direction of Pieter Pauw (1564-1617), the university's first professor of anatomy [Figs. 4 and 107]. Located in the apse of a former Beguine chapel, the theater was carefully designed with the space's activities in mind. It was built on a raised floor that provided sufficient height for the tiered amphitheater above and room for storage and offices below. A wall separated these areas from the rest of the building, which also

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<sup>371</sup> Jan Rupp, "Matters of Life and Death: The Social and Cultural Conditions of the Rise of Anatomical Theatres, with Special Reference to Seventeenth Century Holland," *History of Science*, 28 (Sept. 1990), 264.

<sup>372</sup> In her analysis of early-modern Italian collections, Paula Findlen draws attention to the activities that occurred within these spaces, particular conversation and realms in which codes of conduct and social hierarchies were re-enforced. The applicability of this understanding to anatomical cabinets in Leiden is explored in Rina Knoeff's work on the Leiden anatomy theatre in the eighteenth-century. See, Paula Findlen, *Possessing Nature*, 100-104; Rina Knoeff, "The Visitor's View: Early Modern Tourism and the Polyvalence of Anatomical Exhibits," in *Centers and Cycles of Accumulation in and around the Netherlands during the Early Modern Period*, Lissa Roberts ed. (Zurich; Berlin: Lit Verlag, 2011), 155-175.

contained the fencing school on the ground level, above which was the university library.<sup>373</sup> Audience members for dissections, which included university students, professors, and others willing to pay the 15 *stuyver* fee, entered through a door at the top of a small set of stairs and emerged facing the dissection table with a cabinet of anatomical instruments, including a large wooden compass with gilded tips, hanging above their heads.<sup>374</sup>

Inventories and visitor accounts offer some indication of the environment that greeted those attending anatomical demonstrations or viewing the collection. Radiating out around the dissection table, six levels of ascending galleries could accommodate nearly 200 visitors. University professors and those of higher rank were awarded seats in the two lowest levels, as were students of medicine and surgery, while other university students and laymen stood behind and above.<sup>375</sup> Surrounded on three sides by large windows, the space would have been well lit, even in the darker winter months during which public dissections were held. Wooden sconces on the walls were carved into the shape of bucks' heads and adorned with real antlers, the tips of which were gilded. In the center of the room, a five-pointed, painted and gilded, wooden chandelier, the height of which could be adjusted, offered additional illumination for the cadaver, and candles could also be set up around the room.<sup>376</sup> To enhance the visibility of the professor and his subject, the dissection table, which was

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<sup>373</sup> Henricus Joannes Witkam, *Catalogues of all the chiefest rarities in the publick anatomie hall of the university of Leyden* (Leiden, 1980), iv.

<sup>374</sup> P.C. Molhuysen, *Bronnen tot de Geschiedenis der Leidsche Universiteit, eerste deel, 1574- 7 Febr. 1610* (The Hague, Martinus Nijhoff, 1913), 287; Huisman, *The Finger of God*, 33; A.J.F. Gogelein, Dick Elffers et al. *Leidse universiteit 400: Stichting en eeste bloei 1575-c. 1650*, exh. cat. (Amsterdam: Rijksmuseum, 27 maart-8 juni 1975), 101.

<sup>375</sup> Huisman, *The Finger of God*, 25; Jan Jansz Orlers, *Beschrijvinge der stad Leyden* (Leiden: Cornelis Heyligert; Amsterdam: Harmanus Keyzer and Hendrik Gartman, 1641), 208.

<sup>376</sup> J.A. Barge, *De Oudste Inventaris der Oudste Academische Anatomie in Nederland* (Leiden: H.E.S. Kroese, 1934), 43.

painted red and black and covered in white linen, could rotate and was placed on a small, elevated stage.<sup>377</sup> When organs were removed, they were placed on wooden boards and circulated, allowing for closer inspection.<sup>378</sup> Written accounts indicate the use of various woods, metals, fabrics, and paint to decorate the space and bring color and texture to a room that modern scholars must often view through a lens of black and white printed representations, such as Johannes Woudanus and Willem van Swanenburg's 1610 engraving, or the illustration that is included in Petrus van der Aa's *Les Delices de Leide* (Leiden, 1712) [Fig. 108].

Aiding us in reconstructing the contents and organization of the space, these prints also draw attention to the theater's second attraction: its collection of preserved human and animal specimens, rarities, and art. Through the depiction of both an anatomical subject and the collection, they illustrate the theater's dual function as a place of dissection and wonder cabinet. In practice, however, the two elements would not have been displayed simultaneously. In particular, the objects exhibited on the rails of the gallery, which include skeletons of numerous animals and humans, were housed in a separate building during winter months, given that they would have obstructed observers' views of the subject during demonstrations.<sup>379</sup> However, the seasonal treatment of the hanging specimens and those kept in larger cabinets are more difficult to surmise, and it is likely that the room was ornamented with portions of the collection year-round. I therefore include these objects in my

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<sup>377</sup> Witkam, *Catalogues of all the chiefest rarities*, iv.

<sup>378</sup> Van Horne's inventory (1652): "4 groote eijcken borden om in t'anatomiseeren yet op te leggen." (Witkam, *Catalogues of all the chiefest rarities*, 10). All translations in this chapter are mine, unless otherwise indicated.

<sup>379</sup> Gogelein et al., *Leidse universiteit 400*, 101.

consideration of the environment in which anatomical dissections were performed and witnessed.

As Tim Huisman has demonstrated in his nuanced study of this space, the contents and organization of the university's anatomical collection changed in response to the varied interests and concerns of different anatomy professors. He explains that the skeletons acquired under the direction of Pauw informed the anatomist's study of osteology and added educative ornamentation to the theater.<sup>380</sup> Woudanus's print includes many of the enduring elements of the theater, such as the stag-head sconces, instrument cabinet, and emblematic skeletons that were already in place at this time. Several carry flags with Latin verses that allude to man's place in the world and remind the viewer of his fleeting time on earth. At the apex of the outer-most ring, two skeletons as Adam and Eve flank a tree that is encircled by a serpent. These messages of mortality and morality were supported by the descriptive plaques that accompanied skeletons of notable subjects, such as "Schoon Janneken strangled for her famous larceny," whom Pauw had dissected in 1594.<sup>381</sup> Later catalogues also include the stories of specific skeleton's identities in life, often noting those who had committed suicide, rape, or infanticide, and acting as warnings to visitors. Under Pauw, the collection promoted self-betterment, commented on man's place in the world, and his ability to gain knowledge of God through the study of the body, elements in keeping with Pauw's humanist training and philosophy.<sup>382</sup>

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<sup>380</sup> Huisman, *The Finger of God*, 29; Tim Huisman, "Resilient Collections: The Long Life of Leiden's Earliest Anatomical Collections," in *The Fate of Anatomical Collections*, Rina Knoeff and Robert Zwijnenberg eds. (Burlington: Ashgate, 2015), 58-59.

<sup>381</sup> Barge, *Oudste Inventaris*, 28-29, 36-55; Huisman, *The Finger of God*, 191.

<sup>382</sup> Huisman, *The Finger of God*, 35.

The collection expanded significantly under Otto Heurnius (1577-1652), resulting in what can be considered the future core composition of the collection and contributing largely to its enduring fame. Heurnius's role in the collection's development is recorded in inventories drafted during his tenure and upon his death, a bill from the Leiden book and print seller, Govert Basson, and letters the anatomist exchanged with merchants and other physicians in his quest for objects.<sup>383</sup> Notably, many of the new acquisitions did not directly address the physical structure of the body or the practice of medicine and, particularly in his purchase of books and prints for the theater, biblical, mythological, and historical subjects are in the majority.<sup>384</sup> Taking his point of departure from these printed works, Lunsingh Scheurleer interprets the theater as a didactic setting in which the viewer was reminded of the transience of life and his moral responsibilities.<sup>385</sup>

Expanding upon this view, Huisman observes the addition of rarities, most notably from Egypt, Japan, China, and Indonesia, and natural curiosities. He locates the anatomy theater within the tradition of the *Kunst-* and *Wunderkammer*, and specifically identifies the collection as a microcosmic representation of the universe, a relationship that was echoed in the human body.<sup>386</sup> Moreover, these exotic objects lent tangible legitimacy to stories from the Bible and classical literature and, in particular, Huisman makes a compelling case for Heurnius's interest in Hermeticism as informing the acquisition of new materials. However,

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<sup>383</sup> Barge, *Oudste Inventaris*, 28-29; AC 1 228.

<sup>384</sup> Barge, *Oudste Inventaris*, 28-29; Huisman, *The Finger of God*, 49.

<sup>385</sup> Th. H. Lunsingh Scheurleer, "Un Amphithéâtre d'Anatomie Moralisée," in *Leiden University in the Seventeenth Century: An Exchange of Learning*, Th. H. Lunsingh Scheurleer and G.H.M Postbunus Meyjes eds. (Leiden: Universitaire Pers Leiden/E. J. Brill, 1975), 217-277; Jan Rupp makes a similar identification (Rupp, "Matters of Life and Death," 270-273).

<sup>386</sup> Huisman, *The Finger of God*, 48-59; Huisman, "Resilient Collections," 59-61.

he cautions that the objects held in the theater were capable of performing multiple functions, including medicinal, historical, ethnographic, and philosophical.<sup>387</sup> During anatomical demonstrations, the multi-faceted purpose of the theater's collection could act as support for assertions made by the anatomist concerning the place of man within the natural world, comparisons of the cadaver with other animals or people from foreign lands, or to further explicate anatomical details that could not be seen easily.

During Heurnius's tenure a division between practical and theoretical experience, deriving from the pedagogical model of sixteenth-century Padua, was formalized in the curriculum of Leiden University. In her analysis of anatomical study in Padua, Cynthia Klestinec notes that private lessons became more popular towards the end of the sixteenth century and arose as supplements to Fabricius's public demonstrations. Dissections in the anatomy theater were seen as accommodating too many viewers, many of whom were laymen, which necessitated a more general discussion of the body that was often laden with Aristotelian philosophy.<sup>388</sup> In contrast, private anatomies were organized exclusively for medical students, who could benefit from a more casual and informed atmosphere that placed greater emphasis on the educative function of the dissection, an approach that Heurnius promoted.<sup>389</sup>

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<sup>387</sup> William Schupback, "Some Cabinets of Curiosities in European Academic Institutions," in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, Oliver Impey and Arthur MacGregor eds. (Oxford: Clarendon Press, 1985), 171; Huisman 2009, 50-51, 60-63.

<sup>388</sup> Cynthia Klestinec, "Practical Experience in Anatomy," in *The Body as Object and Instrument of Knowledge: Embodied Empiricism in Early Modern Science*, C.T. Wolfe and O. Gal eds. (New York: Springer, 2010), 35-37.

<sup>389</sup> Klestinec 2010, 39.

The connection between surgery and medicine had been encouraged in the training of students at the university since its founding, but in 1636 a new initiative concerning clinical instruction was undertaken.<sup>390</sup> The Collegium Medio-Practicum, a set of clinical demonstrations at the St. Caecilia Gasthuis, led by Heurnius and Ewaldus Screvelius (1575-1646), was developed in response to falling enrollment rates, due to a plague outbreak in 1635 and the creation of a similar program at Utrecht University by Wilhem van der Straten (1593-1681) the same year.<sup>391</sup> In comparison to the public demonstrations at the anatomy theater, these lessons offered an opportunity for students to learn actively by working through diagnoses and conducting pathological dissections. The practice was made more efficient and regular under Franciscus de la Boë Sylvius (1614-1672), who placed even greater emphasis on dissection and medical care.<sup>392</sup> This divided pedagogical approach had an impact on the specific role of the anatomy theater in the training of medical students. Under Van Horne, whose anatomical study supported his physiological interests, specifically, concerning the lymphatic and reproductive systems, we see his attentions shift away from this space towards more particularized research and instruction.

### **iii. Van Horne, De Bils, and the Leiden Anatomy Theater**

This was the nature of the collection and anatomical instruction Van Horne inherited in 1652, but during his tenure the role and scope of the collection was again altered. From the time of his first employment at the university, in 1651, Van Horne was engaged with the university collection. He conducted an inventory the following year as a means of

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<sup>390</sup> In 1584 Gerard de Bondt made a request to the Curators that surgery and medicine be connected in the training of students, which was approved (Gogelein et al., *Leidse universiteit* 400, 106).

<sup>391</sup> Beukers, "Clinical Teaching," 139-141.

<sup>392</sup> Beukers, "Clinical Teaching," 144-145.



transitioning its care from his predecessor and contributed new objects early in his career, but his involvement waned over his period as professor of anatomy and surgery. In part, this may have been due to the increasing role of the anatomy servant, who was responsible for maintaining the space and obtaining anatomical subjects for winter demonstrations. With the appointment of Stoffel Stoffelsz. van Carthagen (n.d.) to this position in 1663, a role that was appended to his job as the assistant of the Hortus Botanicus, the servant's function as caretaker of the collection was formalized through the reallocation of profits from the anatomy theater. In 1664, the Curators of the University ordered that funds obtained through public demonstrations would be awarded to Van Horne, while those received for tours of the collection were given to Van Carthagen.<sup>393</sup> Later anatomy servants further capitalized on this responsibility, and published catalogues of the collection that were sold for approximately 4 *stuyvers*.<sup>394</sup> However, this also had the effect of removing financial incentive for the anatomy professor to make new acquisitions for the collection.

Records of the Curators of the University also show a decrease in the amount reimbursed to the anatomy servant in the later 1660s, specifically for the costs of obtaining cadavers. It is possible that the university experienced a shortage of suitable specimens during this period, particularly given that public dissections were conducted in the winter, but supporting evidence suggests that bodies may have been redirected towards other purposes. In particular, between 1666 and 1669 there is no mention of reimbursement to the anatomical servant for anatomical subjects. At the time, Van Horne was preparing a treatise on the reproductive organs and he contacted Swammerdam on three separate occasions to

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<sup>393</sup> AC1 26 fol. 71, 15 Jan. 1664; Huisman, *The Finger of God*, 79-80.

<sup>394</sup> Witkam, *Catalogues of all the chiefest rarities*, v.

conduct private dissections on human cadavers.<sup>395</sup> Dissections witnessed during this period are also recorded in the publications of his pupils. For example, Swammerdam comments that Van Horne dissected a virgin who had drowned herself in 1667, and Justus Schrader (1643-1702) also observed a dissection that Van Horne conducted in 1669.<sup>396</sup> The research purposes for which Van Horne used these subjects, in particular to further his investigation of the liver and reproductive organs, suggests that the anatomist's priorities changed later in his career and became more focused on his own intellectual pursuits. It is within this context that we can evaluate Sagemolen's anatomical drawings.

During the 1660s, Van Horne and his students were also experimenting with new preparation techniques. Traditionally, dissections were restricted to the colder months of the year to ensure that the subject did not decompose too quickly, but this practice posed challenges to effective instruction and research. Dried preparations could be used as supplementary materials during lectures and demonstrations, and the anatomy theater's inventories include bones, skin, and the vascular systems of particular organs.<sup>397</sup> However, anatomists found that this method of preservation did not maintain the integrity of the organ's appearance and was limited in its application. Dried preparations were also difficult

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<sup>395</sup> Huisman, *The Finger of God*, 194; Letter from Johannes van Horne to Jan Swammerdam, 5 January 1669, *Circulation of Knowledge and Learned Practices in the 17<sup>th</sup>-Century Dutch Republic*, (2013) <<http://ckcc.huysgens.knaw.nl/epistolarium/letter.html?id=swam001/0017>> (accessed 10 January 2017); Letter from Johannes van Horne to Jan Swammerdam, 8 March 1669 *Circulation of Knowledge and Learned Practices in the 17<sup>th</sup>-Century Dutch Republic*, (2013) <<http://ckcc.huysgens.knaw.nl/epistolarium/letter.html?id=swam001/0018>> (10 January 2017)

<sup>396</sup> Swammerdam, *Miraculum Naturae sive Uteri Muliebris Fabrica* (Leiden: Severinum Matthaei, 1672), 49; Justus Schrader, *Observationes et Historiae* (Amsterdam: Sbrahami Wolfgang, 1674), 191.

<sup>397</sup> See Witkam, *Catalogues of all the chiefest rarities*.

to conserve and by mid-century several of the skeletons in the anatomy theater needed to be replaced.<sup>398</sup>

In his first year at the university as professor extraordinaris of anatomy, Van Horne made arrangements with the Flemish nobleman and amateur anatomist Louis de Bils (1624-1671) for a donation of specimens to the anatomy theater. The gift is recorded on a plaque that is marked with De Bils' familial coats-of-arms, which proclaims the donor's skill and generosity to those visiting the collection.<sup>399</sup> In the Netherlands and abroad, De Bils gained notoriety for his preparation methods which seem to have undergone further development in the following twenty years, but his donation to the university in 1651 consisted primarily of dried specimens of human skeletons. The gift included a child and an infant, skeletons of an ox, horse, donkey, dog, hog, ram, and ape, two human skulls, the head of a lion, wolf, and sea horse, and the dried skin of a man with his hair, beard, and eyes preserved.<sup>400</sup> De Bils was famous for his ability to embalm whole organs, or even entire bodies, which could be dissected and repeatedly examined. Moreover, his works maintained the finer details of the body's vascular system and a lifelike appearance. The process took several months and involved soaking the body in a light-tight container with spices, balms, and alcohol.<sup>401</sup>

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<sup>398</sup> Huisman, *The Finger of God*, 77.

<sup>399</sup> Johannes van Horne, *Attestatie*, 1651. Oil on panel. Anatomisch Museum, Leiden University Medical Centre. An image of this plaque is included in Jan Reinier Jansma, *Louis de Bils en de anatomie van zijn tijd*, Ph.D. diss. (Hoogeveen, 1919), 47.

<sup>400</sup> Johannes van Horne, "Attestatie," in Louis de Bils, *Vertooch van verscheyde eyghene Anatomische Stucken* (Amsterdam: Nicolaes van Ravesteyn, 1655).

<sup>401</sup> Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007), 272-273; Jansma, *Louis de Bils*, 96-99.

While he often alluded to how costly the process was, De Bils guarded his preparation recipe to maintain its value and his position within the anatomical community.<sup>402</sup>

Aware of the potential advancements that could be made through improved anatomical models, Van Horne was eager to learn De Bils' secret. Taking advantage of this interest, De Bils later tried to leverage his donation to the Leiden anatomy theater into a formal appointment as alderman for the Free Lands of Flanders, a request that he hoped the Curators of the University would make to the *Staten Generaal* on his behalf. In 1655 Van Horne presented this request, but it was refused.<sup>403</sup> Instead, De Bils relied on his anatomical capabilities and in the same year he printed a pamphlet, *Vertooch van verscheyde eyghene Anatomische Stucken* (Amsterdam, 1655), which publicized his skills in preparations and included a copy of Van Horne's *Attestatie* and letters in praise of his technique.<sup>404</sup>

Van Horne seems to have tolerated De Bils's use of his name and reference to the Leiden donation, perhaps in the hope that De Bils would share his embalming recipe, but by the end of the 1650s his patience had worn thin. In 1658, De Bils published a letter written to Dr. Laurens Jordaan concerning the gallbladder and liver and initiated a pamphlet war with Van Horne.<sup>405</sup> De Bils's letter included a discussion of the lymphatic system that

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<sup>402</sup> Information concerning De Bils' technique is found in his will of 16 August 1669, and a version drafted three days later includes his method of "bloodless dissection" which involved injecting a coagulant before the demonstration (Jansma, *Louis de Bils*, 97, 102). In his *Kopye van zekere ampele acte van Jr Louijs de Bils*, De Bils seeks investments of 25 guilders with the aim of reaching 20,000 guilders for his museum, and promises his recipe to all investors, but this venture fails. In 1663 De Bils received 22,000 guilders from the university of Louvain for five prepared specimens and his secret, but his time there was short lived due to a religious dispute (Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: University of Chicago Press, 2014), 116).

<sup>403</sup> Huisman, *The Finger of God*, 77.

<sup>404</sup> De Bils, *Vertooch van verscheyde eyghene Anatomische Stucken*.

<sup>405</sup> Louis de Bils, *Waarachtig gebruik der tot noch toe gemeende gijlbuis* (Rotterdam: Joannes Naeranus, 1658).

contradicted Van Horne's theory concerning the presence of valves in this system and the flow of chyle to the heart. Van Horne had found the publication inaccurate and confusing, and helped De Bills translate it into Latin, likely to draw attention to errors in De Bills' argument.<sup>406</sup> Undeterred, De Bills published another pamphlet, his *Kopye van zekere ampele acte van Jr Louijs de Bills* (Rotterdam, 1659), which solicited investors for an anatomical museum in Rotterdam and cited his work, *Waarachtig gebruik der tot noch toe gemeende gijlbuis* (Rotterdam, 1658) and preparations at Leiden as evidence of the remarkability and necessity of his preparation technique.<sup>407</sup> In the same year, De Bills also circulated a pamphlet addressed to "All true lovers of anatomy" (Rotterdam, 1659), which asserted the superiority of his findings through his preparations over the works of other anatomists, including Van Horne.<sup>408</sup> In response, Van Horne issued a "Warning to all lovers of anatomy" (Leiden 1660), in which he critiqued the nobleman's knowledge of anatomy and lack of formal education, publically distancing himself from De Bills' project.<sup>409</sup>

Instead, Van Horne encouraged his students to develop new preparation methods and also undertook this endeavor himself, producing a generation of anatomists who are synonymous with wet and injected preparations, most notably, Jan Swammerdam (1637-1680), Reinier de Graaf (1641-1673), Frederik Ruysch (1638-1731), and Schrader. Since

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<sup>406</sup> De Bills *Waarachtig gebruik der tot noch toe gemeende gijlbuis*; Louis de Bills, *Epistolica Dissertatio: Qua verus Hepatis circa Chylum, et partier ductus Chiliferi hactenus dicti usus, docetur* (Rotterdam: Joannis Naerani, 1659).

<sup>407</sup> Leonard van Zyl, *Kopye van zekere ampele acte van Jr Louijs de Bills* (Rotterdam: Joannes Naeranus, 1659); see also Margócsy, *Commercial Visions*, 115-116.

<sup>408</sup> Louis de Bills, *Aan alle ware Liefhebbers der Anatomie* (Rotterdam: Joannes Naeranus, 1659).

<sup>409</sup> Johannes van Horne, *Waerschouwinge aen alle Liefhebbers der Anatomie* (Leiden: Daniel and Abraham van Gaasbeeck, 1660).

1650, anatomists throughout Europe and England had been experimenting with filling vessels with air or water but sought a more permanent means of demonstrating the courses of different systems within the body.<sup>410</sup> The ability to perform this feat at Leiden in the 1660s was the product of several simultaneous developments. De Graaf invented the clyster-pipe syringe, which enabled direct injection into the vessels, but Swammerdam was the first to use this instrument to inject a prepared organ with warm wax, which became fixed upon hardening.<sup>411</sup> Van Horne's students also experimented with solutions of balsam, turpentine, and spirits, and a combination of these techniques eventually matured into Ruysch's famous preparation method.<sup>412</sup> The samples produced by his students, in particular those of Swammerdam and Ruysch, played a vital role in Van Horne's research and private collection

In his publications, Van Horne acknowledges the beneficial role of anatomical preparations and illustrations as means of demonstrating the design and function of the human body, but places greater emphasis on the role of practical experience. In particular, his *Mikrotechne seu methodica ad chirurgiam introductio* (Leiden, 1663) identifies surgery as a necessary element of the healing arts about which physicians should be knowledgeable,

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<sup>410</sup> F.J. Cole, *A History of Comparative Anatomy: From Aristotle to the Eighteenth Century* (London: MacMillan & Co. Ltd, 1949), 276; W.J. Mulder and H. Beukers, "Injected Specimens in the Anatomy Museum of Leiden," *Acte du 5e Colloque des conservateurs des musees d'histoire des sciences medicales, 5 au 8 septembre 1990: medicine en musees, aujourd'hui, demain*, (Lyon: Collection Fondation Marcel Merieux 1991), 11.

<sup>411</sup> The earliest reference to this technique is 21 January 1667 (Jan Swammerdam, *Biblia naturae: sive Historia insectorum* [Leiden: I. Severinus, B. vander Aa, P. vander Aa, 1737], C, C2).

<sup>412</sup> Cook, *Matters of Exchange*, 280-281; Justus Schrader includes a discussion of preparation methods in his *Observatione et Historiae* (Amsterdam, 1674), 236-240.

rather than considering it to be below their status.<sup>413</sup> Moreover, in his *Novus Ductus Chyliferus* (Leiden, 1652) the anatomist references his experience with dissection and vivisection consistently, including the examination of two men who had died shortly after eating.<sup>414</sup> At other times his views are expressed in opposition to the products of others. The anatomist praises De Bils preparation technique in his *Waerschouwinge aen alle Liefhebbers der Anatomie* (Leiden, 1660), but derides the information that is conveyed through the Flemish nobleman's balsamed specimens, and offers his own preparations as superior examples.<sup>415</sup> Specifically, Van Horne notes that some of the mistakes of earlier anatomists are replicated in De Bils's specimens and invokes his own experience with dissection to discredit the controversial elements of De Bils's preparations.<sup>416</sup> Moreover, Van Horne finds De Bils's lack of Latin and training in medicine disconcerting and consequently his preparations, though not completely useless, offer an inadequate example for students. Therefore, Van Horne encourages his students to use their reason and approach De Bils'

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<sup>413</sup> "I show their [surgeon's] advancement keeps pace with doctors" [demonstravero pari passu eos incedere posse cum Medicis] (Johannes van Horne, *Mikrotechne seu methodica ad chirurgiam introductio* [Leiden: Gaasbekios, 1668], 15-16).

<sup>414</sup> Johannes van Horne, *Novus Ductus Chyliferus* (Leiden: Francisci Hackii, 1652), B2, D.

<sup>415</sup> "I want to add besides, he shows to my only, in his four balsamed bodies, a few of the mistakes of the earlier anatomists, or some that the same in their writing and objects have not published, or that I have not known through my own experience, and I shall before all the world stand ashamed." [Dit derff ick daer by voegen, hy wijse my maer aen, in sijne vier gebalsemde Lichaemen, een eenigh mis-slach van de voorgaende Anatomisten, of yet dat deselve in haere Schriften ende Plaeten niet en hebben uyt-gedruckt, oft dat ick niet en weet by eygen ondervindinge, ende ick sal voor alle de Weerelt beschaemt staen.] (Van Horne, *Waerschouwinge aen alle Liefhebbers der Anatomie*, 24).

<sup>416</sup> "...also every one of my students is advised, not my sayings to believe, but their own eyes, and to go view the prepared bodies of Joncker de Bils, to be able to discern, whether this braggart is deserving of support." [...oock yeder een van mijne Studenten geraeden, niet mijn seggen, maer haer eygen oogen te ghelooven, ende de Lichaemen van Ionckheer de Bils geprepareert, te gaen besien, om te moogen bekennen, quid tanto dignum ferat hic promissor hiatu.] (Van Horne, *Waerschouwinge aen alle Liefhebbers der Anatomie*, 25-26).

preparations with open eyes, informed by authoritative experts' writings and experience derived from dissections.<sup>417</sup>

To supplement the instruction provided in annual demonstrations in the university's anatomy theater, Van Horne conducted dissections for his students in his home. In his account of the scheduled courses offered at Leiden University in 1663, John Ray notes that the practice of paying for private tutelage was common in each of the university's faculties and, as we have seen, towards the later 1660s Van Horne and his students appear increasingly to have used this forum.<sup>418</sup> For Van Horne, this type of more detailed instruction not only allowed his pupils to further their education, but it also offered an opportunity to employ extra hands and minds that could be applied to his own interests. Following their graduation, several of Van Horne's students pursued areas of anatomical investigation that were popular with the Leiden professor, the basis of which were likely laid during his tutelage. For example, Swammerdam collaborated with Van Horne on a study of the female reproductive organs, which was begun during Swammerdam's studies at Leiden. It is not until the student moved to Amsterdam that the two began to correspond about the project, and these letters contain invitations to dissections, likely conducted in the professor's home.<sup>419</sup> Another of Van Horne's students, Schrader, attended one such event

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<sup>417</sup> "He [de Bills] who has no familiarity with Latin letters, no knowledge of medicine, much less the practice of the same..." [Sijn Ed. die geen kennisse van de Latijnsche letteren, geen weetenschap van de Medecijne, veel min van de practijck der selver heft...] (Van Horne, *Waerschouwinge aen alle Lieff-hebbers der Anatomie*, 29).

<sup>418</sup> "The students usually list themselves under some professor, who reads to them in private, running thro' the whole faculty, which they call Collegium instituere, and for this they give a gratuity to the professor." (John Ray, *Travels through the Low Countries, Germany, Italy and France* [London: J. Walthoe, 1738], 31).

<sup>419</sup> "Now, the hospital has offered a male subject to me, which I will dissect..." [Nunc mihi è nosocomio oblatum est subjectum virile, quod dissecare instituum...] (5 January 1669); "I obtained a female subject, if you are available to come here..." [Nactus sum muliebere subjectum: si vacat huc excurrere...] (8 March 1669) (Letters from Van Horne to Swammerdam, 5 Jan 1669 and 8 March 1669, [2013] <<http://ckcc.huygens.knaw.nl/epistolarium/letter.html?id=swam001/0017>> [10 January 2017]).



and recorded it in his *Observtione et Historiae* (Amsterdam, 1674).<sup>420</sup> When human cadavers were unavailable, animals could also be used.<sup>421</sup> Finally, investigation of anatomical rarities, such as monstrous births or hermaphrodites, also availed themselves to more focused study and could be used to conduct anatomic pathology and focus on specific conditions of the body.<sup>422</sup> Van Horne's drawings were uniquely suited to function within this context of practical and particularized instruction, supported by the other material representations of the human body found in the anatomist's cabinet.

### ***B. Restricted Access: Van Horne's Collection and its Contents***

In contrast to the Leiden anatomy theater, Van Horne's collection has not been the subject of extensive study.<sup>423</sup> In this section, I reconstruct the notable contents of Van Horne's anatomical cabinet and the relationships among these objects, for the first time using letters and journals written by the anatomist and visitors to Leiden who had the good fortune of an invitation to the professor's home. The anatomist's own allusions to this space are sparing, and the majority of his comments are made years after Sagemolen's drawings were completed. Writing to Swammerdam in 1667, by which time Van Horne had moved to the Noord Rapenberg, the professor notes that he had constructed a room in his home for his

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<sup>420</sup> Schrader, *Obervationes*, 191.

<sup>421</sup> Gerrit Lindeboom, "Dog and Frog, Physiological experiments at Leiden during the 17<sup>th</sup> Century," in *Leiden University in the Seventeenth Century: An Exchange of Learning*, Th. H. Lunsingh Scheurleer and G.H.M Posthumus Meyjes eds. (Leiden: Universitaire Pers Leiden/E. J. Brill, 1975), 280; A.M. Luyendijk-Elshout, "Introduction," in *Dilucidatio valvularum in vasis lymphaticis et lacteis (1665): Facsimile of the First Edition* (Nieuwkoop de Graaf, 1964), 36; Van Horne, *Novus Ductus Chyliferus*, B2.

<sup>422</sup> Borch, *Itinerarium*, 8 March 1662 and 14 October 1662, 72, 215.

<sup>423</sup> Huisman provides a brief account of this space (Huisman, *The Finger of God*, 75).

anatomical rarities.<sup>424</sup> In his response to Reinier de Graaf (1641-1673) the following year, Van Horne explains that his planned engravings for his publication were not executed and invites dubious readers to inspect his preparations instead.<sup>425</sup> Predating Van Horne's statements, the travel journal and letters of the Danish physician and philology professor, Ole Borch, distinguish between the collection of the Leiden anatomy theater and that of the professor of anatomy, indicating that Van Horne's collection was likely founded prior to 1661, the year of Borch's earliest visit. Borch records seeing Sagemolen's drawings within Van Horne's cabinet, which is consistent with other visitors' accounts of this space.<sup>426</sup> Therefore, we can locate the BIU Santé manuscripts within an environment of research and focused instruction and consider how they were used alongside other items found in the collection.

#### **iv. Mixing Media and Building Bodies**

In the 1670 inventory of the anatomist's estate and the sales catalogue for his library, the working relationship between Sagemolen's drawings and preserved, natural specimens, is made explicit. The notarial records produced in the year of Van Horne's death consistently

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<sup>424</sup> "Meanwhile, I undertook the construction of a room [...] for the storage of my rarities" [Interea curavi extruendum cubiculum (...) pro reponendis rarioribus meis Anatomicis] (Letter from Van Horne to Swammerdam, 27 August 1667 (2013) <<http://ckcc.huylgens.knaw.nl/epistolarium/letter.html?id=swam001/0010>> (22 May 2017).

<sup>425</sup> "those who wish to see the truth of what I describe can come to my house, for I keep all the parts well prepared, through which the visitor can satisfy their curiosity." Quoted in Matthew Cobb, *Generation: The 17<sup>th</sup>-century Scientists who Unraveled the Secrets of Sex, Life, and Growth* (New York: Bloomsbury Publishing, 2006), 113. [Doleo, quod ob sculptoris inertiam, aliquas saltem & praecipuae notae figuras addere non licuerit, quibus modo dicta graphicè depinguntur. Interim pro iis, qui oculari inspectione veritatem horum comprobare cupiunt, ad manus sunt particulae, ita praeparatae & asservatae ut possint curiositati satisfacere eorum, qui non cavillandi sed discendi animo aliquando assident.] Johannes van Horne, *Suarum circa Partes Generationis in utroqueSexu Observationum Prodromus* (Leiden: Gaasbekios, 1668).

<sup>426</sup> Borch, *Itinerarium*, 8 April 1661, 97; Borch to Bartholin, Epistola XCII, 21 April 1661, in *Epistolarum medicinalium*, 393-394.

list the drawings, “together with the skeleton of a man full of letters,”<sup>427</sup> while the 1670 catalogue indicates that the four volumes were designed to work with the three dimensional model, a function that has gone unrecognized in previous assessments of the drawings.<sup>428</sup> The description of the skeleton implies that it was covered with letters, which I interpret as a reference to labels that correspond to the same identificatory markers in the drawn images. Borch’s correspondence and diary re-enforce this connection. The visiting physician records Van Horne’s drawings as,

...all the muscles of the human body, accurately depicted in their natural colors, which he attached to a skeleton, and marked precisely the beginning and end of the muscles in all its members. They measure the size of a three-year-old child. He showed these insertions not only in the painted skeleton, but also in skeleton of a strong, large human cadaver, indeed of uncommon artifice.<sup>429</sup>

In a letter to Thomas Bartholin later that month, Borch explains that the drawings were produced, “by means of a remarkable artist” and that, “he believes that such a great work of

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<sup>427</sup> “...anatomical rarities, being namely three costly and one less costly book of drawings with a skeleton full of letters.” [...anatomische rareyten, namentlick drie kostelicke ende een wat minder bouck sijde teekeningen neffens een geraemte vol van letters.] (ELO 0506, Dirck Verhagen 28 December 1669, no. 176; UVA MS II A 20); “...a skeleton of a man full of letters, with three costly and one less costly book, being anatomical drawings the same as were previously announced in the weekly paper.” [...een geraemte van den mensch vol letters, met drie kostelicke ende een wat minder kostelick boeck, sijnde anatomische teekeningen deselve naer voorgaende bekentmaeckinge bij de weeckelicxe karante.] (Dirck Verhagen, 19 December 1670, UVA MS II A 20). I translate “vol van letters” as a reference to letters that have been written on the bones of the skeleton.

<sup>428</sup> “Finally, separate from the public auction is also the admirable anatomy of the muscles of the whole body, painted in living colors, and in four separate volumes, and a skeleton, to which this work is precisely suitable, through the exertion and diligence of the famous anatomist, Johannes van Horne...” [Publicâ denique auctione distrahere etiam animus est Anatomen admirandam musculorum totius Corporis, vivis coloribus depictam, ac quatuor voluminibus distinctam, ut & skeleton accuratissimum huic operi accommodatum operâ ac industria celeberrimi Anatomici, D. Joannis van Horne...] (*Catalogus Instructissimae in omni material ac lingua Bibliothecae Nobilissimi & Celeberrimi Viri D. Joannis van Horne* (Leiden: Ex Officina Arnoldi Doude, 1670), last page).

<sup>429</sup> “...conspexi et omnes humani corporis musculos accuratissimè depictos nativis suis coloribus proportione quae infanti trimulo respondeant, quibus adjungebatur sceleton, in cujus omnibus membris accuratè notatum, erat caput et finis omnium musculorum, neque id tantum in sceleto picto nobis ostendebat illas insertiones, sed etiam in valido magni cadaveris humani sceleto, raro sanè artificio.” (Borch, *Itinerarium*, 8 April 1661, 97).

art exists nowhere else.”<sup>430</sup> Designating a third object that the anatomist had shown in his collection, Borch writes, “a human skeleton black from shades of ink as a means of distinguishing, just by looking and reading the appointed numbers, the beginning and end of the muscles through the entire body are immediately exposed.”<sup>431</sup> Borch’s description could easily be applied to the skeletal figures, executed in black or brown ink, that are found throughout the BIU Santé manuscripts, or the *grisaille* legs included in MS 29 [Figs. 89, 90, 109]. The description of the drawings in Van Horne’s testament clarifies the use of the drawings and the mutually informing relationship of text, image, and specimen within his cabinet. Specifically, the drawings, with their labels, registers, and annotations could function as a key to three-dimensional objects included in the collection.

During his visit to the Leiden anatomy professor’s home, Borch records several other anatomical rarities in Van Horne’s collection – objects that the anatomist could have used to facilitate study of the body, either as independent examples or in tandem with other items, such as Sagemolen’s drawings. Heading the list is a set of boards to which the human circulatory and nervous systems were affixed.<sup>432</sup> In a letter written the previous year, the French physician, Samuel de Sorbière, gives a more complete explanation of the boards’ appearance, and contributes new information regarding Van Horne’s collection. Responding to the dispute between De Bils and Van Horne, De Sorbière states that Van Horne shows a

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<sup>430</sup> “...quas magnâ industriâ se per insignem artificem hîc ait curâsse perfici, creditque nusquam gentium tale opus artis extare.” (Letter from Borch to Bartholin, Epistola XCII, 21 April 1661, in Bartholin, *Epistolarum medicinalium*, 394).

<sup>431</sup> “3. skeleton humanum nigrantibus ex atramento umbris ita hinc inde distinctum, ut intuiti & numeros adscriptos legenti statim pateat principium & finis musculorum per universum corpus.” (Letter from Borch to Bartholin, Epistola XCII, 21 April 1661, in Bartholin, *Epistolarum medicinalium*, 394).

<sup>432</sup> Borch, *Itinerarium*, 8 April 1661, 96.

precision and neatness in his work that surpasses the preparations of De Bils and uses the boards as an example. From De Sorbière and Borch's descriptions, it is possible to discern that the boards were large enough to accommodate the, "arteries, veins, chyle pipes, nerves, and lymphatics of a man that he has dissected [...] All these vessels had been separated from the trunk of the body so neatly that there was nothing broken, all was restored to its position, and the new discoveries of the canal of Pecquet and those of Bartholin were demonstrated."<sup>433</sup> To enhance the clarity with which these specimens could be seen, Van Horne pasted white paper to the boards and glued his preparations against this blank background.

Two surviving examples of these types of boards, the *Evelyn Tables* and *Finch Tables*, both of which are believed to have originated in Padua in the mid-seventeenth century, allow us to envision how Van Horne's preparations may have appeared.<sup>434</sup> Though neither support includes a white background, the nervous, venous, and arterial systems are each separated on to their own large wooden boards, and carefully arranged to replicate the form of the human body. Transferring these systems from the three-dimensional body to the flat boards, the tables have more in common with printed representations of these subjects than their appearance in the physical body. Having spent time in Padua during his medical training, it

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<sup>433</sup> "Il avoit pris les artères, les veines, les conduits du chyle, les nerfs et les vases lymphées et un homme qu'il avoit disséqué, et les avoit estendus sur une planche contre laquelle il avoit collé du papier blanc, afin que toutes choses y parussent plus distinctement. Tout ces caisceaux avoient esté séparés du tronc du corps si adroitement qu'il n'y avoit rien de rompu, que tout estoit remis en sa situation, et que les nouvelles découvertes du canal de Pequet et de ceux de Bartholin." (De Sorbière in Blok, "Drie Brieven," 62).

<sup>434</sup> *Evelyn Tables*, mid-seventeenth century. Human tissue, wood board, varnish. Hunterian Museum, London. Images of the *Evelyn Tables* can be found on the Royal College of Surgeons of England website (2015) <<http://surgicat.rcseng.ac.uk/Details/collect/10204>> (25 July 2018)

is possible that Van Horne had seen this style of preparation and created these diagrammatic models for himself upon his return to the Netherlands.

Comparable methods of preparation were also used as a means of instructing Van Horne's students about these systems. In the same year that Borch first visited Van Horne, Ruysch began his studies at Leiden University, and from his biography and collection catalogues we learn that when studying the liver, students often removed the parenchyma to reveal the vessels, which were pinned to a board and allowed to dry.<sup>435</sup> Van Horne's boards expanded this basic exercise to encompass the entire body and served to demonstrate the anatomist's fine skill and learned hand. Lending artifice to the human body, Van Horne created a tool to clarify the structure of the circulatory and lymphatic systems that could be investigated as a means of independent study, or in combination with demonstrations conducted on human and animal cadavers.

Notably, Sagemolen's drawings do not represent the systems preserved on these boards and, with the exception of the brain, Boerhaave's records do not indicate that this subject was addressed in the missing manuscripts. Rather, the emphasis of the drawings on the body's myological and osteological structures complement, instead of duplicate, the knowledge that could be accessed through study of these tables and other objects in Van Horne's collection. This type of interrelation among different types of representational materials in the anatomist's cabinet illuminates the ways in which the body was accessed and studied in this period, and the suitability of various media to promote understanding of

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<sup>435</sup> This process is discussed fully in chapter five; Frederik Ruysch, *Alle de ontleed- genees- en heelkundige werken van Frederik Ruysch, vols. 1-3* (Amsterdam: Janssoons van Waesberge, 1744), 536, 702; Luyendijk-Elshout, "Introduction," 37-38; Joannes Fridericus Schreiberus, "Verhaal van 't Leven ende Verdiensten van Frederik Ruysch," in *Alle de ontleed- genees- en heelkundige werken van Frederik Ruysch, vol. 1* (Amsterdam: Janssoons van Waesberge, 1744), 6-7.

this subject. Regardless of De Bils' advancements in preparation techniques, this method was still in its early development and the preservation of a full cadaver would have posed a significant financial obstacle to Van Horne, particularly given the amount of spirits, spices, and balsam required to treat the body.<sup>436</sup> In contrast, Sagemolen's drawings offered a more durable option, which could be molded to the needs of the anatomist. In the context of Van Horne's collection, I interpret these works as providing a set of clearly articulated pictorial documents, which could be used alongside other media as a type of referential guide to the body's structure.

At one point, the Van Horne's cabinet also housed a life-sized wire skeleton, made by the Swede, Petrus Houffwenius (1630-1682), a student of Olof Rudbeck (1630-1702) and later professor of Medicine at the University of Uppsala. The skeleton received much acclaim, and is mentioned in a letter to Samuel Hartlib (c. 1600-1662) from Georg Horn (1620-1670), professor of history at Leiden University, who writes, "with us is a Swedish student has made skeleton constructed of copper, the likes of which I have not seen similar in any age."<sup>437</sup> In the same year, De Sorbière also viewed the skeleton and marveled at its craftsmanship, which he notes took its maker two years to complete. Offering a full description of the sculpture, De Sorbière explains that at the center of the structure lay a heart made of *papier mâché* that could be opened to reveal the organ's ventricles and valves. The circulatory system spread out into the body from this center and, similarly, the nerves descended into the vertebrae from the brain. Different thicknesses of wire were used to

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<sup>436</sup> Cook, *Matters of Exchange*, 272.

<sup>437</sup> Letter from Georg Horn to Samuel Hartlib, 24 February 1660, "Apud nos [est?] Svecus studiosus qui [skeleton?] ex cupro artificiosissimum fecit et cui simile nulla aetas vidi..." In *The Hartlib Papers*, ref 16/2/28A (2013) <[https://www.hrionline.ac.uk/hartlib/view?docset=main&docname=16B\\_02\\_27&term0=transtext\\_horne](https://www.hrionline.ac.uk/hartlib/view?docset=main&docname=16B_02_27&term0=transtext_horne)> (02 February 2017)

simulate the scale of these passages as they are found in the body and were distinguished with colored silks.<sup>438</sup> Witnesses' testimonies diverge slightly on the precise coloring of the threads, but either blue or violet was used to indicate the veins, while arteries were shown in red. The nerves were represented with either white or grey, and the lymphatic system was designated using clear glass beads.<sup>439</sup> The skeleton was gifted to Leiden University by the Swede to cover the costs of his tuition upon his graduation in May 1660, but it appears to have been present in Van Horne's collection at the time of both Borch and De Sorbière's visits. Its residence in the Netherlands was brief, and Frederik III of Denmark purchased it for his collection in 1662, where it remained until 1824.<sup>440</sup> For a short time at least, this three-dimensional reconstruction of the body's innermost foundations served as an object that transitioned between the two-dimensional representations of Sagemolen's drawings, Van Horne's boards, or those of his students, and the physical structure of the human body.

Calling on the professor at home at least twice in the span of ten months, Borch also records the presence of prepared specimens of the lungs, kidneys, and genitals, the liver and

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<sup>438</sup> "Elle est toute de fil d'archal, à la reserve du coeur qu'il a fallu faire de carton, et qui s'ouvre pour laisser voir ses ventricules et ses valvules. De ce coeur sortent les quatre grands vaisseaux, dont il conduit les rameaux dans les parenchymes, dans le tronc du corps, et jusques à l'extrémité des membres. Les veines et les artères y sont plus grosses, et en s'éloignant de ce centre ils vont et diminuant: comme il fait arriver cela mesme aux nerfs, qu'il dérive du cerveau et des vertèbres, au reservoir du chyle et à son canal, et aux vases de Bartholin. Il a pratiqué cette proportion par le moyen d'une soye platte, qu'il a proprement colée tout à l'entour de son fil d'archal, et dont il donne aux vaisseaux la grosseur qui leur est nécessaire. Outre cela il s'est imaginé de les représenter par des soyes de diverses couleurs. Si bien que le fil d'archal revestu de soye violette représente les veines, le rouge marque les artères, le gris est affecté aux nerfs, le blanc aux vaisseaux lactés, et le bleu pale aux lymphatiques." (Sorbière in Blok, "Drie Brieven" 66-67).

<sup>439</sup> Descriptions of the skeleton are found in De Sorbière in Blok, "Drie Brieven," 66-67; Letter from Borch to Bartholin, Epistola XCII, 21 April 1661, in Bartholin, *Epistolarum medicinalium*, 393; Borch, *Itinerarium*. 8 April 1661, 96; Borch, *Itinerarium*, 5 January 1662, 38.

<sup>440</sup> Rolf Lindborg, "Petrus Hoffwenius," *Svenskt biografiskt lexicon* (20 June 2016) <<https://sok.riksarkivet.se/sbl/Presentation.aspx?id=13689>> (21 May 2017); see also Johan Nordström, "Petrus Hoffveniuss 'konstig sceleton'," *Lychnos: Lärdomshistoriska samfundets årsbok* (Uppsala: Almqvist & Wiksell, 1956), 206-215.



spleen of a cow, and at least two preparations of embryos from the first trimester.<sup>441</sup> The organs noted by the visiting physician are often tied to subjects of Van Horne's research, in particular, the lymphatic and reproductive systems. Writing in 1672, Swammerdam indicates that some of the specimens in Van Horne's collection were the product of his pupils' experiments with different techniques, and notes that his preparation of a liver was displayed publically in the Leiden anatomy theater in 1667, where it was much admired. We are told that Van Horne's heir, Dr. Friessem is now in possession of this work and others that were once held in Van Horne's collection, including specimens of the spleen, placenta, uterus and umbilical cord.<sup>442</sup>

During the period in which the drawings were produced, the majority of anatomical subjects found in Van Horne's home, or the university anatomy theater, were likely created using dry techniques. With the invention of injections and wet preparation techniques, these specimens could be supplemented or replaced as necessary. Notably, the preparations that were contemporary with the completion of Sagemolen's drawings include the contents of the thorax and viscera, subjects that are not depicted in the BIU Santé manuscripts or described in Boerhaave's account. The exclusion of these subjects suggests that preference was given to prepared specimens as objects of instruction and study, when possible, particularly on account of their close relationship to the fabric of the body itself. This

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<sup>441</sup> Borch, *Itinerarium*, 8 April 1661, 96; Borch, *Itinerarium*, 5 January 1662, 39.

<sup>442</sup> "And with D. Friesschem indeed one will see a liver, spleen, uterine placenta, as well as the umbilical cord with its placenta, among others from my method, and prepared by me." [Et apud *D. Friesschem* quidem hepar, liene, placentam uterinam, nec non funiculum umbilicalem, cum sua placenta aliaque meo more, & per me praeparata videbit.] (Swammerdam, *Miraculum Naturae*, 36); [Hoc hepar, de quo loquor, jam antea anno MDCLXVII. publicè in theatro Academico Ludguensi à *D. van Horne* non sine admiratione omnium exhibitum est.] (Swammerdam, *Miraculum Naturae*, 37).

observation positions Sagemolen's drawings in a supporting role to the three-dimensional objects found within the collection.

Van Horne's experimentation with preparation techniques and his interest in a range of types of specimens is indicated in Borch's discussion of the "mumia Horniana", a human arm that the Dane notes has been prepared without the use of balsam.<sup>443</sup> The details of Van Horne's technique are unclear. Borch's statement was contradicted in a letter written by Niels Steno to Bartholin at the same time, and Ruysch later reflects that the arm was kept in salt.<sup>444</sup> Of greater interest to Borch is the remarkable state of the preparation, which he notes holds much of its natural color, does not emit foul odors, and retains movement in the joint. Moreover, the arm is described as laying bare the muscles, veins, arteries, nerves, and tendons, all of which the anatomist's knife has neatly separated out and made more visible.<sup>445</sup> Approximately half of the surviving illustrations found in the Paris manuscripts address the muscular and skeletal structure of the arm and, given the innovative technique of double-sided images that make use of multiple stylistic strategies, we can appreciate the care and interest the Leiden anatomist took in this subject. Again, Van Horne's preparation

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<sup>443</sup> "...a human arm thus prepared without any mixture of balsam..." [...brachium humanum ita conditum sine balsamorum ullâ mixture...] (Letter from Borch to Bartholin, Epistola XCII, 21 April 1661, in Bartholin, *Epistolarum medicinalium*, 393).

<sup>444</sup> Letter from Borch to Bartholin, Epistola XCII, 21 April 1661, in Bartholin, *Epistolarum medicinalium*, 393; Letter from Niels Steno to Bartholin, Epistola XXIV, 22 April 1661, in Bartholin, *Epistolarum medicinalium*, 94; Ruysch, *Alle Werken*, 1099.

<sup>445</sup> "Lastly, we saw the Hornian mummy, that is to say arm, in which the anatomist's knife exposes everything at one time, carefully separated, they distinguish muscles, veins, arteries, nerves, tendons, *circuli nervei*, even still the whole arm has a natural flexibility, and also a natural color, or has gained a natural whiteness, extremely dry and is to endure fifty years, no distinct smell, nor strange odor, nevertheless, he said it is still possible to restore greater natural color in the muscles." [Denique visa nobis mumia Horniana, brachium videlicet, in quo omnia que anatomico cultro patent unquam, accuratè divisa cernuntur, musculi, vena, arteriae, nervi, tendines, circuli nervei, quin etiam sua naturalis flexibilitas est toti brachio, naturalis etiam color, aut parum naturali albior, sicca omnia et 50 annos duratura, nullus plane foetor, nullus alienus odor, posse se tamen ait colorem magis naturalem musculis reddere.] (Borch, *Itinerarium*, 8 April 1661, 97).

brings additional information to that offered in the illustrations, particularly concerning the veins, arteries, and nerves. While remarkable, the preparation could not be dissected and reassembled and, therefore, the meticulous renderings of the layers of the limb's muscles in Sagemolen's drawings and their relation to one another provided students with a means of making comparisons during dissection or learning the arm's structure when a cadaver was not available. Working in tandem with Van Horne's preparations, and those of his students, Sagemolen's drawings provide supporting and supplemental information that elucidates the study of the human form.

### *C. Conclusion*

Conducting dissections in his home for the benefit of his own research and that of his students, the materials in Van Horne's collection would enrich and inform the audience's understanding of the cadaver. Specimens taken from animals could be compared with those found in the human body, and vice versa.<sup>446</sup> The great boards of the circulatory and nervous systems could serve as a map of the body's interior, aided by Houffwenius' three-dimensional structure of wire, thread, and glass. Sagemolen's drawings, with their neatly outlined and labeled representations of the body that followed the dissector's knife as he stripped away layers of tissue and muscle, would help anatomists see pertinent details more clearly, and were complemented by the physical specimen of the labeled human skeleton. This function of the drawings as educational tools is confirmed in the archive of the university's Curators, which refers to these works as intended for the "perfection of the

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<sup>446</sup> Cole, 12, 276, 330-331.

study of anatomy, honour of the academy and the profit of the students of medicine.”<sup>447</sup> In commissioning drawings for this purpose, Van Horne followed in the tradition of Vesalius, who writes that the illustrations published in his *Tabulae anatomicae sex* (Venice, 1538) were designed as visual aids for use during instruction, and were only printed due to the numerous requests the anatomist received.<sup>448</sup> This practice is also alluded to in painted depictions of dissection, such as Rembrandt’s *Anatomy Lesson of Nicolaes Tulp* (1632), in which one of the observing surgeons looks up from a drawing held in his hands to observe the body on display [Fig. 110].

The particular design of the drawings and strategic use of their medium, lent them more readily to this type of group study than was easily facilitated by the inspection of three-dimensional objects alone. Their large format allowed for detailed depictions of the body’s muscles and bones and could accommodate multiple viewers at once. At the same time, their scale would more closely correspond to the cadaver and prepared specimens. The use of color may have also been intended to approximate the body’s appearance in life but given the discoloration that occurs in human tissue after death, this feature was more likely employed to provide clarity between representations of muscle and bone, increase the visibility of the subject from a greater distance, and draw attention to particular elements.

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<sup>447</sup> “...van zekere Anatomische teyckeningen, die hij laet doen ende die strecken sullen tot perfectie van het studium anatomicum, eens vande voors Academie ende profijt vanden studenten der medicine inde selve.” (AC 1 24, fol. 250, 9 February 1652).

<sup>448</sup> Sachiko Kusakawa *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-century Human Anatomy and Medical Botany* (Chicago, University of Chicago Press, 2012), 90 and 184; Jean-François Vincent also notes sets of colored myological representations which were produced for Fabricius ab Aquapendente, which are now in the Marciana library, and a set of Henning Arnisaeus (c. 1580-1636) of Halmstad, Sweden (Jean-François Vincent, and Cloé Perrot, “La myologie de Johannes Van Horne et Marten Sagemolen: Quatre volumes de dessins d’anatomie du Siècle d’or retrouvés à la Bibliothèque interuniversitaire de santé (Paris),” V2 [31 august 2016] <<http://www.biusante.parisdescartes.fr/ressources/pdf/van-horne.pdf>> [2 September 2016], 9).

The distinct treatment of color in the didactic and naturalistic images also created visual distinctions between the different functions of these images. The adoption of representational strategies from printed illustrations incorporated recognizable characteristics and devices from well-regarded sources, and also made possible easy comparison with printed images already in circulation. While the drawings make reference to established formats and devices, they do not directly replicate any known source, and their unique depiction of the body suggests that they were also informed by first-hand experience and observation.

As much as these elements strengthened the drawings' role within the anatomist's cabinet, they were also prohibitive to the reproduction of the works in print. Their content and design speak to their unique function amid Van Horne's rarities and as tools for the physician and his students. Their location within the physician's quarters may also account for Van Horne's relative silence within the pages of the manuscripts. In his annotations, Sagemolen claims the position of witness and proclaims to his knowledge of the body, lending the images legitimacy as tools capable of producing knowledge about their subject. Given their display within Van Horne's anatomical cabinet, where the professor could communicate his control over the work's production and the accuracy of their contents, the testament of the now-absent artist may have been deemed necessary to the credibility and success of the drawings.

## CHAPTER FIVE

### **Prescribing Anatomy: Pictorial Strategies in the Publications of Govard Bidloo and Frederik Ruysch**

#### ***A. Introduction***

Within his collection, an anatomist such as Johannes van Horne (1621-1670) could guide his viewer and explain his specimens and rarities; couching these objects in period societal and intellectual codes and norms and maintaining his control over the visitor's interpretation. With the transition from object to drawing to print, the relationship among the anatomist, artist, and subject changed. As works that did not leave the anatomist's possession, drawings and prepared specimens remained subject to the anatomist's regulations concerning who had access to these materials and how they interacted with the collection. However, imaging an object necessitated the use of technical and pictorial skills, often at the hands of an artist. This removed direct control over the subject from the anatomist and resulted in a new form of representation for the body through which knowledge could be produced.<sup>449</sup> The introduction of engravers and publishers only widened this divide. When responding to this shift the anatomist needed to ensure that his images functioned as intended once they left his purview; specifically, that they effectively communicated knowledge about the body in a clear and convincing manner. At the same time, medical practitioners recognized that images could offer benefits that were not possible through the original objects; in particular, the ability to make the anatomist's findings known to a larger audience and expand his reputation.

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<sup>449</sup> In part, Lorrain Daston and Peter Galison identify the development of mechanical objectivity in the nineteenth century as a response to this concern (Lorraine Daston and Peter Galison, "The Image of Objectivity," *Representations, Special Issue: Seeing Science*, no. 40 [Autumn, 1992], 81-128).

In the preface to his *De Humani Corporis Fabrica* (Basel, 1543), which set a new standard for pictorial representation of the anatomical body in the early modern period, Andreas Vesalius (1514-1564) addresses the benefits and consequences of including images in his atlas. Vesalius notes that those who are squeamish with dissection may be able to learn from his pictures and expresses his wish that knowledge about the body will reach “as many people as possible,”<sup>450</sup> facilitated through the easily replicable and portable medium of print. Moreover, he asserts that pictures can make their subjects understood in a way that is not possible through language alone.<sup>451</sup> Yet in his letter to his publisher, Johannes Oporinus (1507-1568), Vesalius conveys his concern that the process of publishing his plates will result in their improper execution.<sup>452</sup> Should the images, or their relation to the text, misrepresent the aims of their author the anatomist risked accusations of deception and fraud, which could damage his reputation.<sup>453</sup>

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<sup>450</sup> “Our pictures of the body’s parts will especially satisfy those who do not always have the opportunity to dissect a human body, or if they do, have a nature so delicate and unsuitable for a doctor that [...] they cannot bring themselves actually to attend an occasional dissection. However that may be, I have made every effort for a single purpose: to be of use to as many people as possible.” (Andreas Vesalius, *De Humani Corporis Fabrica* (Basel, 1634), fol. \*4r[v], trans. in Daniel H. Garrison and Malcolm H. Hast, *The Fabric of the Human Body: An Annotated Translation of the 1543 and 1555 Editions*, vol. 1 [Basel: Karger, 2014], 8).

<sup>451</sup> “How much pictures aid the understanding of these things and place a subject before the eyes more precisely than the most explicit language no one knows who has not had this experience in geometry and other branches of mathematics.” (Vesalius, *Fabrica*, fol. \*4r[v], trans. in Garrison and Hast, *The Fabric of the Human Body*, 8; David Freedberg, *The Eye of the Lynx: Galileo, his Friends, and the Beginnings of Modern Natural History* [Chicago: University of Chicago Press, 2002], 351).

<sup>452</sup> “Between the wood blocks we have placed a printer’s copy of each illustration, piece by piece, together with a printed copy of each figure on which I have written where each should be placed, lest by chance their order and arrangement cause trouble for you or your workers and they be printed out of order.” (Vesalius, *Fabrica*, fol. VII, trans. in Garrison and Hast, *The Fabric of the Human Body*, 11).

<sup>453</sup> The connections between trust, civility, and the rise of the empirical method and the new science is well established in modern scholarship. (Peter Dear, “From Truth to Disinterestedness in the Seventeenth Century,” *Social Studies of Science*, vo. 22 no. 4 [Nov. 1992], 626-627; Jay Tribby, “Body/Building: Living the Museum Life in Early Modern Europe,” *Rhetorica* [Spring 1992], 139-63; Paula Findlen, “Sites of Knowledge,” *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* [Berkeley: University of California Press, 1994], 97-150; Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* [Chicago: University of Chicago Press, 1994], 65-66; Sachiko Kusukawa, “The Use of Pictures in the Formation of Learned Knowledge: The Cases of Leonhard Fuchs and

Govard Bidloo's (1649-1713) anatomical atlas, the *Anatomia Humani Corporis* (Amsterdam, 1685), and Frederik Ruysch's (1638-1731) *Thesauri Anatomici* (Amsterdam, 1701-1716), or anatomical catalogues, lend ample evidence to the debate over the role of representation in the study of the body during the late-seventeenth century, particularly concerning the involvement of their artists. Ruysch and Bidloo were famously adversarial and in modern scholarship they are often juxtaposed as antagonistic figures [Figs. 111 and 112].<sup>454</sup> Rather than focus on the distinctions between Ruysch and Bidloo, I find that both anatomists sought to enhance their reputations through the medium of print, though this was achieved by different means. Bidloo produced an anatomical atlas designed to rival Vesalius, while Ruysch's catalogues promoted the physician's collection and disseminated his anatomical findings. Focusing on the roles of images within these sources, I suggest that these publications' genres and their intended functions informed each anatomist's approach to and presentation of his subject. In this chapter, I argue that this medium necessitated the creation of a prescribed context of viewing to guide the author's audience and shape their experience in a manner akin to that had within an anatomical collection or dissection hall. While each text is addressed to a scholarly audience of learned gentlemen, including

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Andreas Vesalius," in *Transmitting Knowledge: Words, Images, and Instruments in Early Modern Europe*, Sachiko Kusukawa and Ian Maclean eds. [Oxford; New York: Oxford University Press, 2006], 93-94; R. W. Serjeantson, "Proof and Persuasion," in *Cambridge History of Science*, vol. 3 [Cambridge: Cambridge University Press, 2006], 147, 160); In her study of Ruysch and Bidloo's images, Rina Knoeff remarks that many of the barbs exchanged between the anatomists address shame and honor (Rina Knoeff, "On the Artful, yet Pernicious Body: Anatomical Books in the Early Modern Dutch Republic," in *Percursos na história do livro médico, 1450-1800* [Lisboa: Colibri, 2011], 138).

<sup>454</sup> On the tumultuous relationship between Ruysch and Bidloo see: Luuc Kooijmans, *Death Defied: The Anatomy Lessons of Frederik Ruysch*, Diane Webb trans. (Leiden; Boston: Brill, 2011); Knoeff, "Artful, yet Pernicious Body"; Rina Knoeff, "Sex in Public: On the Spectacle of Female Anatomy in Amsterdam around 1700," *L'Homme. Europäische Zeitschrift für Feministische Geschichtswissenschaft*, vol. 23 no.1 (2012), 43-58; Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago; London: The University of Chicago Press, 2014), 117-134, 135-165; Paule Dumaître and Janine Samion-Contet, *La curieuse destinée des planches anatomiques de Gérard de Lairesse: peintre en Hollande: Lairesse, Bidloo, Cowper* (Amsterdam: Rodopi, 1982).



medical students and professionals, there was little to ensure that lay viewers would properly interpret the contents of these works. To simultaneously convince the specialized viewer and mediate the lay, these anatomists make use of early-modern artists' pictorial techniques and devices to create images that evoke sites of anatomical study and inspection, reinforcing the credibility of their depicted subjects.

### ***B. Govard Bidloo, Gerard de Lairesse, and the Anatomical Atlas***

Bidloo released the *Anatomia* at a pivotal moment in his career and used this luxury atlas to project himself into positions of prestige.<sup>455</sup> He began his medical training as a surgeon in Amsterdam during the 1670s, at which time Ruysch was *praelector* of the surgeon's guild and would have led anatomical dissections and instruction during the formative years of Bidloo's education. Early in his career as a surgeon, Bidloo worked closely with the hospital physician Bonaventura van Dortmond (n.d.) and began to compose his anatomical atlas. As a member of the literary society *Nil Volentibus Arduum*, through which he published several plays and books of poetry, Bidloo was well aware of language's power. The artist and author Gerard de Lairesse (1640-1711) hosted meetings for the society, produced set materials for plays, and designed vignettes for the frontispieces of several associated literary works. It may have been in this capacity that the artist and anatomist came to know one another.<sup>456</sup>

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<sup>455</sup> Four publishers funded the production of the *Anatomia* and, in turn, copies were sold for approximately 30 *guilders* each (Margócsy, *Commercial Visions*, 161). This expense likely restricted Bidloo's audience to medical professionals and more affluent members of society.

<sup>456</sup> Alternatively, the silk merchant Philip de Flines, who was a patron of De Lairesse and friend of Bidloo, may have made the introduction (Lyckle de Vries, *Gerard de Lairesse: An Artist between Stage and Studio* [Amsterdam: Amsterdam University Press, 1998], 7, 123-124).

After nearly a decade working as a surgeon, Bidloo traveled to Franeker and studied to become a physician, matriculating from the university in 1682.<sup>457</sup>

Following the receipt of his degree, Bidloo completed his atlas and published the text in Latin in 1685 [Fig. 113].<sup>458</sup> With its 105 folio-sized illustrations, the opulence of the volume garnered attention. Following its publication, Bidloo was made Professor of Anatomy in The Hague in 1688, at which time he developed a friendship with the then *stadhouder*, Willem III (1650-1702). This relationship proved to be extremely profitable for Bidloo, whom Willem selected as chief physician for his armies in 1692, followed by an appointment as Professor of Anatomy at Leiden University in 1694 and as royal physician in 1701.<sup>459</sup> Without the publication of his atlas, it is unlikely that the young physician would have received as much attention or risen so quickly.

During the period of Bidloo's protection under Willem III, his atlas went through two further transformations: it was published in Dutch in 1690 and in English in 1698. The later edition was a source of some conflict, as Bidloo's publishers sold De Lairese's plates to Samuel Smith and Benjamin Walford in London, where they were reprinted with an adapted version of Bidloo's text that was written by William Cowper (1666-1709) and made no mention of their original author or artist.<sup>460</sup> Bidloo did not take this exclusion well and

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<sup>457</sup> P.C. Molhuysen, P.J. Blok, Fr. K. H. Kossmann et al., *Nieuw Nederlandsch Biografisch Woordenboek*, 8<sup>th</sup> volume (Leiden: A.W. Sijthoff's Uitgevers-Maatschappij N.V., 1930), 105. <<http://resources.huylens.knaw.nl/retroboeken/nbnw/#source=8&page=59&view=imagePane>> (accessed 16 February 2018)

<sup>458</sup> Govard Bidloo, *Ontleding des Menschlyken Lichaams* (Amsterdam: wed. Johannes van Sommeren, 1690). For the purposes of this dissertation, I will refer to the Latin and Dutch editions of the text as the *Anatomia* and *Ontleding* respectively. I will be primarily working with the Dutch translation of this text, and, therefore, my citations will make reference to this version of the text.

<sup>459</sup> Molhuysen et al., *Nieuw Nederlandsch Biografisch Woordenboek*, 106.

<sup>460</sup> William Cowper, *The Anatomy of Humane Bodies* (London: wed. Johannes van Sommeren, 1698).

issued a pamphlet that condemned Cowper's plagiarism and pleaded with the Royal Society to intervene, to no avail.<sup>461</sup> Throughout his career, Bidloo had taken similar tactics with his opponents, including Ruysch, and often relied on publications to both make and uphold his name.

Familiar with the potency of print, Bidloo obtained the aid of one of the most well-respected and established artists working in Amsterdam to produce his designs – Gerard de Lairesse, whom in the *Anatomia*'s preface the anatomist refers to as “that great light of painters of our century.”<sup>462</sup> Having built his reputation through large-scale history and *trompe l'oeil* paintings, De Lairesse does not appear to have had much engagement with the anatomical body prior to his work with Bidloo. His *Het Groot Schilderboek* (Amsterdam, 1707) does not include any anatomical illustrations, which distinguishes its contents from those of Samuel van Hoogstraten (1627-1678), Willem Goeree (1635-1711), and Jacob van der Gracht (1593-1651). However, in his discussion of proportion, De Lairesse alludes to his contributions to Bidloo's atlas and explains that the measurements he provides for the human form were based on a skeleton that he studied while working with the anatomist.<sup>463</sup> Given his exposure to the inner structure of the human body through his involvement with the *Anatomia*, it is notable that in his earlier publication, the *Grondlegginge ter Teekenkonst*

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<sup>461</sup> Govard Bidloo, *Guilmus Cowper, criminis literarii citatus, coram tribunal nobiliss: ampliss: Societatis Britanno-Regiae* (Leiden: Jordanum Luchtmans, 1700).

<sup>462</sup> “...door dat groote licht der Schilders onzer eeuw Geraard de Lairesse...” (Govard Bidloo, “Wensch zynen Leezer veel Heyldat,” *Ontleding*, \*4r). All translations in this chapter are mine, unless otherwise indicated. I am indebted to Angela Jager for her thoughtful review and edit of these materials.

<sup>463</sup> “...I will here set the measure, as we have taken it up from a skeleton, when I drew for Professor Bidloo, all the drawings in his renowned *Anatomie-boek*, after life, following his design.” [...zal ik hier de maat stellen, zo als wy dezelve uit het geraamte van een dooden opgenomen hebbe, wanneer ik voor de Heer Professor Bidlo\*, alle de teekeningen in zijn vermaard *Anatomie-boek*, na het leeven, teekende, volgens zijn opstel.] (Gerard de Lairesse, *Het Groot Schilderboek*, vol. 1 [Amsterdam: David Mortier, 1712], 12).

(Amsterdam, 1701), De Lairese directs his reader towards Van der Gracht's text and does not mention Bidloo's work.<sup>464</sup>

The illustrations produced for Bidloo's atlas differ radically from those found in seventeenth-century art theoretical treatises or drawing books and it is possible that De Lairese considered them unsuitable models for young painters. Instead, the content and formats selected for this type of printed work signal the distinct needs of physicians, surgeons, and learned gentlemen, while De Lairese's advice to his reader can be interpreted as evidence of the divergent interests of artists. However, these types of publications offered an additional forum through which draughtsmen, engravers, and printers came into contact with the anatomical body. In the *Anatomia*, familiar pictorial techniques and devices convince the viewer of their subjects' validity and betray the hands of their makers, despite Bidloo's statements of control. The veracity of the prints is amplified by the deft translation of De Lairese's designs to the engraved plates, which are believed to have been cut by Abraham Blooteling (1640–1690).<sup>465</sup> Together, the author's written declarations and the *Anatomia*'s plates were designed to mitigate concerns regarding the challenges that accompanied pictorial representation in the context of medical publications.

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<sup>464</sup> “And if you want, or could still find the time, if you understand perspective, to look sometimes in the anatomy book of Van der Gracht, you will find benefit there.” [En wilt, of kund gy noch een tusschen tyd vinden, als gy de Perspektief verstaat, zo kyk somtyts in het Anatomie-boek van vander Gragt, daar zult gy baat by vinden.] (Gerard de Lairese, *Grondlegginge ter Teekenkonst* [Amsterdam: Willem de Coup, 1701], 57).

<sup>465</sup> The identity of the Bidloo's engraver is not entirely clear, but the prints have been attributed to Blooteling due to the inscription of the artist's name on Bidloo's author portrait (Alain Roy, *Gérard de Lairese, 1640-1711* [Paris: Arthena: Association pour la diffusion de l'histoire de l'art, 1992], 397; Mimi Cazort, Monique Kornell, K.B. Roberts. *The Ingenious Machine of Nature: Four Centuries of Art and Anatomy* [Ottawa: National Gallery of Canada, 1996], 186). Dumaître also acknowledges the Van Gunst brothers as a potential engravers and notes Blooteling's reputation as one of the finest engravers working at this time (Dumaître, *La curieuse destinée*, 31).

### i. A Visual Vocabulary of Validity

Bidloo's preface makes a case for the use of images, particularly those done from life, as a commendable means by which the human body can be investigated. He explains that the study of anatomy is best achieved through visual examples and presents his illustrations as an aid for understand both the accompanying written explanations and the complex writings of other reputable anatomists.<sup>466</sup> Acknowledging the works of his peers and predecessors, Bidloo writes that the aim of his atlas is not to add to the labyrinth of knowledge that is already in circulation, but to provide clarity.<sup>467</sup> Specifically, he explains that anatomical publications have become reliant on copies done after existing illustrations, or do not include images at all, and he cites the inconveniences of time, money, and working with artists and engravers as prohibitive to most anatomists.<sup>468</sup> Using text and image, Bidloo positions himself and the *Anatomia* to fill the void left in Vesalius's wake.

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<sup>466</sup> "Like mathematical truths through demonstrations of numbers and lines, so is the art of anatomy only achieved through personal observation." [Gelyk de wiskunstige waarheden door vertoogen van getallen en lynen, zoo werden de ontleedkundige alleen door het zelf zienelyk bevinden ontdekt] "I have long stood in doubt, whom of the anatomists I would follow; but soon found myself tangled up in disputes, quarrels, and variety of depictions, that I finally, with the exception of the more illustrious men's judgment, authority, and labour, have resolved to browse through all of their writings, accepting no one, rejecting no one." [Ik heb lang in twyfel gestaan, wien der Ontleders ik zoude volgen; maar vond my eerlang zoodaanig in geschillen, twisten en vercheidenheid van uitbeeldingen verward, dat ik eindelyk, behoudens der doorluchtigster Mannen oordeel, gezach en arbeid, voornam, der zelve schriften alom te doorbladen, neimand aanneemende, niemand verwerpende] "One asks not, why have I not added here an elaborately long text and narrative of the use of the parts? because there are so many writings of famous and learned men, that we are almost impoverished in the abundance. I have judged it more useful, to expand upon the images, so as not to burden you with tediousness and not to expand this work to an extraordinary size." [Men vraage niet, waarom ik hier geen omstandig lang geschrift en verhaal van het gebruik der deelen heb by gevoegd? want daar zyn zoo veel schriften van beroemde en geleerde Mannen, dat ons de overvloed bynaar arm maakt. Ik hebbe nutter geoordeeld, een breede uitlegging der Afbeelding en te maaken, om door langwyligheid u niet lasting te zyn en dit Werk tot geen ongemeene groote uit te zetten.] (Bidloo, "Wenscht zynen Leezer veel Heyl," *Ontleding*, \*4r).

<sup>467</sup> See note 465.

<sup>468</sup> "...because none of the anatomists, as far as I know, have already published all the parts of the human body drawn from life; but certainly this mistake, because a mistake it is, is in some sense excusable, due to the inconveniences that are in such tasks; because few know better than I, how great these [inconveniences] are among the painters, engravers and especially regarding the corpses, or subjects, as the anatomists call them, having had to beg [for corpses] myself for several years in addition to spend much money and time." [...want niemand der Ontleders, zoo veel my bekend is, heeft al de deelen des Menschelyken lichaams, naar het leeven

While he excuses the actions of his predecessors, Bidloo identifies their lapse as a mistake and assures his reader that he has “labored to endow [mankind] with perfect delineations, without adorning and erring the depiction.”<sup>469</sup> This passage reiterates familiar concerns found in early-modern natural history and anatomical publications. In his *De Historia Stirpium* (Basel, 1542), Leonhart Fuchs (1501-1566) assured his reader that he has managed the hand of his artist,

As for the pictures themselves, every single one of them portrays the lines and appearance of the living plant. We were especially careful that they should be absolutely correct [...] Over and over again, we have purposely and deliberately avoided the obliteration of the natural form of the plants lest they be obscured by shading and other artifices that painters sometimes employ to win artistic glory. And we have not allowed the craftsmen so to indulge their whims as to cause the drawings not to correspond accurately to the truth.<sup>470</sup>

These authors’ statements encourage a perception that naked nature has been transcribed under their watchful eyes, a rhetorical device that is contradicted in the plates themselves. Instead, we can think of these images as making an argument on behalf of their authors, both in their presentation of the subject and in the quality of their execution. Fuchs recognized the necessity of pictorial representation and was proud of his artists, qualities that Bidloo

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getekend, uitgegeven: maar zekers deeze misslag, want immers het is een misslag, is eenig zints verschoonelyk, om de ongemakken, welke in zoodaanigen werk zyn; want weinige weeten beeter dan ik, hoe groot die omtrent de Schilders, Plaatsnyders en voornaamelyk omtrent de lyken, of onderwerpen, zoo de Ontleders die noemen, zyn, hebbende eenige jaaren lang de zelve, ten kosten van veel geld en tyd, moeten gelyk als bedelen.] (Bidloo, “Wenscht zynen Leezer veel Heyl,” *Ontleding*, \*4r).

<sup>469</sup> “Ik heb gearbeid, om iets volmaakts, zonder versierde en dwaalende uitbeeldzelen, omtrent de aftekeningen, den nakoomelingen over te geeven.” (Bidloo, “Wenscht zynen Leezer veel Heyl,” *Ontleding*, \*4r).

<sup>470</sup> “Quod ad picturas ipsas attinet, quae cere singulae ad vivarum stirpium linamenta et efficies expressae sunt, unice curauimus et essent absolutissimae [...] summam adhibuimus diligentiam. De industria vero et data opera cavimus ne umbris, alijsque minus necessarijs, quibus interdum artis gloriam affectant pictores, nativa herbarum forma oblitteraretur; neque passi sumus ut sic libidini suae indulgerent artifices, ut minus subinde veritati pictura responderet.” (Leonhart Fuchs, *De Historia Stirpium Commentarii Insignes* [Basel: Officina Isingriniana, 1542], [a6]v); trans. Elaine Mathers and John L. Heller, in Frederick G. Meyer, Emily Emmart Trueblood, and John L. Heller, *The Great Herbal of Leonhart Fuchs* (Stanford: Stanford University Press, 1999), 214.

shared.<sup>471</sup> Concerning the *Anatomia*'s prints, Bidloo acknowledges the capacity of images to promote and preserve the author's ideas and name, and explains that he "[has] observed, that also the findings of other illustrious men [...] were pulled from oblivion through the art of painting."<sup>472</sup> Bidloo's comments make evident the challenge that faced anatomists in this period. The successful representation of the anatomist's findings could bring him acclaim, but to do so, he must rely on the technical skill of another. It was important that the images were considered faithful to their model and that prestige was directed towards the correct recipient.

De Lairese's images are often commended for their startling naturalism and the presentation of the cadaver as deceased, in stark contrast to the Vesalian model.<sup>473</sup> However, this interpretation overlooks the inclusion of familiar formats and attributes that encourage the association of the *Anatomia* with earlier anatomical publications. At the beginning of his atlas, Bidloo identifies himself and his atlas as the successors to Vesalius's position of authority in the field of anatomy and laments that suitable illustrations have not been produced since the *Fabrica*.<sup>474</sup> This comparison primes Bidloo's audience to connect his work with

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<sup>471</sup> "Veit Rudolphus Speckle, by far the best engraver in Strasbourg, has admirably copied the wonderful industry of the draftsman, and has with such excellent craft expressed in his engraving the features of each drawing he seems to that he seems to have contended with the draughtsmen for glory and victory [...] Indeed, it has been thus arranged by nature, that we are all captivated by a painting; and those things that are set forth and pictures on canvas and paper are fixed even more deeply in our minds than those described in bare words." (Fuchs *Historia Stirpium*, x-xi) trans. Mathers and Heller, in Meyer et. al., *Great Herbal*, 213.

<sup>472</sup> "heb ik ten hoogsten waargenoomen, dat ook de vindingen van andere doorluchtige Mannen, door behulp der Schilderkonst, uit de vergetenheid mochten gerukt werden." (Bidloo, "Wenscht zynen Leezer veel Heyl," *Ontleding*, \*4r).

<sup>473</sup> Knoeff, "Artful, yet Pernicious Body," 143; Susan Donahue Kuretsky, "Lairesse Meets Bidloo, or the Case of the Absent Anatomist," *Midwestern Arcadia: Essays in Honor of Alison Kettering* [2015] <<https://apps.carleton.edu/kettering/kuretsky/>> [26 February 2018], 34.

<sup>474</sup> "...ever to mention Andreas Vesalius, who has revived and enriched this [practice of anatomy]; many have followed him, few have overtaken him." [...ooit te meldene Andreas Vesalius, die de zelve op nieuw opgeheven en versierd heeft; hem hebben veele gevolgd, weinige achterhaald.] (Bidloo, "Wenscht zynen Leezer veel Heyl" *Ontleding*, \*4r). Bidloo follows this paragraph with a discussion of his own approach to

that of Vesalius as they move through the atlas. For example, in *Table Thirty-Three*, Bidloo's cadaver is shown pulling back one of his layers of musculature to reveal his internal organs, playing on the phrase "know thyself," a concept also expressed pictorially in early-modern fugitive sheets and the sixteenth-century anatomical atlases of Jacopo Berengario da Carpi (1460-1530), Vesalius, and Juan Valverde de Amusco (1525-1587) [Figs. 114 and 115].<sup>475</sup> Similarly, the highly-aestheticized depiction of muscles arranged carefully around the body are a signature of the *Fabrica*, and became a standard method for depicting the anatomical body in the early modern period. In particular, Bidloo's twentieth plate displays the pectoral muscle both in its natural situation on the left side of the body, and twisting out and arranged to the right side, in a manner akin to Vesalius's treatment of the same muscle in his fourth table [Figs. 116 and 117]. Comparable aesthetic choices also mark Bidloo's twenty-seventh, twenty-ninth, and thirtieth plates, which include ropes used to arrange the cadaver for demonstration or study. The placement of the rope at the neck of the subject also references the hangman's noose, a device that is famously present in Vesalius's seventh myological table [Fig. 37].<sup>476</sup> The connection between these sources is even more evocative in Bidloo's eighteenth plate, which presents the viewer with the

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creating his anatomical atlas. Bidloo's reference to the *Fabrica* is a rhetorical device that encourages comparison between this notable publication and the *Anatomia*. Corrections to Vesalius and new anatomical images had been produced during the sixteenth and seventeenth centuries, for example, in the publications of Juan Valverde de Amusco (1525-1587) or Andreas Spigelius (1578-1625) both of which are discussed in chapter one.

<sup>475</sup> Andrea Carlino, "Know Thyself: Anatomical Figures in Early Modern Europe," *RES: Anthropology and Aesthetics*, No. 27 (Spring, 1995), 64-66; Raphael Cuir, *The Development of the Study of Anatomy from the Renaissance to Cartesianism: Da Carpi, Vesalius, Estienne, Bidloo* (Lewiston: Edwin Mellen Press, 2009), 135-142.

<sup>476</sup> Bidloo's thirtieth plate also shows the figure with her arms bound behind her back, a pose that had been used in Carlo Cesio's ninth plate in his *Cognitione demuscoli del corpo umano per il disegno*, 2<sup>nd</sup> ed. (Rome, 1697), and appears again in plate ten of William Chesleden's *Anatomy of the Human Body* (London, 1713) (Cazort, *Ingenious Machine of Nature*, 62).



gaping, jawless mouth of the cadaver, whose head is, once again, suspended from a rope [Fig. 118].

Finally, in the last chapter of the atlas, Bidloo includes an anterior and a posterior example of the full skeleton [Figs. 119 and 120]. Depicted next to their tombs, holding either an hour-glass or shroud, these figures make use of *vanitas* imagery and perpetuate the tradition of the *memento mori* in anatomical atlases.<sup>477</sup> Shown animated in a landscape setting, these plates pay homage to the figural type that is synonymous with sixteenth-century anatomical illustrations, though they are more of an exception than the rule in Bidloo's plates. Interspersed throughout the volume, the presentation of select figures in Bidloo's atlas associate him with Vesalius and build on the reputation of the famed anatomist.

The format of Bidloo's images also makes reference to more recently published figures found in the atlases of Julius Casserius (1552-1616) and Andrianus Spigelius (1578-1625) [Figs. 121 and 122]. This strategy both locates the *Anatomia* in a pictorial tradition and invites comparison, with the aim that Bidloo's work will be deemed the superior example. Format and perspective are used to create a more intimate encounter with the cadaver and De Lairese borrows the early seventeenth-century anatomist's interplay between views into the viscera and individual depictions of the organs found therein. For example, in *Table twenty-one* De Lairese offers a view inside the chest cavity with labels identifying the heart

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<sup>477</sup> Associations of *vanitas* and anatomical illustration has long been recognized in modern scholarship. See Antonie Luyendijk-Elshout, "Death Enlightened: A Study of Frederik Ruysch," *Journal of the American Medical Association* (1970), 212-17; Gijsbert van de Roemer, "From *Vanitas* to Veneration: The Embellishments in the Anatomical Cabinet of Frederik Ruysch," *Journal of the History of Collections*, vol. 22 no. 2 (2010), 169-186; Rose Marie San Juan, "The Turn of the Skull: Andreas Vesalius and the Early Modern *Memento Mori*," *Art History*, vol. 35 issue 5, *The Erotics of Looking: Materiality, Solicitation and Netherlandish Visual Culture*, Angela Vanhaelen and Bronwen Wilson eds. (West Sussex: Wiley-Blackwell, 2012), 93-109; The inclusion of a sheet of music in the fifty-ninth plate is also an allusion to the transience of life.

and lungs, which are the subject of the following plates [Figs. 123 and 124]. This process enables the viewer to see the relationship between the organs and inspect them more closely, simulating the process of dissection. The attention Spigelius awards to the limbs and their layers of musculature is also replicated in Bidloo's *Anatomia*. In his fourth book, Spigelius features the leg with various muscles removed and arranged around the bone, presented in a manner that defies gravity and emulates the Vesalian style. Bidloo's work adapts this method of display and introduces a logic through references to the setting of the dissection hall [Figs. 125 and 126]. In this capacity, Spigelius's plates may have served as a precedent for Bidloo's images. For example, the inclusion of supports for a dissected head is common to both atlases, but in the later publication these devices are used with greater variety and frequency. In particular, the positioning of a deceased infant against a pillow in Spigelius's sixth table of his eighth book brings to mind De Lairese's treatment of the same subject in *Table Sixty-Two*, although the later image is notably less animated and graceful than its earlier counterpart [Figs. 127 and 128].<sup>478</sup> These parallels between Bidloo's *Anatomia* and earlier atlases demonstrate De Lairese's awareness of pictorial traditions within the genre and his efforts to locate the *Anatomia* within this lineage.

Bidloo also integrates new strategies that were unprecedented in early-modern anatomical atlases and speak to shifting perceptions concerning the conferral and accreditation of knowledge in this period. Beginning with the fourth plate of the *Anatomia*, Bidloo includes views of tissue as seen through magnifying lenses [Fig. 129].<sup>479</sup> These

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<sup>478</sup> Ruysch also includes a cushion under an infant in the second table of his third catalogue. This increases the sleep-like appearance of the child.

<sup>479</sup> The term *vergrootglas* is used by both Ruysch and Bidloo and has generally be translated as microscope. Fournier observes that two composite microscopes with three lenses, a single-lens microscope, and two preparation microscopes are included in the sales catalogue for Bidloo's estate (Marian Fournier, "De Microscopische Anatomie in Bidloo's *Anatomia Humani Corporis* [1685]," *Tijdschrift voor de Geschiedenis*

figures clarify the composition and textures of skin and hair; comparable images are found throughout the atlas as a means of supporting Bidloo's arguments concerning the structure of the body. In addition, the twenty-sixth and sixty-fourth tables feature geometric diagrams that explain the form and function of the muscles, including several borrowed from Nicolas Steno's (1638-1686) *Elements of Myology* (Florence, 1667) in *Table Sixty-Four* [Figs. 130-132].<sup>480</sup> In both cases these diagrams share the plate with naturalistic renderings of the particular part of the body under investigation, offering mathematical evidence for the shape and composition of the subject. Alongside pictorial devices designed to assure the viewer of the specimen's veracity, the use of microscopic details and mathematic diagrams draw on new forms of credibility and certainty akin to the inclusion of René Descartes's (1596-1650) and Steno's theories in Goeree's *Natuurlyk en schilderkonstig ontwerp der menschkunde* (Amsterdam, 1683). Published only three years apart, both Goeree and Bidloo made use of recent advancements in natural history and anatomy to lend their arguments support, distinguish their works from those of their predecessors, and display their erudition to their audiences.

## ii. Playing Parrhasius: De Lairese and Pictorial Persuasion

De Lairese's approach to this subject also distinguishes the *Anatomia* from that of Bidloo's

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*der Geneeskunde, Natuurwetenschappen, Wiskunde en Techniek*, jrg. 8 nr. 4 [1985], 192, 194); Dumaître notes that Bidloo dedicated a pamphlet to Antoni Leeuwenhoek (1632-1723), the *Observatio de animalculis in ovino aliorumque animantium hepate detectis ad. celeb. Leeuwenhoeck* (Leiden, 1698); On Bidloo's depictions of the skin see Mechthild Fend, *Fleshing out Surfaces: Skin in French Art and Medicine 1750-1850* (Manchester University Press, 2016), 47-53.

<sup>480</sup> In his preface, Bidloo connects the mathematics and anatomy as two forms of knowledge that benefit from visible presentation. "Like mathematical truths through demonstrations of numbers and lines, so is the art of anatomy only achieved through personal observation." [Gelyk de wiskunstige waarheden door vertoogen van getallen en lynen, zoo werden de ontleedkundige alleen door het zelf zienelyk bevinden ontdekt] (Bidloo, "Wenscht zynen Leezer veel Heyl" *Ontleding*, \*4r). This reiterates Vesalius's comments on this subject, see note 451.

predecessors, and the increased immediacy and verisimilitude of the images make new claims on behalf of the anatomist. De Lairese's pictorial strategies create authority within the *Anatomia's* images through references to reputable predecessors, as discussed above, and as a means of evoking the empirical environment of an anatomical demonstration. The cadaver is shown as lifeless, and the flesh and tissues of the body are given weightiness in their depiction. Illusionistic techniques serve to convince the viewer of the image's plausibility, specifically, that these works were direct transcriptions of the events carried out in the dissection hall – regardless of whether this was the case in practice. The body is often brought close to the picture plane so that it fills our field of vision. Wooden blocks, books, boxes, scrolls of paper, and furniture support the body, which is individualized in each plate through different hairstyles, fragments of clothing, and patterned drapery. Specimens stretch to fill the picture plane and are secured with pins to wooden boards, likely in reference to the practice of circulating organs during dissection.<sup>481</sup> Fragments of the body are pierced with quills, or manipulated by surgical instruments, which help to make visible passages through organs and layers of tissue. Details that allude to the act of an anatomical demonstration, such as abandoned knives and scissors, or the ropes used to move a cadaver into position, are also included. These elements vary from image to image, through devices such as patterning, form, and position, and are never precisely replicated. Similarly, each plate presents the body from a slightly different angle, changing the placement of the cadaver and its relation to the picture plane.<sup>482</sup> The overall effect is to create an impression of variety

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<sup>481</sup> This practice is addressed in chapter three.

<sup>482</sup> Cazort observes that the presentation of the cadaver throughout the *Anatomia* encourages the perception that we are viewing a particular specimen at a specific moment (Cazort, *Ingenious Machine of Nature*, 186). Kuretsky connects the positioning of the viewer with that of the anatomist, and suggests that De Lairese's format and inclusion of anatomical instruments is designed to include his presence in the *Anatomia* (Susan Donahue Kuretsky, "Lairese Meets Bidloo," 29, 33).

akin to that found in nature, through which Bidloo and De Lairese enhanced the mimetic impact of the illustrations and the perceived correlation of their subjects to the original materials.<sup>483</sup> Dispersed over multiple images throughout the *Anatomia*, I interpret the inclusion of instruments, furniture, and reflections, together with the perspective and format of De Lairese's plates, as consciously adopted devices that communicate the close study of the artist and anatomist.

Familiar visual cues are included, such as the fly perched on the cloth that encircles the cadaver's body in the *Anatomia*'s fifty-second table [Fig. 133]. Modern scholars have often interpreted this insect as an indication of Bidloo's dedication to depicting the body as it appeared: dead, and in the midst of decomposing.<sup>484</sup> However, a fly perched at the boundary between the space of the viewer and the subject has its roots in the classical story of Zeuxis and Parrhasius, which was given new life in Renaissance art literature.<sup>485</sup> In his *Lives of the Artists*, Giorgio Vasari (1511-1574) includes a story of the young Giotto (c. 1270-1337), who drew a fly on a work by his master Cimabue (1240-1302). Returning to his workshop, Cimabue tried to brush the fly off his painting several times before realizing the trick.<sup>486</sup> In

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<sup>483</sup> Modern scholars often discuss these works as though they were produced at the dissection table, but this interpretation neglects the production practices of early-modern artists.

<sup>484</sup> Knoeff, "Artful, yet Pernicious Body," 144; Cécile Tainturier. "De schoonheid van de ontleding: Gerard de Lairese's werk voor de anatomische atlas van Govard Bidloo," in *Eindelijk! De Lairese: klassieke schoonheid in de Gouden Eeuw*, exh. cat. (Zwolle: Waanders & De Kunst, 2016), 87; Kuretsky, "Lairese Meets Bidloo," 38, note 12.

<sup>485</sup> In a lecture at the Huntington Library, Mechtild Fend also connected De Lairese's fly to the mimetic tradition and still life painting (Mechtild Fend, "Anatomical Still Lifes: The Reconfiguration of the Body in Bidloo's and De Lairese's *Anatomia Humani Corporis* [1685]," *Vesalius & His Worlds: Medical Illustration During the Renaissance* [The Huntington Library, San Marino, CA: 13 December 2014]).

<sup>486</sup> "It is said that when Giotto was still a young man with Cimabue, he once painted upon the nose of a figure that Cimabue had completed a fly which looked so natural that when his master returned to continue his work, he tried more than once to drive the fly away with his hand, convinced that it was real, before he realized his mistake." (Julia Conaway Bondanella and Peter Bondanella trans., *Giorgio Vasari, The Lives of the Artists* [Oxford: Oxford University Press, 1991], 35); [Dicesi, che stando Giotto, ancor giovinetto con Cimabue, dipinse una volta in sul naso d'una figura, che esso Cimabue hauea fatta, una mosca tanto natural, che tornando

Vasari's text, the exchange between Giotto and Cimabue serves as evidence of the student surpassing his master, most notably for his lifelike depiction of his subject, made possible through his close study of nature. In De Lairesse's plate, the depiction of the fly on the cadaver both makes similar claims for the working method of the artist and anatomist and collapses the space between viewer and subject.

The fly is part of a repertoire of familiar devices that involve the viewer and speak to the active roles of pictorial practice and theory in the representation of the anatomical body. In the twenty-ninth and fifty-fifth tables, chairs are positioned with their back to the viewer, a strategy employed in Johannes Vermeer's (1632-1767) genre scenes to give the viewer a sense of entering the depicted space [Figs. 134 and 135]. Similarly, the sixty-ninth and seventy-third plates include knives, the handles of which project towards the picture plane [Fig. 136]. This detail is common in Dutch still lifes, for example in the *oeuvre* of Willem Claesz. Heda (1594-1680).<sup>487</sup> In a signed and dated work, *Still Life with a Pewter Jug, Drinking Glass, and a Ham* (1634), the artist angles the handle of the blade so that it appears to cross the pictorial plane and invites the viewer to grasp it [Fig. 137]. Heda also encourages a conflation of the painted environment with that of the beholder through the surface of the *roemer*, which reflects light from a window located behind and to the left of

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il maestro per seguire il lavoro si rimise piu d'una volta cacciarla có mano, pensando che fusse vera, prima, che s'accorgesse dell'errore.] (Giorgio Vasari, *Le vite de' piu eccellenti pittori, scultori, e architettori, prima parte* [Florence, 1568], G. Milanesi ed., *Le Opere di Giorgio Vasari con nuove annotazioni e commenti*, 9 vols. [Florence: Sansoni, 1973], 132).

<sup>487</sup> Many scholars have recognized the complementary qualities of anatomical images and still life works. Joanna Woodall connects still life to the anatomy lesson genre (Joanna Woodall, "Laying the Table: The Procedures of Still Life," *Art History*, vol. 35 issue 5, *The Erotics of Looking: Materiality, Solicitation and Netherlandish Visual Culture*, Angela Vanhaelen and Bronwen Wilson eds. [West Sussex: Wiley-Blackwell, 2012], 987); Matcheld Löwensteyn, "De wondere wereld van Rachel Ruysch," *Kunstschrift*, vol. 44, no. 1 (2000), 18-19; Tainturier, "De schoonheid van de ontleding," 87.

the viewer, outside of the pictorial plane. Bidloo's eighty-ninth plate includes a similar detail in the reflective surface of the inkpot [Fig. 138]. Examining the role of reflection in early-modern images, Victor Stoichita asserts that painted mirrors expand the pictorial space, both within the image and in relation to the viewer.<sup>488</sup> In her work on reflected self-portraits of artists in seventeenth-century Dutch still lifes, Celeste Brusati has interpreted this device as a claim to the artist's encounter with the depicted objects and testament to his or her mimetic skill.<sup>489</sup> Drawing on these arguments, Joanna Woodall has interpreted both the projecting knife handle and reflection of light within painted still lifes as a means of involving the viewer.<sup>490</sup> Incorporating these types of details, De Lairese works with recognizable representational strategies to engage his viewers and involve them in the direct observation of the subject.

These details also individualize the *Anatomia*'s images and encourage the perception that they record particular moments of dissection and illustration. The fly has come to rest briefly on the open cadaver. Strewn and abandoned objects give a sense of hurried study. The cylindrical metal object laying on its side in De Lairese's sixty-ninth table produces a comparable effect to the toppled drinking glass in Heda's painting. Framing the subject and focusing our gaze, swaths of fabric are positioned in such a way that they seem to have just

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<sup>488</sup> Victor Stoichita, *The Self-Aware Image: An Insight into Early Modern Meta-Painting* (New York: Cambridge University Press, 1997), 187, 193-194, 216-226.

<sup>489</sup> Celeste Brusati, "Stilled Lives: Self-Portraiture and Self-Reflection in Seventeenth-Century Netherlandish Still-Life Painting," *Simiolus: Netherlands Quarterly for the History of Art*, vol. 20 no. 2/3 (1990-1991), 173; Martin Kemp identifies this device as a in William Hunter's (1718-1783) atlas as a means of assuring the viewer that the subject was depicted exactly as seen (Martin Kemp, "The Mark of Truth: Looking and Learning in Some Anatomical Illustrations from the Renaissance and Eighteenth Century," in *Medicine and the Five Senses*, W.F. Bynum and Ray Porter eds. [Cambridge: Cambridge University Press, 1993], 116-117, 121).

<sup>490</sup> Woodall, "Laying the Table," 985, 993, 996.

been lifted to reveal the body. Despite the appearance of a preserved moment of “life” that has been rendered faithfully after the subject, these images are structured carefully to produce a temporal effect and sense of immediacy for the viewer.

In encouraging the illusion that the depicted dissection occurs in an accessible space, these strategies contribute to the viewer’s perception that he can participate in the inspection of the cadaver and facilitates empirical judgment of the subject by proxy of its representation. Historians of science, including Steven Shapin and Simon Schaffer, have investigated the production of authority in the early modern period through the creation and reinforcement of an informed community of experts.<sup>491</sup> I suggest that the pictorial strategies employed in Bidloo’s prints make possible the expansion of this process to include members of the community who were not physically present at the time of dissection. In moving through the stages of dissection represented in De Lairese’s images and being made to feel involved in the space of anatomical activity, the beholder participates in the process of inspecting the body and is capable of confirming Bidloo’s presentation of the subject.

### **iii. Language of Authority: Written Declarations of Credibility and Control**

The visual claims to authority made in the *Anatomia*’s plates are reinforced in the author’s written descriptions of their contents and production. De Lairese’s name is included on the title page of both the Latin and Dutch editions, which was a rare honor for the draughtsman of an anatomical publication and a testament to his acclaim. Moreover, the title page informs the reader that the drawings were done *ad vivum* or “from life” which is translated as *naar*

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<sup>491</sup> Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2006), 11-15; Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the experimental life: including a translation of Thomas Hobbes, Dialogus physicus de natura aeris* by Simon Schaffer (Princeton: Princeton University Press, 1985), 39, 55-58; Shapin, *Social History of Truth*.



*het leeven* in the Dutch edition. In his address to the reader, Bidloo repeats this phrase and advises his audience that “everything was, as much as feasible, drawn after life [*naar het leeven*] and life-size.”<sup>492</sup> In his art treatise, the painter corroborates Bidloo’s statements concerning his illustrations, writing, “I drew all of the figures for his famous anatomy book from life [*na het leeven*], according to his instructions,”<sup>493</sup> and is careful to acknowledge Bidloo’s position of control. Asserting the primacy of pictorial representation for anatomical study of the human body, Bidloo uses this phrase to validate De Lairese’s images and their method of execution, while asserting his own involvement and authority in the process.

The use of *ad vivum* or *naar het leven* in the introductory pages of the text primes Bidloo’s readers to view the illustrations with a preconceived understanding of their contents and the artist’s working method. Boudewijn Bakker finds that this phrase did not appear in Latin until the mid-sixteenth century and likely originates from the thirteenth-century French *au vif*. Used to communicate an artist’s physical observation of a subject, the phrase was most often applied to depictions of nature, such as landscapes and animals, though by the 1420s, portraits were also included in its scope.<sup>494</sup> The Dutch equivalent is first recorded in 1458 in connection with the joyous entry of Philip the Good (1396-1467) in

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<sup>492</sup> “...alles, zoo veel doeenlyk was, in zyn groote naar het leeven getekend weird...” (Bidloo, “Wenscht zynen Leezer veel Heyldat,” *Ontleding*, \*4r).

<sup>493</sup> See note 463.

<sup>494</sup> Boudewijn Bakker, *Landscape and Religion from Van Eyck to Rembrandt*, Diane Webb trans. (Burlington: Ashgate, 2012), 39-40, 46; On the meaning of this term in late Middle Ages and Renaissance, see also Noa Turel, “Living Pictures: Rereading ‘au vif,’ 1350-1550,” *Gesta*, vol. 50, no. 2 (2011), 163-182.

Ghent; by the early-seventeenth century it was sufficiently part of artists' vernacular to be included in Karel van Mander's (1548-1606) *Het Schilderboek* (Haarlem, 1604).<sup>495</sup>

Despite its role of assurance to the viewer, art historians such as Claudia Swan and David Freedberg have argued that in the seventeenth century "from life" should not be understood as representing a living subject or even seeing the subject firsthand, nor is it applicable to an image in its entirety – or a book, as the case may be.<sup>496</sup> The information conveyed through the artist's representation might be borrowed from the visual or written records of another, or could be done after an inanimate object, such as a statue or prepared specimen. Furthermore, works that present subjects as *naar het leven* could also include elements that were *uyt den gheest*, or "from the mind/spirit," a phrase that was often used in contrast to working "from life" and that signaled the role of the artist's intellect and invention.<sup>497</sup> Instead, *naar het leven* makes claims concerning the faithful replication of a visible subject and specifies a working process on behalf of the artist, which we should bear in mind when considering Bidloo's use of this term. Specifically, he qualifies the phrase with the clause, "as much as was feasible," which simultaneously acknowledges and excuses any aspects of the images that might appear contradictory to an example found in nature.<sup>498</sup>

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<sup>495</sup> Bakker, *Landscape and Religion*, 39; Claudia Swan, "Ad vivum, naer het leven, from the life: defining a mode of representation" *Word & Image*, vol. 11 no 4 (1995), 354.

<sup>496</sup> David Freedberg, *Dutch Landscape Prints of the Seventeenth Century* (London: British Museum Publications Limited, 1980), 11; Swan, "Ad vivum," 354-357.

<sup>497</sup> Swan, "Ad vivum," 355.

<sup>498</sup> Bidloo had De Lairese depict the coronary artery in his twenty-third table which illustrated a particular example of what the anatomist suspected could be found in the body, but which could not be seen using a microscope or preparation techniques (Dániel Margócsy, "A Museum of Wonders or a Cemetery of Corpses?: The Commercial Exchange of Anatomical Collections in the Early Modern Netherlands," in *Silent Messengers: The Circulation of Material Objects of Knowledge in the Early Modern Low Countries*, Sven Dupré and Christoph Herbert Lüthy eds. [New Brunswick: Transaction Publishers, 2011], 200-202).

In his analysis of the complementary term *contrafactum*, or *conterfeyten*, which is often found alongside *naar het leven*, and means “to portray,” Peter Parshall finds that the word often served to identify the artist as a witness of a particular event. He notes that the term is frequently accompanied by additional details, including the date and time, or a reputable person’s name, to further validate the representation of the subject.<sup>499</sup> In his chapter on history painting, De Lairese seems to poke fun at this means of constructing credibility. Explaining the appropriate way to depict the story of Deucalion and Pyrrha after the flood, he ridicules a fellow painter who had represented the scene without care for the story’s particulars and who sought to justify his work by asking, “who will not behold this for a flood, and believe that such had not happened in this way? There I sit before you on that little hill, modeling everything after life; and there is my name, year and date.”<sup>500</sup> De Lairese’s tongue-in-cheek account gets to the heart of the issue of working “after life.” Artists’ techniques and devices, including text at times, were implemented with the aim of convincing the audience. While this had to be done well to be successful, it was precisely the appeal of this type of language. In her analysis of images produced for anatomical and natural history publications, Sachiko Kusukawa finds that the term *ad vivum* acted as a label that signaled the particular effect of viewing the depicted subject in life.<sup>501</sup> In the case of Bidloo’s atlas, this language suggests to the viewer that the images were produced after cadavers directly, a process in which he or she was invited to participate through the images.

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<sup>499</sup> Peter Parshall, “Imago Contrafacta: Images and Facts in the Northern Renaissance,” *Art History*, Vol. 16 No. 4 (December 1993), 565-567.

<sup>500</sup> “wie zal zulks niet voor een zondvloed aanzien en gelooven dat zulks op deze wyze niet toegegaan is; daar zit ik zelf voor aan op dat heuveltjen, modéllereende alles na het leeven, en daar staat myn naam, jaar en dagtekening.” (De Lairese, *Schilderboek*, vol. 1, 91).

<sup>501</sup> Kusukawa, *Picturing the Book of Nature*, 174-175.

This interpretation is also encouraged through the illusionistic techniques that reinforce the veracity of the depicted subject and present his images as credible sources of study.

#### **iv. Artificing Anatomy**

In preparing the *Anatomia*, Bidloo and De Lairese worked with prepared specimens that were altered through artifice to create effective tools for demonstration. For example, in his written description of the twenty-second plate, Bidloo argues that no single method of preservation was suitable for making all elements of the heart visible, a thinly veiled insult that was likely directed towards Ruysch [Fig. 139].<sup>502</sup> Instead, Bidloo included multiple samples of the heart that had been prepared using different methods to produce desired effects and illuminate distinct features of the organ. This included: the heart as it appeared to the eye (*fig. 1*); boiled, which highlighted the muscles, tendons, and their fibers (*fig. 2 & 3*); dried (*fig. 7 & 8*), firstly to show the cavities of the organ and again with quills inserted into the connective valves (*fig. 9*); and injected with wax and mercury to make the coronary arteries on the surface more apparent (*fig. 11*), which simultaneously served to show the distension of the veins and arteries through this process.<sup>503</sup> In each case, the form of the organ has been enhanced to make the lesson of the anatomist more apparent and, in the process, we are made aware of Bidloo's and De Lairese's reliance on different preparation techniques to execute the atlas's tables.

In his thorough analysis of Ruysch and Bidloo's economic and epistemic motivations behind their prints and preparations, Dániel Margócsy notes that Bidloo produced an

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<sup>502</sup> Margócsy, "A Museum of Wonders," 198.

<sup>503</sup> Margócsy uses this example to demonstrate the privileged position Bidloo awards print, but his assessment neglects the necessity of prepared specimens for this process (Margócsy, "A Museum of Wonders," 196-198).

anatomical collection but that his specimens were of poor quality, which contributed to his decision to further his career through an anatomical atlas.<sup>504</sup> Margócsy's argument that each anatomist aligned himself with the medium that held the greatest potential for advancement of fame and fortune is certainly valid. However, the presentation of Bidloo as a man of print and Ruysch as a master of preparations overlooks the co-dependence between these media. To be successful it was necessary that these anatomists engage with both forms of knowledge-producing representations – if deployed towards different ends. While De Lairese's renderings of these specimens are striking, Bidloo's written explanations betray the role of artifice in their production and at once challenge and clarify our understanding of images made *naar het leven*. De Lairese's careful modeling and inclusion of details that reference the dissection hall make his depictions of the anatomical body believable and contributed to Bidloo's renown and position of authority within his profession.

Evidence for the success of this endeavor is found in William Hunter's (1718-1783) eighteenth-century publication on the female reproductive organs, in which he distinguishes Bidloo's approach as “a simple portrait, in which the object is represented exactly as it is seen,” in contrast to “a representation of the object under such circumstances as were not actually seen, but conceived of in the imagination.”<sup>505</sup> In this period *naar het leven*, *ad*

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<sup>504</sup> Margócsy explains that Bidloo regarded preparations as being unsuited to the changeability of the human body and found that injecting wax distended the vessels and altered the body's fabric. In contrast, Ruysch believed the body was composed of vessels and that his technique made this composition visible. Finally, Bidloo preferred image's capacity for detailed and enlarged representations (Margócsy, “A Museum of Wonders,” 189, 203). As we shall see, Ruysch also made use of this distinct strength in his printed plates.

<sup>505</sup> William Hunter, *Anatomia uteri humani gravidi* (Birmingham and London, 1774), preface, 2; quoted in Lyle Massey, “Pregnancy and Pathology: Picturing Childbirth in Eighteenth-Century Obstetric Atlases,” *The Art Bulletin*, Vol. 87, No. 1 (Mar. 2015), 80; In the *Journal des sçavants* (1686), the fidelity of the works to nature is also commented upon, “[les figures] dont cet ouvrage est enrichi surpassent en beauté et en exactitude tout ce qu'on a vu jusqu'à présent. Le sieur Bidloo les a fait graver sur le naturel par le sieur de Layresse, habile peintre, ainsi elles sont entièrement nouvelles et n'ont été empruntées d'aucun anatomiste” (*Journal des sçavants*, no. 22, 19 août 1686, 209 quoted in Dumaître, *La curieuse destinée*, 35). In contrast, Albrecht von

*vivum*, and *conterfeyten* were frequently associated with the genre of portraiture, but the very idea of a portrait often included an understanding that the subject would receive some level of alteration. De Lairese devotes an entire chapter of the *Schilderkonst* to this concept and acknowledges that an artist can make improvements to his subject but should replicate identifying characteristics to create a good likeness.<sup>506</sup> In his many comments on the practice of working after nature, De Lairese consistently encourages the artist to employ good judgment and imagination in order to transform nature into art. He writes, “Indeed, one can make everything that one needs, yes, even what no one else has, and can nowhere be obtained, and paint after these things, as from life itself.”<sup>507</sup> De Lairese’s comments on the practice of working after nature, which he identifies as an imperfect example that should be improved by the artist, brings to light an alternative view in the debate over the depiction of the body in anatomical illustrations – how are the aims of the artist to be reconciled with that of the anatomist? The secret was to ensure that the finished product could be believed as a faithful copy of a natural subject, and this skill was both the cause of anxiety among anatomists and a valuable tool in convincing their audiences of their claims’ legitimacy. As a result, anatomists deployed text and image to make clear their role in the production of the plates to assure the reader of their validity and guide his interpretation of their content.

Bidloo’s image-rich atlas makes use of familiar pictorial devices and techniques and draws

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Haller (1708-1777) and John Bell (1763-1820) critiqued Bidloo for allowing his painter too much reign. On the reception of the *Anatomia*, see Dumaître, *La curieuse destinée*, 35-37.

<sup>506</sup> “Concerning the other [defects] in the body [...] also those are necessary to show, because they help the likeness...” [Belangende de overige in ‘t ligchaam (...) ook die noodzaakelyk moeten worden gezien, door dien zy veel tot de gelykenis helpen...] (De Lairese, *Schilderboek*, vol. 2, 10-11).

<sup>507</sup> “In der daad, men kan alles maaken wat men van nooden heeft, ja zelfs het geen niemand anders heeft en nergens te bekomen is, om na die dingen, als na het leven zelve, te schilderen.” (De Lairese, *Schilderboek*, vol. 2, 252).

on both early-modern paintings and renowned anatomical atlases to communicate his findings and position of authority with his audience. In his *Thesauri Anatomici*, Ruysch has similar ambitions. However, the genre of the collection catalogue permitted the anatomist greater flexibility in the presentation of his subjects – there were simply fewer exemplars with which to align – and used his plates to elicit the experience of his anatomical cabinet, while simultaneously making evident the disparity between print and preparation.<sup>508</sup>

### ***C. Cataloguing the Collection in Text and Image***

Catalogues, inventories, and visitor's accounts offer insight into the structure of anatomical cabinets, and we are fortunate that Ruysch produced several publications concerning the contents of his collection, including ten catalogues, or *thesauri* (Fig. 140).<sup>509</sup> Though famous for his preparations, Ruysch used print to circulate information about his collection and preparation technique.<sup>510</sup> In the course of his career, he published prolifically and consistently used images to illustrate and support his claims, producing at least 140

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<sup>508</sup> On the genre of early-modern collection catalogues see: Findlen, *Possessing Nature*, 36-44; Ogilvie, *Science of Describing*, 38-45.

<sup>509</sup> *Thesaurus anatomicus I/Het Eerste Anatomisch Cabinet* (Amsterdam, 1701); *Thesaurus anatomicus II/Het Tweede Anatomisch Cabinet* (Amsterdam, 1702); *Thesaurus anatomicus III/Het Derde Anatomisch Cabinet* (Amsterdam, 1703); *Thesaurus anatomicus IV/Het Vierde Anatomisch Cabinet* (Amsterdam, 1704); *Thesaurus anatomicus V/Het Vijfde Anatomisch Cabinet* (Amsterdam, 1705); *Thesaurus anatomicus VI/Het Sesde Anatomisch Cabinet* (Amsterdam, 1705); *Thesaurus anatomicus VII/Het Sevende Anatomisch Cabinet* (Amsterdam, 1707); *Thesaurus anatomicus VIII/Het Achtste Anatomisch Cabinet* (Amsterdam, 1709); *Thesaurus anatomicus IX/Het Negende Anatomisch Cabinet* (Amsterdam, 1714); *Thesaurus anatomicus X/Het Achtste Anatomisch Cabinet* (Amsterdam, 1716); The catalogues were reprinted with Ruysch's collected works in 1744, as *Alle de Ontleed- Genees- en Heelknidige Werken* (Amsterdam: Janssoons van Waesberge, 1744). The original volumes were consulted for the preparation of this chapter, but citations will reference the *Alle Werken*.

<sup>510</sup> On Ruysch's preparation technique, see: Margócsy, "A Museum of Wonders," 187-191; Harold Cook, "Time's Bodies: Crafting the Preparation and Preservation of Naturalia," *Merchants and Marvels: Commerce, Science, and Art in Early Modern Europe*, Paula Findlen and Pamela Smith eds. (London: Routledge, 2002), 237-247.

illustrated plates, approximately a third of which are distributed over the ten catalogues.

Print offered the anatomist something that preparations could not: the ability to replicate and disseminate his research and reach a larger audience than his stationary collection afforded.

In modern scholarship, the catalogue prints are often discussed as synonymous with the preparations and anatomical cabinet, which I interpret as the result of a successful campaign on behalf of the anatomist and his artists.<sup>511</sup> Drawing attention to the unique function of this format and medium, I argue that Ruysch's catalogues evoke the space of the collection but make distinctions between the pictorial and physical realms of anatomical inquiry. As a portable medium and genre, the anatomical catalogue uses representational strategies to convey the anatomist's achievements and research, while ensuring that the author maintains possession of his collection. As such, the *thesauri* make use of pictorial techniques that are designed to both include the viewer and mediate his experience of the collection.

#### v. The *Thesauri* and Their Function

In the preface to his first *thesaurus*, Ruysch explains that his anatomical collection has grown unwieldy and that his catalogues offer a means of documenting and organizing its contents.<sup>512</sup> Breaking the collection into manageable parts, each *thesaurus* addresses a specific cabinet. Working from the lowest to uppermost shelf, Ruysch numbers his preparations, creating a sense of order. As a result, he provides a tidy reference to his collection that could be surveyed quickly to gain familiarity with the objects in the

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<sup>511</sup> For example, see Knoeff "Sex in Public" and Van de Roemer, "*Vanitas to Veneration*".

<sup>512</sup> "And everything that I come across, of which I was previously unaware or has not been described, or is also not well illustrated in figures by others, I will insert figures of those [objects] in between [the descriptions]; and thus every cabinet shall have its own catalogue." [En alles wat my van plaats tot plaats voorkomt, 't geene ik voor onbekent, of voor onbeschreven kome aan te zien, of 't geen ook by anderen niet wel in Figuren afgebeeld is, 't zelve zal ik in Figuren daar tusschen voegen; en alzoo zal yder Cabinet zyn eygene Catalogus hebben.] (Ruysch, "Preface: Het Eerste Anatomisch Cabinet," *Alle Werken*, unpaginated).



anatomist's possession. Alternatively, the prepared visitor could arrive at the museum with a clear understanding of the specimens he wished to view.<sup>513</sup> Finally, for those unable to come to the anatomist's home in Amsterdam, the catalogues provided a virtual means of entrance.<sup>514</sup>

For the purpose of self-promotion, transmission of new findings, and quick consultation in the setting of the collection itself, the strengths of the catalogue genre surpassed more weighty tomes, such as anatomical atlases. The *thesauri* could be published relatively quickly and were printed in *quarto* format on light-weight paper, which enabled faster circulation. These material choices suited Ruysch's ambition to raise international awareness of his specimens and strengthen his professional network, and the anatomist's letters document the travel and exchange of these texts. A correspondence between Ruysch and the President of the Royal Society of Physicians in London, Sir Hans Sloane (1660-1753) commenced in 1699; Ruysch often wrote Sloane to discuss the progress of his publications and enquire whether he should send the newest edition of his catalogues.<sup>515</sup>

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<sup>513</sup> "No one until now has seen all my rarities, due to the multitude of them, and shortness of time: it is also impossible for me to recall where each object is placed, which caused disturbances several times; and by doing this one could avoid this. But having made such a general list, one will quickly be able to know where this or that is placed: if someone has read the catalog, one can quickly show him that which he wants to see." [Niemand heeft tot nu toe alle myne Rariteyten gezien, en dat om de veelheyd der zelve, en kortheyd des tyds: Het is my ook onmogelyk te bedenken, waar yder voorwerp is geplaatst, 't geen my meermalen moeilykheyd gebaart heeft; en hier door zal men zulks kunnen voorkomen. Maar zodanig een algemeene Lyste gemaakt zynde, zal men aanstonds kunnen weten, waar dit of dat geplaatst is: Zoo iemand ook de Catalogus zal gelezen hebben, 't geen hy zien wil, kan men hem aanstonds toonen.] (Ruysch, "Preface: Het Eerste Anatomisch Cabinet," *Alle Werken*, unpaginated).

<sup>514</sup> Dániel Margócsy. "Advertising Cadavers in the Republic of Letters: Anatomical Publications in the Early Modern Netherlands," *The British Journal for the History of Science*, vol. 42 no. 2 (2009), 203.

<sup>515</sup> Frederik Ruysch to Hans Sloane, 6 March 1708, *Sloane MS 4041*, fol. 112; Frederik Ruysch to Hans Sloane, 17 May 1710, *Sloane MS 4042*, fol. 133; Frederik Ruysch to Hans Sloane, 26 July 1710, *Sloane MS 4042*, fol. 207; Frederik Ruysch to Hans Sloane, 24 March 1714, *Sloane MS 4043*, fol. 244; Frederik Ruysch to Hans Sloane, 1714, *Sloane MS 4043*, fol. 294. In part, this was also intended to entice Sloane into purchasing the collection or make a recommendation to the English King (Richard Bradley to James Petiver, n.d., *Sloane MS 3322*, fol. 59).

Foreign visitors to the collection then found themselves with the job of transporting the promised works on Ruysch's behalf, as was the case for William Burnet (1687/8-1729), or rather, his mother, Maria Schotte (1660-1698):

Dr Ruyschs [sic] anatomical preparations surprized me; I had never seen any thing like them before. He told me that He would send you all his books by the first occasions. I offered to send them by my mother when she goes back to England in September, then he desired me to write him word when that time came and he would send them to the hague [sic].<sup>516</sup>

Similarly, an unnamed German physician was tasked with bringing the fifth catalogue of Ruysch's collection to the apothecary and secretary of the Royal Society, James Petiver (1663-1718).<sup>517</sup> Following the Treaty of Utrecht, communication with France was strengthened, and Ruysch began to exchange materials with the physician Philippe Hecquet (1661-1737), including sending a copy of his recently completed *Thesaurus animalium primus* (Amsterdam, 1710) and *Thesaurus anatomicus nonus* (Amsterdam, 1714).<sup>518</sup> This correspondence offers some indication of the learned audience that Ruysch cultivated for his *thesauri*, and his successful networking contributed to his memberships with scientific societies abroad, including the Royal Society of London in 1715 and Royal Society of Paris in 1721. At the same time, his *thesauri* were relatively inexpensive and sold for about a half *guilder*, a price that availed them to a much broader audience than Bidloo's *Anatomia*.<sup>519</sup>

Once in circulation, the catalogues spread Ruysch's name and promoted his professional activities; functions that the anatomist anticipated and encouraged.<sup>520</sup> Dániel Margócsy has

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<sup>516</sup> William Burnet to Hans Sloane, n.d., *Sloane MS 4058*, fol. 84.

<sup>517</sup> Frederik Ruysch to James Petiver, 26 August 1706, *Sloane MS 4040*, fol. 209.

<sup>518</sup> Kooijmans, *Death Defied*, 309.

<sup>519</sup> Margócsy, *Commercial Visions*, 127.

<sup>520</sup> "those I had not yet described, but also those which have been already described by me some years ago, illustrated with figures, and with print announced..." [die ik noch niet had beschreven, maar ook zelfs van

observed that these types of printed publications offered virtually free advertisement of a chosen product, which, in the case of Ruysch, included admission to his collection, public dissections, private lessons, and eventually, the sale of his specimens.<sup>521</sup> Selecting rare examples in his collection as the subjects for many of his plates, the anatomist offered his preparations as assurance of his findings' veracity and invited those who doubted them to visit the collection.<sup>522</sup> Moreover, Ruysch encouraged his contemporaries to purchase and familiarize themselves with his other publications, most often his *Thesauri, Epistolae Anatomicae* (Amsterdam, 1695-1713), or *Observationum anatomico-chirurgicarum* (Amsterdam, 1691) and, at times, he even included the address of the publisher to simplify the process of obtaining these works.<sup>523</sup> Through text and image, the catalogues promoted the physician and his collection, and cultivated his reputation.

Within each *thesaurus*, engraved plates illustrate and support Ruysch's claims, both in terms of the success of his new preparation technique and the results of this method. The relationship among text, image, and object in Ruysch's catalogues is such that preparations take pride of place and are presented as unequivocal sources of truth, while paper and ink

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die geene, de welke al voor eenige Jaaren van my zyn beschreven, met Figuren afgebeeld, en met den druk bekend gemaakt...] (Ruysch, "Het Sesde Anatomisch Cabinet," *Alle Werken*, 663).

<sup>521</sup> Margócsy, "Advertising Cadavers," 201-202, 207; Ruysch, "Het Sesde Anatomisch Cabinet," *Alle Werken*, 660, 663.

<sup>522</sup> See note 520.

<sup>523</sup> "...that [letter], together with the answer, still finds for sale, and with figures enriched, at the Jansoons van Waesberge, book sellers on the water." [...die men nevens het antwoord nog te koop vind, en met Figuren verrykt, by de Jansoons van Waesberge, Boekverkoopers op 't Water.] (Ruysch, "Het Sesde Anatomisch Cabinet," *Alle Werken*, 664).

are a means of disseminating knowledge gleaned from these specimens.<sup>524</sup> Ruysch makes apparent the status of these images as representations for his true evidence, the preparations,

Many times, I was asked why I have prepared, with so many expenses and efforts, so many chambers with objects available; to which I gave the answer, such has been done so that no one would think, much less say, that my published figures are false and not executed after the objects themselves, because in this way, if someone was in doubt about this, he was not refused to come see, whether it was in compliance with the object or not. And if all anatomists had done so, or had been forced to do so, then they would not have imposed upon us so many false figures, nor also have incorporated them from other authors.<sup>525</sup>

This passage acknowledges the potential for doubt concerning the printed images and presents Ruysch's prepared specimens as irrefutable sources of knowledge, which are available for consultation at the anatomist's house.<sup>526</sup> Whereas the contents of his images may be questioned, Ruysch considers his specimens as capable of refuting and reassuring dubious minds. Central to this issue is the question of how to represent the body and the roles of various players – anatomist, draughtsman, engraver, and viewer – in the process of creating and reinforcing the credibility of substitutes for the living body. Both prints and preparations preserve the natural subject and facilitate prolonged and repeated study. However, Ruysch is conscientious about both the benefits and limitations of print and his artists' contributions. Consequently, he presents his images as depictions of selected preparations but does not conflate them with the physical subject. For Ruysch, the lack of

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<sup>524</sup> Margócsy, *Commercial Visions*, 111; Ruysch; "Besides that, when someone doubts to be true what is delineated in the figures; one will be able to quickly show it." [Daar en boven, zoo iemand twyfelt aan 't ware wezen, van 't geen in de Figuren afgebeelt is; zoo zal men hem zulks haast konnen laten zien.] (Ruysch, "Preface: Het Eerste Anatomisch Cabinet," *Alle Werken*, unpaginated); Similar comments can be found in Ruysch, "Het Tweede Anatomisch Cabinet," *Alle Werken*, 524, 543.

<sup>525</sup> "Menigmaal werd my gevraagd, waarom ik met zoo veel onkosten en moeiten zoo veel kamers met zaaken heb toegesteld, waar op ik haar tot antwoord geeve, zulks gedaan te hebben, op dat niemand zoude denken, veel min zeggen, dat myn uytgegeve figuren qualyk en niet na de voorwerpen zelfs zyn gemaakt, want nu iemand hier over in twyffel zynde, werd hem niet geweygert, te komen zien, of het overeenkomstig is met de zaake zelfs of niet: En indien alle Ontleeders zo gedaan hadden, of gedwongen waren geweest zo te doen, alsdan zoude sy ons zo veel verkeerde figuren niet opgedrongen, nog ook uyt andere autheuren genomen hebben." (Ruysch, "Het Vierde Anatomisch Cabinet," *Alle Werken*, 613).

<sup>526</sup> Notably, a similar type of comment is made by Van Horne concerning his preparations.

anatomical training and technical capabilities of his draughtsmen and engravers are general hindrances that negatively affect his printed plates, but these same concerns do not apply to the specimens found in his collection. In making this distinction, Ruysch separates the work of his artists and engravers from his position as an anatomist and maker of preparations.

Given the privileged position of the specimens, it is notable that Ruysch felt it was necessary to also produce illustrations of these discoveries and chose to publicize his finding using both text and image. But the *thesauri* offered an opportunity for Ruysch to involve, educate, and expand his audience while simultaneously argue for his new technique as an infallible method of study. In juxtaposing printed images with prepared specimens, Ruysch presents his preparations as products of an “auto-inscription technology,” whereas images could be easily altered.<sup>527</sup> This, of course, was not true and Ruysch’s contemporaries noted that wax injections distorted vessels and obscured the glands, but Ruysch’s pamphlets and catalogues gave the anatomist the platform from which he could make these claims and promote his collection.<sup>528</sup> In his use of print, Ruysch was strategic and recognized the distinct and unique capabilities of this medium in contrast to his specimens alone.

To disseminate his findings, Ruysch employed at least five artists, each of whom was an experienced book illustrator. The artists of early-modern natural history and anatomical images are rarely discussed in the publications featuring their works and, with the exception of Ruysch’s references to the quality of his engraver, his *thesauri* are no exception. However, the names of Ruysch’s artists are often included on the plates themselves, preserving the identity of their makers for posterity. The majority of Ruysch’s plates are the

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<sup>527</sup> Margócsy, *Commercial Visions*, 139.

<sup>528</sup> Margócsy, *Commercial Visions*, 140-141.

work of Cornelis Huybrechts (1669/70-1712), whom Ruysch employed for his first eight catalogues published between 1701-1709. A student of De Lairesse, Huybrechts made a name for himself as a draughtsman and printmaker and worked as both an etcher and engraver that specialized in figural subjects, in particular, allegorical and historical scenes. Huybrechts took on several projects as a book illustrator during his career, including the frontispiece for De Lairesse's *Grondlegginge der Teekenkonst* and plates in his *Groot Schilderboek*.<sup>529</sup> In the fourth and fifth catalogues a second artist, Abraham de Blois (1655-1717), makes a brief appearance. Hailing from Delft and settling in Amsterdam in 1682, De Blois's works include history scenes and portraits, but his most consistent employment was within the publishing industry and he often executed prints after the works of other artists.<sup>530</sup> A third artist, Joseph Mulder (1658-1718/38) produced the illustrations for the final two anatomical catalogues and Ruysch's *Thesaurus animalium primus* (Amsterdam, 1710). Figural works feature prominently in the *oeuvres* of Huybrechts, De Blois, and Mulder but no other representations of anatomical subjects are known from these artists, aside from their commissions from Ruysch.

In contrast, Ruysch's later artists Jacob Folkema (1692-1767) and Jan Wandelaar (1690/92-1759) had more experience working with medical professionals, though, this "specialization" became more apparent following their commissions from Ruysch. Another proven book illustrator, Folkema worked on Ruysch's *Curae Posteriores* (Amsterdam, 1724) and *Curae Renovatae* (Amsterdam, 1728), two catalogues that describe the

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<sup>529</sup> Ulrich Theime and Felix Becker, *Allgemeines Lexikon der bildenden Künstler: von der Antike bis zur Gegenwart*, vol. 18 (Leipzig: Seemann, 1925), 195; Pieter Groenendijk, *Beknopt biografisch lexicon van Zuid- en Noord-Nederlandse schilders, graveurs, glasschilders, tapijtwevers et cetera van ca. 1350 tot ca. 1720* (Utrecht: Groenendijk, 2008), 429.

<sup>530</sup> Groenendijk, *Beknopt biografisch lexicon*, 115.

anatomist's new collection after the sale of his first to Peter the Great (1682-1725). Folkema later produced the frontispiece for Herman Boerhaave's *Verhandeling over de Kragten der Medicynen* (Rotterdam, 1756) and a drawing of the interior of the Amsterdam Binnengasthuis in 1738.<sup>531</sup> The anatomical career of Wandelaar was more prolific. Having trained under De Lairese and Folkema's father, Jan Jacobsz. Folkema (d. 1735), Wandelaar's first known work with anatomical materials was executed during his employment under Ruysch; his images are found in the three volumes of Ruysch's *Adversariorum anatomico-medico-chirurgicorum* (Amsterdam, 1717; 1720; 1723). In spite of their relative anonymity today, Ruysch's sparse comments concerning his engravers, and his acknowledgement of one of his later artists, Jan Wandelaar, in a letter to Herman Boerhaave (1668-1738), inform our understanding of the role artists were given in the production of seventeenth-century Dutch anatomical images. Their shared experience in figural works and book illustrations enables us to identify them as specialists in the subject, media, and genre with which Ruysch engaged.

#### **vi. Invoking the Engraver**

Ruysch's written accounts concerning the production of his images and the involvement of his artists promote the care with which his *thesauri* were produced and contribute to our understanding of the relationship between practitioners of art and medicine in this period. Among Ruysch's artists, Wandelaar is the only engraver to be mentioned by name. In his published response to Boerhaave concerning the structure of the glands, Ruysch acknowledges the limitations that accompanied representing the mesenteric glands, "because

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<sup>531</sup> Bijzondere Collecties, Leiden Universeit, PK-T-252.

the vessels were finer than any line that could be achieved on paper,”<sup>532</sup> making it impossible for them to be preserved in paint or print. Defying expectations,

...however, the most experienced of all Engravers, *Jacob Wandelaar*, who has represented the parts of the human body with so much dexterity and fidelity, willingly committed himself to do this by the use of a magnifying lens and he has achieved this as faithfully as it now appears here, through the help of Doctor *Cant*.<sup>533</sup>

Ruysch explains that an image of this structure has never existed before and commends Wandelaar’s print by describing it as having been done from life (*na ‘t leven*) (Fig. 141).<sup>534</sup> However, the true hero in Ruysch’s story is Arent Cant (1695-1723) and on the following page Ruysch distinguishes between the roles of his engraver and the medical doctor.

Because it would not have been possible for neither myself, nor the experienced artist *Wandelaar*, to depict the thing as such, as in this figure, except the astute Mr. *Arent Cant*, Medical Doctor, who is very experienced in the art of anatomy, drawing, and painting, and famous through his published work [...] Do you not see the little threads, finer than shorn wool, expressed in their entanglement? No one will be able to replicate this as those who have practiced anatomy, and completely understand it, and above that, is very experienced in the art of painting.<sup>535</sup>

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<sup>532</sup> “...wanneer ik een afbeelding van deze zaak op een kopere plaat wilde late maken! want die zo fyne vaten konde niet geschildert worden, om dat zy fynder waren, als elke strepen, die op papier gehaalt konne worden.” (Ruysch, “Ontleetskundige verhandeling over het maakzel der klieren,” *Alle Werken*, 1226). Rina Knoeff interprets this passage differently and writes that Wandelaar has made changes to the illustration so that the vessels will appear more clearly (Rina Knoeff, “Chemistry, Mechanics and the Making of Anatomical Knowledge: Boerhaave vs. Ruysch on the Nature of the Glands,” *Ambix*, vol. 53 no. 3 [November 2006], 211).

<sup>533</sup> “...evenwel heeft de Ervarenste van alle Plaatsnyders *Jacob Wandelaar*, die met zo veel behendigheid en trouw de delen van ‘t menschelyke lichaam afbeelt, gaarne op zich genomen dit te doen door middel van een vergrootglas, en zulks heeft hy, geholpen zynde door den Doctor *Cant*, zo getrouwelyk, als ‘t hier nu vershynt, volbragt.” (Ruysch, “Ontleetskundige verhandeling over het maakzel der klieren,” *Alle Werken*, 1226); Ruysch’s praise for his engraver must have had some bearing on Boerhaave, who subsequently employed Wandelaar to produce illustrations for a new edition of Vesalius’s atlas. Through this project Wandelaar was introduced to Bernhard Albinus, which resulted in his most well-known partnership, as he worked closely with the anatomist to produce illustrations for the *Tabulae sceleti et musculorum corporis humani* (Leiden, 1737).

<sup>534</sup> “All will have to acknowledge that there was never hitherto a globular gland with its blood vessels in any plate depicted, now one has here the course of these little vessels from life.” [Alle zullen moeten bekennen, dat ‘er nooit tot nog toe een bolronde klier met zyne bloetvaatjes in eenige plaat afgebeelt is, nu heeft men hier het beloop van deze vaatjes na ‘t leven.] (Ruysch, “Ontleetskundige verhandeling over het maakzel der klieren,” *Alle Werken*, 1226).

<sup>535</sup> “Want nog my, nog den ervaren konstenaar *Wandelaar* zou ‘t mogelyk geweest zyn, zodanig, als in deze figuur, de zaak afte beelden, ten zy de schrandere Heer *Arent Cant*, Med. Doctor, in de ontleetskunde, teken, en schilderkonst zeer ervaren, en door zyn uytgegeven werk beroemt [...] Ziet gy niet de draadtjes, fynder als scheerwol, in hare verwarring zelfs uytgedrukt? Dit kan niemant nateekenen, als die, welke zich in



Wandelaar has the technical skill, experience, and talent needed to create fine lines in copper but Cant unites the training of an anatomist and artist, which equips him with the ability to surpass those operating from a single capacity. Ruysch's evaluation of Cant's desirable dual education and the ways in which the depiction of a particular subject was informed by his combined learning, illuminates the disparity between the perceptions of artists and anatomists concerning the degree of anatomical knowledge required for success in their respective fields. Whereas a theoretical knowledge of anatomy was sufficient for traditional representations of the human form, in the medical profession the ideal artist had a more practical understanding of the body that could be brought to their pictorial products.

However, it is notable that Ruysch does not identify any of his artists as possessing these dual capabilities and, alternatively, Cant was not asked to physically produce the prints. Despite his training in drawing and painting, Cant likely lacked the necessary skills to execute the plate in copper.<sup>536</sup> While painting and drawing were activities that were included in the education of young gentlemen, the same is not true of printmaking – and this may account for the repeated comments that Ruysch and his contemporaries make concerning the faults of the engraver. This was one area of production in which the anatomist was not experienced and, therefore, may have faced additional challenges in directing the execution of the plates. This area beyond the anatomist's training appears to have warranted additional proclamations of quality assurance and assertions of the anatomist's control.

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de ontleetkunde geoeffent heeft, en dezelve in de gront verstaat, en daar en boven zeer wel ervaren is, in de schilderkunst.” (Ruysch, “Ontleetskundige verhandeling over het maakzel der klieren,” *Alle Werken*, 1227).

<sup>536</sup> Cant's proficiency as an artist is recorded in his *Impetus Primi Anatomici ex Lustratis Cadaveribus Nuti* (Leiden, 1721), the plates of which are signed “A. Cant delineavit”. This designation of the drafts to the anatomist's hand supports my suspicion that he was not technically capable of executing the physical engravings.

While Ruysch does not acknowledge his artists by name in his catalogues, he frequently refers to the interference of the engraver. In doing so, he draws on a well-worn trope in early-modern anatomical, botanical, and natural history publications that frees the author from blame should inaccuracies in his images be called into question.<sup>537</sup> In some cases, Ruysch notes the ways in which his artists have adjusted the representation of a particular specimen, such as the nipple of a whale that was enlarged for the first catalogue (Fig. 142).<sup>538</sup> In others, the shortcomings of the printmaker's technique and medium are addressed. Concerning the representation of a kidney in the third cabinet, Ruysch explains that the "little canals" (*canaaltjens*) were made too dark, and consequently require a new image to be printed for the subsequent catalogue (Fig. 143).<sup>539</sup> The delicacy of the blood vessels, which are revealed through Ruysch's injection technique, also posed a challenge to the engraver, who is not capable of recording their numbers accurately, without "the whole figure [becoming] very black."<sup>540</sup> Even with a new image, which is included in the fourth cabinet, the course of the vessels is now so subtle that the aid of a microscope is required to

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<sup>537</sup> In addition to Fuchs and Vesalius, who have already been discussed, Albinus also notes the challenges his images posed for the engraver, and Daston and Galison trace this accusation into the twentieth century (Daston and Galison "The Image of Objectivity," 90, 100, 101, 114). Kusakawa notes the high costs associated with the engraver, which might also contribute to the concern regarding the proper execution of the plates (Kusakawa, *Picturing the Book of Nature*, 33-37, 50).

<sup>538</sup> "These skin *papillae* are made larger than life-size by the engraver" [Deze Vel-tepeltjens zyn van de Plaatsnyder wat grooter gemaakt, als zy in 't leven zyn] (Ruysch, "Het Eerste Anatomisch Cabinet," *Alle Werken*, 509).

<sup>539</sup> "the engraver has not been able to represent [the kidney] without darkening the little canals which are displayed in this figure; I will display them clearly in the following fourth Cabinet..." [de plaatsnyder heeft zulks niet kunnen verbeelden zonder die Canaaltjens te verduyteren dewelke in deze figuur vertoont worden; ik zal zulks klaar vertoonen in 't volgende vierde Cabinet...] (Ruysch, "Het Derde Anatomisch Cabinet," *Alle Werken*, 585).

<sup>540</sup> "...zoude de gantsche Figuur zeer swart zyn geworden." (Ruysch, "Het Negende Anatomisch Cabinet," *Alle Werken*, 814); Ruysch makes a similar complaint concerning his third plate in this volume, and in his tenth cabinet concerning the depiction of a liver in the fifth figure of his *Epistolae* (Ruysch, *Alle Werken*, 858).

see them properly (Fig. 144).<sup>541</sup> This comment may appear to be a complaint concerning the print but it was likely intended as praise for the preparation technique that rendered even the finest vessels visible and reinforces the hierarchy between these materials. These statements of quality assurance reinforce the divide between prints and preparations and assert anatomist's regulation of his artists and their products.

The figure of the engraver is somewhat malleable in Ruysch's catalogues and, as much as he is the recipient of blame, his work is also an ally to Ruysch's aim to stimulate interest in his collection and create anticipation for future catalogues. In the fourth cabinet we are told that a print of a placenta had been planned but was delayed on account of the engraver, upon whom Ruysch had been waiting for the last three months.<sup>542</sup> Instead, Ruysch will provide the image in a later volume. This instance points to matters that were beyond Ruysch's control and, in acknowledging them, he asserts his awareness of the restrictions of publishing in contrast to the immediate evidence offered through his preparations. Ruysch's promises of images to come may also be interpreted as a tactic for creating desire and anticipation for future catalogues and an additional form of advertising within the pages of his *thesauri*. Despite these complaints, the artist that most frequently serves as the subject of Ruysch's frustration, Cornelis Huybrechts, was hired repeatedly and worked on eight of the ten catalogues. Rather than view Ruysch's comments as being directed at a particular

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<sup>541</sup> "...the said course of the blood-vessels in this Figure, is so subtly executed, that one can barely follow them without a microscope." [...dese gezeyde cours der bloet-vaten in deze Figuur, zo subtiel uytgevoert is, dat men dezelve zonder vergroot-glasen qualyk kan opvolgen.] (Ruysch, "Het Vierde Anatomisch Cabinet," *Alle Werken*, 626).

<sup>542</sup> "I had intended in this the fourth Cabinet to add a figure of a whole placenta [...] but the engraver detained me for three months, therefore I have been forced to include it in the fifth cabinet." [Ik had voorgenomen in dit vierde Cabinet in te voegen de figuur van een geheele Moer koek (...) maar de plaatsnyder heeft my drie maanden opgehouden, zoo dat ik gedwongen ben geworden, om dit in 't vyfde Cabinet in te voegen.] (Ruysch, "Het Vierde Anatomisch Cabinet," *Alle Werken*, 620). Though no reason for further delay is given, Ruysch does not include this figure until the sixth cabinet.

individual, it may be more helpful to consider the *plaatsnyder* of Ruysch's text as generic, an interpretation that is encouraged through the use of this term in the place of naming a particular artist. As such, the engraver can be adapted to suit the anatomist's purpose at any given time.

The engraver is often invoked to either excuse mistakes in the images or reinforce Ruysch's claims to credibility within the *thesauri*, particularly when the specimens were considered curiosities or rarities. In his eighth cabinet, Ruysch recounts the story of an elderly woman who had fallen and broken her thighbone and as a result walked with a limp the rest of her life. Upon her death, the surgeon Gerrit Borst (c.1645-1727) dissected her body and discovered that the bone had healed in an unusual way, so that the neck of the bone was essentially missing and had been replaced with thick and hard bands that connected the head of the bone to the muscles.<sup>543</sup> Ruysch does not include an image of the specimen but directs his reader to alternative depictions of the thighbone, found in the fifth cabinet, to illustrate its internal structure. Returning to this subject in his ninth cabinet, Ruysch notes that he had prepared her bone using his wet technique and includes a new plate so that "no one will doubt the truth of this case."<sup>544</sup> (Fig. 145). In this example, both image and prepared specimen serve to substantiate Ruysch's observations.

In other instances, Ruysch verbally reinforces the subject as shown by the engraver. In his catalogue for the sixth cabinet, Ruysch describes, "A whole large unnatural body, covered on all sides with short white and also black hairs, which a cow had expelled through

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<sup>543</sup> Ruysch, "Het Achtste Anatomisch Cabinet," *Alle Werken*, 770; Ruysch "Het Negende Anatomisch Cabinet," *Alle Werken*, 806-807.

<sup>544</sup> "...niemand zoude twyfelen aan de waarheyd van dit geval..." (Ruysch, "Het Negende Anatomisch Cabinet," *Alle Werken*, 793); In this passage of text Ruysch directs his reader to a depiction in his eighth cabinet, but this is likely a mistake, as he includes the illustration in his ninth cabinet.

the genitals, on which hangs a long band, like a stem, as the engraver has represented here, in the sixth plate of the sixth Cabinet.”<sup>545</sup> The same language is used to validate an image in the ninth cabinet that depicts a wet preparation of an umbilical cord with afterbirth, to which a child’s leg and foot with three toes is attached.<sup>546</sup> This language draws on the illustration for legitimacy and confirms the image’s contents. It is implied that the engraver has seen the subject in question in order to produce his image and Ruysch is also presented as a witness to both preparation and plate.<sup>547</sup> This dual confirmation, together with the mention of Borst, locates the depicted subject within a community of witnesses and invites the viewer to also participate in this act. By extension, the viewer is given tangential access to the specimen itself and the medical case that it documents.

The anatomist’s support of his printmaker’s depictions creates a relationship between the prepared specimens and their illustrations but Ruysch makes clear that the contents of the images are only as good as the source material. Presented in relation to Ruysch’s preparations, the images of his *thesauri* are often identified as filling a gap in the available literature. For example, in his first catalogue, the anatomist includes a figure of six pieces of rib, which he uses to illustrate the differences between the external vessels and those found in the muscles between the bones (Fig. 146). Describing his choice to include this figure,

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<sup>545</sup> “Een heel groot onnatuurlyk lighaam, alzints met korte witte, en ook swarte haayren beset, ‘t welk een Koe door de Teeldeelen gelost heeft, waar aan een lange band, als een steel hangt, gelyk de Plaatsnyder het zelve hier heeft afgebeeld, in de VI. Plaat van ‘t VI. Cab.” (Ruysch, “Het Sesde Anatomisch Cabinet,” *Alle Werken*, 682).

<sup>546</sup> Ruysch, “Het Negende Anatomisch Cabinet,” *Alle Werken*, 787-788.

<sup>547</sup> Robert Felfe, “Naer het leven: eine sprachliche Formel zwischen bildgenerieren Übertragungsvorg ästhetischer Vermittlung,” in *Ad Fontes Niederländische Kunst des siebzehnten Jahrhunderts in Quellen*, Claudia Fritzche, Karen Leonhard and Gregor J.M. Weber eds. (Petersberg: Michael Imhof Verlag, 2013), 191.

Ruysch notes, “I have never found anything written; also [...] in no figures depicted,”<sup>548</sup> and attributes this and later discoveries to advancements in his preparation technique.<sup>549</sup> In contrast, he says an imperfect method of preparation will result in faulty images. In his second cabinet, Ruysch draws the reader’s attention to his depiction of the liver’s vessels, in contrast to those of other authors and attributes the difference to the unnatural shape that was created by earlier methods of preservation.

How great a distinction there is between the true condition of the said vessels of the liver, and the figures that the authors have depicted, one can see here. In the excarnate of the Liver, they removed with their nails, wood knives, etcetera, the said flesh from the vessels, whereby the vessels became longer and longer, finally they pinned the ends, not all, which is impossible to do, on a plank with the points of pins, and dried them in this way, through which they got an unnatural shape. This having done, they gave the result to the draughtsmen, who in turn gave it to the engravers, which is the reason that we have been deceived by some authors.<sup>550</sup>

These types of statements present Ruysch’s technique as superior to those of other anatomists. His inclusion of printed representations invites his contemporaries to make comparisons through published sources and confirm his claims. This type of activity could

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<sup>548</sup> “waar van ik nooyt iets beschreven heb gevonden; ook [...] door geen figuren afgebeeld” (Ruysch, “Het Eerste Anatomisch Cabinet,” *Alle Werken*, 513).

<sup>549</sup> “...because after the description of the first Cabinet was published, I have sorted out several cases more thoroughly, which to me, were at the time unknown. Several cases have also from time to time been more precisely and more carefully prepared by me, since I am continually working on opening and researching the human body.” [...] want na dat de beschryvinge van ‘t eerste Cabinet in ‘t ligt gegeven is, soo heb ik nog verscheyde saaken naaukeuriger uytgevonden, dewelke my, doenmaals nog onbekent waren. Verscheyde zaken zyn ook van tyd tot tyd netter en curieuser van my toebereyd, nadien ik gedurig nog besig ben in ‘t openen en ondersoeken van het menschen lighaam.] (Ruysch, “Het Tweede Anatomisch Cabinet,” *Alle Werken*, 522).

<sup>550</sup> “Hoe groot een onderscheyd daer is tusschen de ware geschapenheyd der geseyde vaten van de Lever, ende de Figuren, dewelke de Autheuren afgebeeld hebben, kan men hier zien. In het excarneren der Levers zynse gewoon met hare nagels, houte meskens, &c., het alsoo genoemde vlees van de vaten af te doen, waar door de vaten langer en langer wierden, eyndeling staken sy de uytendynden, niet alle, ’t welk onmogelyk is te doen, met de punten van spelden, op een plank, en droogdense also, waar door deselve een onnatuurlyke gestalt kregen: Dit aldus verricht zynde, gaven sy ’t selve aan de tekenaars over, en dese wederom aan de plaatsnyders, waar door ons sommige Autheuren ontallyke verdigtselen op de mouw hebben gespelt.” (Ruysch, “Het Tweede Anatomisch Cabinet,” *Alle Werken*, 536).

have also occurred within the collection itself, but the printed images enabled the comparison of works executed in the same medium and offered access to a wider audience.

At times, Ruysch even reprinted the images of his peers to facilitate this type of practice. In his sixth *thesaurus*, Ruysch uses images to refute a new theory of blood vessels in the human body that has been put forward by the French physician, Raymond Vieussens (1635-1715) (Fig. 147). Including a copy after Vieussens's figure of the sheep's kidney for reference, Ruysch notes that he found some unusual material in this image and includes his own representation of a specimen, "prepared only through filling the blood vessels."<sup>551</sup> Presenting his argument through a composite plate, Ruysch asks the viewer to compare human and animal specimens, distinct methods of preparation, and the resulting knowledge produced by these subjects.

This use of images makes visual arguments concerning Ruysch's preparations that would have been more cumbersome in the space of his collection – though they may have well taken place. These examples illustrate the strengths of the printed medium, which Ruysch recognized and exploited in his catalogues. In contrast to human tissue, filled with wax, suspended in liquid, and contained in glass vials, works on paper were portable, replicable, and made comparison relatively easy.<sup>552</sup> However, they could also be revised and edited to make visible the elements of greatest concern to the author.<sup>553</sup> This capacity could

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<sup>551</sup> "...alleen door het opvullen der bloedvaten, toebereyt zynde."; "...I found there [in Vieussens' depiction] some unusual things" [...zoo vond ik daar eenige ongewoone zaken...] (Ruysch, "Het Sesde Anatomisch Cabinet," *Alle Werken*, 669).

<sup>552</sup> Bruno Latour, "Visualization and Cognition: Drawing Things Together," in *Knowledge and Society: Studies in the Sociology of Culture Past and Present*, vol. 6, H. Kuklick ed. (1990), 1-40.

<sup>553</sup> In his *Dilucidatio valvularum in vasis lymphaticis, et lacteis* (The Hague, 1665), Ruysch takes this approach in his depiction of a liver, which is shown with fewer glands and larger lymph nodes (Kooijmans, *Death Defied*, 54).

bring the author great renown, but it also invited doubt, which the anatomist needed to overcome to be effective.

## **vii. Resurrecting Nature**

Though he privileges prepared specimens above images, Ruysch recognizes that both media require intervention on behalf of their makers. Praising his technique as non-destructive, the anatomist takes responsibility for effects of life in the preserved dead tissue seen in his cabinets. His preparations of children's heads appear to sleep, and the coloring of his specimens is described as mimicking that of a living, natural, or freshly-deceased body.<sup>554</sup> However, he also alludes to the process that created these effects and records whether the preparation is wet or balsamed, its container, the color of the filling, and its texture. Though he does not disclose the secrets of his technique, he communicates that the specimens have been altered through the preparer's "art". In this capacity his involvement parallels that of the printmaker, though it is unlikely that Ruysch would encourage this comparison. Whereas the engraver is challenged by the process of translating preparation to print, Ruysch's hand restores the appearance of life to his subjects.

In part, Ruysch's relative transparency concerning the additions to his specimens may have been a tactic intended to disarm critics who claimed his method obscured the truth and was the product of artifice, which were levied by Ruysch's adversaries. Both Johannes Jacobus Rau (1668-1719) and Bidloo accused Ruysch of painting his specimens.<sup>555</sup> In his

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<sup>554</sup> See note 558; Julie Hansen draws attention to the role of artifice in Ruysch's preparations and connects this approach to anatomical materials as "rivaling and revealing God's handiwork" (Julie Hansen, "Resurrecting Death: Anatomical Art in the Cabinet of Dr. Frederik Ruysch," *The Art Bulletin*, vol. 78 no. 4 [Dec. 1996], 674).

<sup>555</sup> "hanc esse demonstrationem esse fucatam istaque corpora (taceo ridiculum eorum plumis, vestibis pretiosis fimbriatis, apparatus, oculos vitreos, genas colore rubentes roseo et quidquid fulgenti bracteolae simillimum, infantes aliquando, viros vero nunquam allidere aptum est) non balsamo condita" (Govard Bidloo, *Vindiciae quarundam delineationum anatomicarum contra ineptas animi adersiones Frederik Ruyschii*



second *thesaurus*, Ruysch takes the opportunity to reassure his reader that the life-like effects of his specimens were achieved “without any make-up or paint”<sup>556</sup> and consistently reiterates that those who have seen his preparations cannot doubt the truth of his claims.<sup>557</sup> He explains that his injection technique should not be interpreted negatively but produces specimens comparable to the example of nature.<sup>558</sup> At the same time, his method offers benefits that nature cannot, such as a longer period of study, which enables a greater number of dissections and more precise illustrations.<sup>559</sup>

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(Leiden: Jordanum Luchtmans, 1697), 13-14); “This does not appear to be natural to us, as Rau has already assured us that his [ie. Ruysch’s] objects are excessively smeared with dyes and lacquer multiple times” [Dieses aber schiene uns nicht natürlich zu seyn, wie den auch herr Rau versicherte, daß seine Sachen vielfältig mit Farbe und Firniß überstrichen seyen] (Uffenbach, III/641, trans. Margócsy, *Commercial Visions*, 5).

<sup>556</sup> “...’t welk zonder eenig blanketzel of verwe...” (Ruysch, “Het Tweede Anatomisch Cabinet,” *Alle Werken*, 532). The term *blanketzel* refers to paint for the face, such as rouge.

<sup>557</sup> “...and possibly they would never have appeared, if I would not have discovered it through this our art.” [...en mogelyk zouden zy noyt haar vertoont hebben, ten ware ik dezelve door deze onze konste ontdekt hadde.] (Ruysch, “Het Tweede Anatomisch Cabinet,” *Alle Werken*, 534); “I say ‘clearly’, after this object is prepared in such a way, that no one, who has seen this, will doubt the truth any longer...” [Ick zegge klaarlyk, nadien dit voorwerp op zoodanig een wyze toebereyt is, dat niemand, dit gezien hebbende, aan de waarheyt na deezen langer zal twyfelen...] (Ruysch, “Het Tweede Anatomisch Cabinet,” *Alle Werken*, 545). Similar comments are found throughout the *thesauri*.

<sup>558</sup> “...it is so freshly preserved, that now, the face still appears to live, although it has been dead many years: and his eyes are closed, thus impersonating the head of one who sleeps.” [...zo fris is bewaart, dat het aangezicht nu nog schynt te leven, hoewel het over veele jaren is gestorven: en zyn deszelfs oogen gesloten, verbeeldende alzo het Hoofd van een die slaapt.] (Ruysch, “Het Zevende Anatomisch Cabinet,” *Alle Werken*, 727). Ruysch uses the terms “fris”, “levendig”, and “natuurlyke” to describe his specimens throughout his catalogues.

<sup>559</sup> “How much the figures, which the authors have delineated in their writings, differ from their true condition, such can one now see here.” [Hoe veel de Figuren, die de Autheuren in haare schriften afgebeeld hebben, verschillen van de waare geschapentheyd, sulx kan men hier nu zien.] (Ruysch, “Het Vierde Anatomisch Cabinet,” *Alle Werken*, 604-605); “...because I was of the opinion, that the anatomical dissections, which occur in freshly deceased men, are not as agreeable, as one does not grow stringy with prepared materials, hanging in a fluid [acqua fortis]; and thus on several trips I have done anatomical dissections in the body of youths, many years after their deaths, which is demonstrated by the printed advertisements, among which has been also the following:” [...want ik meende, dat de Anatomische vertooningen, dewelke geschieden in vers afgestorvene menschen, niet zoo bequaam waren, als men die niet doet versellen met geprepareerde zaken, in een vogt opgehangen zynde: en alzoo heb ik eenige reysen, ontleedkundige vertooningen gedaan in de lighaamen van Jongelingen lange Jaaren na haar dood, gelyk zulks blykt uyt de gedrukte bekentmakingen, waar onder ook dese volgende is geweest.] (Ruysch, “Het Sesde Anatomisch Cabinet,” *Alle Werken*, 660); “and that not only in winter, but also in summer, yes, even in the dog days, because everything is prepared in a way that the smallest parts of the human body can be seen with clear weather.” [en dat niet alleen des Winters, maar ook des Somers, ja zelfs in de Hondsdagen: want alles is

Ruysch's language makes use of rhetoric found in early-modern art literature, particularly his aim to surpass the examples of his contemporaries and nature. These ambitions derive from classical sources, such as Pliny's *Naturalis Historia*, which were recounted in artists' biographies and art theoretical treatises. In his *Het Schilderboek*, Van Mander compares the art of painting to the myth of Narcissus, "For what could be more consonant with the form of this youth shadowed forth in the crystal clear water, than an artfully painted figure done well after life,"<sup>560</sup> a parallel that Samuel van Hoogstraten (1627-1678) explores in his assessment of painting as a mirror of nature.<sup>561</sup> In his lives of ancient artists, Van Mander makes evident the ambition of painters to achieve the appearance of nature in their works. The ancient Greek painter, Protogenes, "did not want simply that his works should be true likenesses, but rather strove diligently to make them natural and as if the things themselves."<sup>562</sup> We are told that when Duris asked the Sicyonian painter Eupompus what master he took as his model, "[he] replied by taking him to the marketplace,

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zoodanig toebereid, dat de kleinste deeltjens van's menschen lighaam, by helder weer gezien kunnen werden.] (Ruysch, "Het Sesde Anatomisch Cabinet," *Alle Werken*, 669).

<sup>560</sup> "want wat mach beter rijmen op de schoon gestaltenis deses Jongelings in de Cristallinige clare fonteyne schaduwende, dan een constich geschildert Beelt uytnemende wel na t'leven gedaen." (Karel van Mander, *Het Schilderboek* [Haarlem: Paschier van Wesbusch 1604], fol. 61v) quoted in Walter S. Melion, *Shaping the Netherlandish Canon: Karel van Mander's Schilder-Boek* (Chicago: University of Chicago Press, 1991), 30.

<sup>561</sup> Thijs Weststeijn, *The Visible World: Samuel van Hoogstraten's Art Theory and the Legitimation of Painting in the Dutch Golden Age* (Amsterdam: Amsterdam University Press, 2008), 101-106; "For a well made painting is like a mirror of nature, in which things which do not exist, seem to exist and which tricks one in an acceptable, pleasing and praiseworthy way." trans. Ford, Charles, "Grondt & Inleyding: The Visible World," *University College London* (1999-2017) < <http://www.ucl.ac.uk/grondt/Inleyding> > (10 July 2017) [Want een volmaekte Schildery is als een spiegel van de Natuer, die de dingen, die niet en zijn, doet schijnen te zijn, en op een geoorlofde vermakelijke en prijslijke wijze bedriegt.] (Samuel van Hoogstraten, *Inleyding tot de Hooge Schoole der Schilderkonst: Anders de Zichtbaere Werelt* [Rotterdam: François van Hoogstraten, 1678], 25).

<sup>562</sup> "En alsoo hy niet en wilde, dat zijn dingen alleen het waer wesen gheleken, maer zijn vlijt dede alles te maken eyghen en natuerlijck, was seer t'onvreden." (Van Mander, *Schilderboek*, fol. 82v).

which was full of all sorts of folk [...] and said to Duris: ‘See, that is my model, that my exemplar, which I make every effort to follow in my work.’<sup>563</sup> These stories encouraged early-modern artists to consider the relationship between their work and nature in a comparable manner.

In the *Inleyding tot de hooge schoole der schilderkonst* (Rotterdam, 1678), Van Hoogstraten notes that competition with the aim of surpassing rivals, or *aemulatio*, could bring a painter fame and honor, and uses the classical story of Zeuxis and Parrhasius as an example,

Such are the spurs of jealousy and emulation, that they awaken the slumbering desire for honour, and all powers are strained, to reach even further than their abilities. Through jealousy Zeuxis reached a higher level in the Art of Painting, so that the birds were deceived by his painted grapes. And that same drive guided the hand and wit of Parrhasius, so that he overcame this champion.<sup>564</sup>

In this story, Zeuxis and Parrhasius attempt to outdo one another and the triumphant party succeeds through artifice – his representation of a curtain fools Zeuxis, whereas the depiction of grapes convinces only the birds. Ruysch’s language in his catalogues invites similar types of comparison. The anatomist makes frequent use of terms and turns of phrase that liken his specimens to the human body. In contrast, Ruysch does not apply this language to the illustrations, but asks the viewer to juxtapose the images done after his preparations with those of other medical professionals. The relationship to nature extends only to

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<sup>563</sup> “Eupompus hem heeft ghebracht, daer hy hem dat soude laten sien, t’welck was op de Marckt, die vol was van alderley volck...en seyde: Siet daer mijn Patroon, dit is Exemplaer, dat ick aldermeest in alle mijn wercken volge.” (Van Mander, *Schilderboek*, fol. 70r-v) cited in Melion, *Shaping the Netherlandish Canon*, 71.

<sup>564</sup> “Zoodanich prikkelen de spooren van naeryver en volgzucht, datze de slaepende eergiericheyt ontwaeken, en alle krachten doen inspannen, om zelfs boven vermogen te geraeken. Door naeryver quam Zeuxis tot zoo hoogen graet in de Schilderkonst, dat de vogelen door zijn geschilderde druiven bedrogen wierden. En die zelve drift leide de hand en’t verstant van Parrasius, dat hy dezen zegepraeler overwon.” (Van Hoogstraten, *Inleyding*, 215, trans. Ford, “Inleyding & Grondt”).

Ruysch's specimens, but his printed images are serviceable tools that promote and circulate the anatomist's findings. The anatomist uses artifice to rival both nature and his peers but structures his approach to the capacity of each medium.

Included along the edge of the plates, the term *ad vivum* strengthens the relationship between the prints and preparations, working in tandem with Ruysch's descriptions of his images in his *thesauri* to enhance his prints' claims to credibility.<sup>565</sup> The multiple interpretations of *naar het leven*, or *ad vivum*, identified by Claudia Swan and Sachiko Kusukawa both come into play in Ruysch's catalogues. In his description of a print of a monstrous birth, found in Theodore Kerckring's *Spicilegium anatomicum* (Amsterdam, 1670), Ruysch identifies the image as having been made after life and implies a working method that informed the execution of the plate.<sup>566</sup> A similar use of the phrase is found in his assessment of Wandelaar's images in his letter to Boerhaave.<sup>567</sup> This is distinct from the function the term *ad vivum* performs when affixed next to an artist's name on the plates of the *thesauri*. Following Kusukawa's interpretation, this inscription primes the viewer to engage with the portrayed subject as he would the preparation itself and lends the image the credibility that Ruysch ascribes to his specimens. Together with Ruysch's descriptions and the pictorial devices of his artists, this phrase encourages the viewer to associate the prints

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<sup>565</sup> For an alternative interpretation of the relationship between text and image in printed catalogues see Alexander Wragge-Morley, "The Work of Verbal Picturing of John Roy and Some of his Contemporaries," *Intellectual History Review*, 20 (1) (2010), 165-179.

<sup>566</sup> "... whoever wants to see the figure of this skeleton, can find it in the revised (*Specilegio*) of the honorable Mr. *Kerkring*, where one can see this skeleton depicted after life..." [...al wie de Figuur van dit Geraamte zien wil, die kan dezelve vinden in de (*Specilegio*) naleezing van de Ed: Heer *Kerkring*, alwaar men dit Geraamte na 't leven afgebeeld kan zien...] (Ruysch, "Het Achtste Anatomisch Cabinet," *Alle Werken*, 741).

<sup>567</sup> See note 534.

more closely with the anatomist's preparations and makes reference to the space of the collection itself.<sup>568</sup>

### **ix. Printing the Preparations**

Ruysch's statements concerning the engraver clarify the care with which his images were prepared, particularly as they relate to the anatomist's prepared specimens. Turning to the images themselves, we can observe how the *thesauri* present the collection itself and conjure this space for the viewer. Drawing on their expertise as book illustrators, Ruysch's artists permit his reader to peek inside his cabinets remotely and view his prepared specimens through their printed plates. In the environment of the collection, objects could be arranged or shown together to encourage comparison and create a visual argument. Ruysch's lists of his cabinets' contents often indicate the location of specimens of similar subjects on the same shelf, which suggests that the reader could investigate multiple samples of the same type of object at the same time, a practice that is replicated in the printed images. At times, the same engravings feature preparations that Ruysch's catalogues list as sitting side-by-side on the shelf.<sup>569</sup> The anatomist's images document the relationship between preparations and make apparent their function as educative tools.

For example, in his sixth *thesaurus*, Ruysch focuses on the subject of generation and includes several plates of the female reproductive organs, ovum, embryos, and fetal skeletons. To demonstrate stages of fetal growth, these subjects are presented in order of development. In the first plate we are shown a fetal skeleton, the size of a pinky finger,

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<sup>568</sup> As is discussed in chapter one, this function is commensurate with Kusukawa, *Picturing the Book of Nature*, 174-5.

<sup>569</sup> This observation requires a word of caution, given that Ruysch rearranged the contents of his collection several times.

holding three unfertilized eggs (Fig. 148). The following figure depicts a slightly larger skeleton with a fertilized egg suspended on a hair tied to his right hand. A skeleton the size of a forefinger occupies the third figure and displays a fertilized egg that has been cut open, though the author notes there is nothing to be seen inside. Sharing the page are two depictions of the placenta in its early stages, which are shown in various degrees of advancement in the following plate. The second set of figures focuses on early embryonic life; we follow its growth from the size of an anise seed, to a louse, to a barley kernel, until we start to see the early formation of limbs (Fig. 149).<sup>570</sup> This development takes place over the course of six figures, each of which illustrates distinct features, such as the umbilical cord and placenta. In the center of this plate we see a child's skeleton of about three months and his older companion greets the viewer from the third plate (Fig. 150). Embryos, the largest of which has developed fingers, surround him. The fourth and fifth plates in this catalogue depict the placenta, fallopian tubes, and ovaries, including a specimen taken from a woman who died just after intercourse, resulting in the preservation of sperm within the uterus (Figs. 151 and 152). Reviewing this series of images, the viewer is able to follow the development of a human embryo from conception to fetus, and can trace the growth of its skeleton in the months after birth. A similar type of activity likely took place in the course of Ruysch's lessons with his students; through the medium of print and sequential images, the viewer is given a similar opportunity to witness this process from the comfort of his own home.

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<sup>570</sup> "...of which hangs the first from the right hand that in size corresponds to an anise-seed. The second, hanging from the left hand, corresponds in size to a louse, or lettuce-seed [...] having the size of a peeled barley grain." [...waar van het eerste van de rechter hand ahangende in groote met een anys-zaatje overeenkomt. Het tweede van het slinker hantje ahangende komt in groote over een met een luys, of latuw-zaatje (...) hebbende de groote van een gepelt gerste koorntje...] (Ruysch, "Het Sesde Anatomisch Cabinet," *Alle Werken*, 714-715).

In comparing these examples, we can see that Ruysch's artists present the anatomist's preparations in a range of formats and guises and in their images at once invite the viewer into the space of the figurative collection and mark Ruysch's catalogue as distinct from the cabinet. The fetal skeletons are shown on small pedestals, which cast a shadow as though they were sitting on the shelf or some other surface found within the cabinet. If these specimens were alone on the page, the viewer could more easily imagine a receding space and locate them in some kind of fictive three-dimensional environment. However, the presentation of additional specimens that hang from nails complicates our interpretation of Ruysch's images.<sup>571</sup> In contrast to the pedestals, which are situated in space, the nails appear to puncture the page and locate the dangling specimens on a plane that is closer to the viewer than the skeletons.<sup>572</sup> This device is found throughout Ruysch's catalogues and likely references the hanging of specimens within vials or inside the doors of Ruysch's cabinets, as both methods of display are noted in the anatomist's catalogues.<sup>573</sup>

The device of a nail puncturing the picture plane was used widely in early-modern *trompe l'oeil* paintings, particularly those of game, such as Jan Baptist Weenix's *Dead Partridge Hanging from a Nail* (c. 1650-1652) (Fig. 153). These images make reference to the story of Protogenes, who painted a

Satyr [...] standing by a pillar, on top of which stood a male partridge [...] the people were so agape [...] that they would behold him with wonder [...] the partridge-breeders were still more amazed, bringing their tame partridges and placing them opposite the painted

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<sup>571</sup> This interpretation draws on Ernst Gombrich's discussion of negative space in relation to the depicted object and the viewer in natural history images (Ernst Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation* [New York: Pantheon Books, 1960], 193).

<sup>572</sup> Working with Wandelaar's image in Ruysch's letter to Boerhaave, Felfe interprets the projecting pins as locating the representation of the preparation between the viewer and the pictorial ground (Felfe, "Naer het leven," 258).

<sup>573</sup> References to specimens hanging from hairs are frequent throughout the catalogue. In his eighth and ninth cabinets, Ruysch notes that several preparations hang on the door of his cabinets (Ruysch, "Het Achtste Anatomisch Cabinet," *Alle Werken*, 765; Ruysch, "Het Negende Anatomisch Cabinet," *Alle Werken*, 810).

partridge; for their partridges would make their call to the painting and attract a mob of people.<sup>574</sup>

Admittedly, dead fowl request a somewhat different interpretation and likely allude to the hunter's catch.<sup>575</sup> The representation of the bird suspended against a roughly painted, neutral field could camouflage the painting against a plastered wall of a house and catch the viewer by surprise, enhancing the work's effectiveness. The ability to anticipate and challenge a viewer's expectations was one of the central components of a successful illusion. The viewer is asked to first participate in the deception and then realize the trick being played on the eye. This moment of revelation brings pleasure and draws attention to both the skills of the artificer and the presence of the pictorial field.<sup>576</sup>

A convincing *trompe l'oeil* often makes use of its natural setting, color, and the handling of paint to approximate life, material qualities that do not lend themselves easily to engravings found in a bound volume. Lacking these features, the prints included in Ruysch's *thesauri* would not have actually deceived the viewer, and the frequent presentation of suspended specimens on the same page as preparations resting or floating on an incommensurable pictorial plane suggest that deception was not the artist's aim. Instead, I suggest that the motif of the nail projecting from the page was a means of informing the viewer's perception of Ruysch's illustrations, specifically, to encourage an interpretation

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<sup>574</sup> *The Geography of Strabo* with an English translation by Horace Leonard Jones, vol. 6 (Cambridge: Harvard University Press, 1970), 269-271, book 14, 2.5, cited in Sybille Ebert-Schifferer ed., *Deceptions and Illusions: Five Centuries of Trompe l'Oeil Painting*, exh. cat. (13 October 2002 – 2 March 2003, National Gallery of Art, Washington; Aldershot and Burlington: Lund Humphries, 2002), 21.

<sup>575</sup> Lynn Russell, "Cat. 18: Jan Baptist Weenix, Dead Partridge," in Ebert-Schifferer, *Deceptions and Illusions*, 150.

<sup>576</sup> Celeste Brusati, "Honorable Deceptions and Dubious Distinctions: Self-Imagery in Trompe l'Oeil," in *Blændværker. Gijsbrechts—kongernes illusionsmester/ Illusions: Gijsbrechts—Royal Master of Deception*, exh. cat. (Statens Museum for Kunst, Copenhagen, September-December, 1999), 56; Ebert-Schifferer, *Deceptions and Illusions*, 24.



that the reproduced preparations are credible depictions of the anatomist's specimens.<sup>577</sup> *Trompe l'oeil* paintings featuring this device were popular in the seventeenth-century Netherlands, and it is probable that the audience of Ruysch's works would have been familiar with the temporary suspension of reality that these visual tricks were meant to elicit. As such, the nails both make reference to a method of display used in the collection and promote a view of the printed preparations as believable representations of the specimens as seen in life.

Juxtapositions of different planes of viewing, perspectives, senses of scale, and constructions of space are a commonplace in Ruysch's catalogues and are part of a pictorial program of visual variety that mimics the experience a visitor could have in the anatomist's museum. In his analysis of Ruysch's *thesauri*, Gijsbert van de Roemer determines that the presentation of the collection changed over time in response to different preparation techniques and Ruysch's theological and philosophical beliefs. The earliest phase of the collection featured dry specimens that were largely unadorned and exhibited relatively unsystematically, but it shifted in the early-eighteenth century to a more ordered and cohesive display that featured more ornamentation and used vials for both wet and dry preparations.<sup>578</sup> The pictorial range of Ruysch's preparations in his *thesauri* recreates the diversity of his specimens for the viewer in both the images' subject matter and format. Full-length portraits of preserved infants are found in the same catalogue as details of *papillae* as seen through magnifying lenses and dry and wet preparations are depicted side-by-side, with some shown inside their vials and others freestanding. Certain images even make the viewer

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<sup>577</sup> This interpretation draws on Gombrich's concept of a "mental set" that the beholder projects onto an image (Gombrich, *Art and Illusion*, 190).

<sup>578</sup> Van de Roemer, "*Vanitas to Veneration*," 173-175.

feel as though he is looking into the cabinet itself. For example, in the second plate of the first *thesaurus*, Huybrechts includes multiple horizontal bands along the bottom of the page, suggesting the edge of a shelf that has been brought flush with the picture plane (Fig. 154). The illusion is enhanced by the artist's use of fine, horizontal lines placed closely together in the foreground, which transition to crosshatching in the back ground to create horizontal registers of light and dark and convey the sense of a receding space.

This type of spatial construct is rare in the first eight volumes of Ruysch's catalogues, which were largely produced by Huybrechts and De Blois. With the introduction of Mulder to Ruysch's project in 1713 we see greater attention awarded to the depiction of preparations as they could be seen within the collection, which may be the result of Mulder's work with architectural sites and city views. More references are made to tables or shelves upon which the specimens were arranged and they are often shown on their pedestals or in vials, which prevents them from appearing to float on the page (Fig. 155). Hanging specimens are either suspended from sticks, as is seen in the second table of the ninth cabinet, or on nails, which now appear to penetrate a back wall rather than the page (Fig. 156). Consequently, the viewer's experience of the page shifts from a surface on which specimens are presented to a view inside the cabinet itself.

However, Mulder's strategy is not consistent throughout the *thesauri* and the majority of Ruysch's plates are devoid of setting. The blank background offers the opportunity for his artists to experiment with their presentation of Ruysch's specimens. In addition to the hanging and resting specimens, particular examples are shown engaging with the frame, sometimes to a humorous effect. Cut by the upper horizontal plate edge so that the viewer is only permitted a partial view, a prepared specimen of the lower jaw, complete with teeth,

gums, and the bottom lip, appears as a gaping mouth in the eighth cabinet (Fig. 157).

Similarly, a pair of closed eyes seem to peek over the lower plate edge of the third image in the tenth cabinet, as though they are about to open and return the viewer's gaze (Fig. 158).

Ruysch and his artists make conscious use of the plate edge to focus their audience's attention, optimize available space, and draw emphasis to particular features of the depicted specimens.

These devices involve the viewer and are complemented by the animated fetal skeletons and the accounts that accompany notable specimens. In her analysis of eighteenth-century anatomical collections in the Netherlands, Rina Knoeff draws attention to the role storytelling played in the viewer's experience and interpretation of prepared specimens.<sup>579</sup> Ruysch's catalogues with their playful figures, perpetuate the narrative encounters a visitor could experience within the collection. At the same time, this presentation of Ruysch's prepared specimens makes use of a well-argued function of early-modern art to educate the viewer through entertaining compositions.<sup>580</sup> The multiplicity of representational forms and formats parallels the composition of preparations in the anatomist's collection and create a pleasing diversity that maintains the viewer's interest as he moves through the images.

#### **ix. Guiding the Viewer**

As much as Ruysch's plates give form to the anatomist's description of his collection and are designed to communicate particular components of Ruysch's findings with the viewer,

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<sup>579</sup> Knoeff "Artful, yet Pernicious Body," 155-158, 165-170; The argument for early-modern collections as spaces of conversation was previously put forth by Paula Findlen (Findlen, *Possessing Nature*, 97-150).

<sup>580</sup> In the forward of his didactic poem, *Den Grondt*, Karel van Mander addresses the art of painting as the "most entertaining, ingenious and noble" [De seer vermaecklicke vernuft-barende edel] (Karel van Mander, *Den Grondt der Edel Vry Schilderconst* [Haarlem: Paschier van Wesbusch, 1604], fol. 4r); On the dual role of art to instruct and delight (Eddy de Jongh, "To instruct and delight," in *Questions of Meaning. Theme and Motif in Dutch Seventeenth-Century Painting*, Michael Hoyle trans. [Leiden: Primavera Press, 2000], 100).

they also make use of pictorial choices that mediate the reader's understanding of the collection. Working with Ruysch's detailed written descriptions, they are a part of a system of strategic access that both accommodate the reader's visualization of the preparations and regulate how this took place. In particular, Ruysch's writing can be exclusionary and is coded in a way that would resonate most pointedly with informed individuals. For example, his comment that a preparation of a stomach "did not only retain its natural and vivid color, but also its shape and size,"<sup>581</sup> both offers reassurance of the object's veracity and works on the assumption that the reader is familiar with the appearance of this organ, particularly given that no image is provided. Those who have not seen a human stomach in the dissection hall or an anatomical cabinet would not have the same frame of reference for the shape, size, and coloring of this organ as those who had been privy to medical training. Ruysch's presumption concerning the education of his reader also informs his images. Comments, such as, "And because I have not found anyone who has represented this in figures,"<sup>582</sup> intuit that the body itself is the only point of reference for his assertions and those who are unfamiliar must take the anatomist at his word and rely upon his images. In approaching this plate, among others in the catalogues, an informed viewer is at an advantage and is better equipped to interpret the representation than the lay beholder.<sup>583</sup>

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<sup>581</sup> "Dat deze maag niet alleen zyn natuurlyke en levendige couleur, maar ook zyn forme en groote behouden heeft." (Ruysch, "Het Tweede Anatomisch Cabinet," *Alle Werken*, 542).

<sup>582</sup> "En nadien ick tot nog toe niemand gevonden hebbe, die het zelve dusdanig in figuren heeft doen verbeelden..." (Ruysch, "Het Tweede Anatomisch Cabinet," *Alle Werken*, 543).

<sup>583</sup> This interpretation draws on Michael Baxandall's theory of the period eye (*Painting and experience*, in particular, 30-35); Daston and Galison also present early-modern atlases as cultivating an "expert eye" which helped to create the concept of a typical or ideal specimen (Daston and Galison, "The Image of Objectivity," 85).

The reader's access to information about the collection's contents is also mediated through the selection of language. The original editions of Ruysch's catalogues were printed with two columns, one in Latin, and the other in Dutch. However, certain entries that address the reproductive organs were printed exclusively in Latin and are also marked with an asterisk. Margócsy has interpreted these signs as indications that that the female reader should skip these entries.<sup>584</sup> However, the use of Latin for the discussion of these objects excluded any reader who had not been educated in Latin, male or female. A concern with the illustration and discussion of the reproductive organs is also found in the preface to Reinier de Graaf's (1641-1673) *Alle de Wercken so in de Ontleed-kunde als andere deelen der medicine* (Amsterdam, 1686):

But here someone of a weaker mind or filthiness shall easily say, that if you had nothing other than such enticing and lust provoking content, which at this time all too often possesses and dominates the hearts of youth, you could have kept this with you at home, and in this way not encourage the easily erring youth. To that I answered that firstly, if young and wanton people were inclined that way, they would be able to find other books of such content to satisfy their desire, whether in French, or whether, [one] says with regret, in our mother tongue, so that they will have no need of this [book].<sup>585</sup>

De Graaf acknowledges that some may take issue with the subject of his publication and its illustrations but dismisses these concerns as baseless given that more licentious material can be found without much difficulty, rendering his images relatively tame. Ruysch takes a different approach and his use of Latin to discuss the reproductive organs ensures that the

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<sup>584</sup> Margócsy, "Advertising Cadavers," 204.

<sup>585</sup> "Maar hier sal ligt imand van een teerder gemoed of viesigheyd seggen, en had gy niet anders dan sodanige aanlokkelijke en wellust-teelende stoffe, die dog maar by desen tijd de herten der jeugt slegts al te veel besit, en overheerscht, gy haddet die wel mogen by u t'huys houden, en op dese wijze geen meerder voet aan de ligtdwalende jeugd geven. Ik antwoorde daar eerstelijck op, dat, indien het jonge en dertel volk daar toe genegen is, sy wel andere boekken van sodanige stoffe, het sy in de Franse, het sy, om met leet wesen te seggen, in onse moeder-taale, konnen vinden die haar begeerte bequaam sijn te voldoen, over sulx dat sy dese niet nodig hebben." (Reinier de Graaf, "Voor-Reden," *Alle de wercken, so in de ontleed-kunde, als andere deelen der medicine* (Amsterdam: A. Abrahamsz, 1686), \*3v-\*4r).

audience for his catalogues was proscribed by level of education, as only those with proper training could interpret these passages of text.<sup>586</sup>

Generation was a subject of great interest in early-modern medicine, and the number of specimens in Ruysch's collection and publications that address the reproductive organs make evident the anatomist's work on this topic.<sup>587</sup> It is notable that of the approximately one hundred specimens listed that address the male and female reproductive systems, only thirty are marked and explained exclusively in Latin.<sup>588</sup> In her article on the display of the anatomized female body in eighteenth-century Amsterdam, Knoeff notes that distinctions were made within Ruysch's cabinet and that specimens of the pudenda, for example, were treated more carefully than the womb, which was connected more strongly to childbirth than conception.<sup>589</sup> Diseased and prepubescent specimens were also more visible in the collection, and are rarely distinguished in Ruysch's catalogues, signaling that they did not carry the moral implications of healthy, adult organs of reproduction.<sup>590</sup> This could explain Ruysch's choice to include in his third catalogue an illustration of a male infant's penis and

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<sup>586</sup> Jan Bloemendal, *Spiegel van het dagelijks leven?: Latijnse school en toneel in de noordelijke Nederlanden in de zestiende en de zeventiende eeuw* (Hilversum: Verloren, 2003), 20; H.W. Fortgens, *Schola Latina: Uit Het Verleden van ons Voorbereidend Hoger Onderwijs* (Zwolle: Tjeenk Willink, 1958), 31-32.

<sup>587</sup> On the study of reproduction in the seventeenth-century Netherlands see, Matthew Cobb, *Generation: The 17<sup>th</sup>-century Scientists who Unraveled the Secrets of Sex, Life, and Growth* (New York: Bloomsbury Publishing, 2006); Frederik Ruysch, *Tractatio anatomicade musculo in fundo uteri* (Amsterdam, 1723); In Ruysch's *Epistolae*, see also, "De Eerste Ontleed-kundige voorgestelde Brief van Johannes Gaubius", and, "XV. Brief van Albertus Henricus Graetz.," *Alle Werken*, 227-235, 418-429; The reproductive organs are discussed and pictured in greater detail in these sources, but these texts were published in Latin, and not translated until after the anatomist's death. The choice to explore the reproductive organs in more detail in these works may indicate a distinction between genres of publication and the potential audiences of these works.

<sup>588</sup> This assessment does not take into consideration fetal or embryonic specimens. My thanks to Gijsbert van de Roemer for generously sharing his database of Ruysch's cabinets, which facilitated and expedited this research.

<sup>589</sup> Knoeff, "Sex in Public," 48.

<sup>590</sup> Knoeff, "Sex in Public," 48-49.

testicles, in which the urinary tract is in an unnatural position (Fig. 159). Several of the preparations Ruysch selected for illustration are marked by irregularity and in this case the deviation also seems to excuse Ruysch's representation of this subject. The same may be true for an illustration of a hydrocephalic male infant, who prominently displays his genitals to the viewer (Fig. 160). The contents of these images are somewhat exceptional, given that other specimens of prepubescent male genitalia are not illustrated and are often discussed in Latin.

There are only two examples, both found in the second plate of the eighth cabinet, in which Ruysch features "restricted" specimens, specifically, a prolapsed uterus and the hermaphroditic genitalia of a sheep. Notably, only the register describing the image of the uterus is labeled with an asterisk and addressed in Latin, and Ruysch's discussion of this subject in the body of his text is also provided in Dutch (Fig. 157). In contrast, the genitalia are discussed exclusively in Latin. As the only two marked objects in Ruysch's *thesauri* to be represented in print, one wonders, what was it about these particular specimens that warranted representation? In his *Anatomische en Chirurgicale Observatien* (Amsterdam, 1691), Ruysch discusses prolapsed uteruses several times with the assistance of images and, in his eighth cabinet, even directs his reader to this earlier work. Therefore, it does not seem that this subject was off limits. The only element that distinguishes this image from other representations of the uterus in Ruysch's catalogues is the inclusion of the external genitalia. However, I suggest that the relatively schematic rendering of this subject, which is not easily interpreted without the accompanying labels, prevents the uninformed reader from truly understanding the depicted subject.

In contrast, the case of the hermaphroditic genitalia is without precedent in Ruysch's illustrated works, but this appears to be precisely the point of its depiction in this context. In his written description of this specimen, Ruysch explains, "It has never happened to me, to see a true hermaphrodite, and I also judge, that they have never been seen by others."<sup>591</sup> The male reproductive organs are shown in two separate plates in Ruysch's earlier publications and the genitalia are featured in the images of infants included in his catalogue, but the mature vulva is not included in Ruysch's catalogue images. In this particular case, the preparation originated from a sheep and may have been considered excusable. The figure in which this specimen is depicted is more detailed than that of the uterus and it is also marked as distinct from the other figures on the page. In fact, it is the only represented specimen in Ruysch's *thesauri* that is oriented so that the image is only rectified once the viewer physically turns the book from a vertical to horizontal position. Whereas the other figures on the page are shown hanging from nails along the vertical axis, this specimen is suspended along the horizontal and is essentially placed in a separate space of viewing. The particular mode of depiction reserved for this specimen makes it more challenging to interpret the black-and-white figure. The oddity of its portrayal is made all the more irregular when the viewer observes that despite its gravity-defying suspension, the nail from which it hangs casts a shadow that is commensurate with the other figures that share the page, suggesting a common light source. Through these subtle cues, Ruysch and his artists identify this object as unique, while informing the ways in which different viewers would approach and interpret this subject.

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<sup>591</sup> "... 't is my nooyt gebeurt ware manwyven te zien, en ik oordeele ook, dat ze van anderen nooyt gezien zyn..." (Ruysch, "Het Achtste Anatomisch Cabinet," *Alle Werken*, 755-756).



The viewer's access is not only restricted in the case of the reproductive organs and Ruysch places general limitations on his audience throughout the *thesauri*. In fact, the majority of the objects listed are not represented, though this may have been on account of the cost of images or a strategy designed to bring curious readers to the collection. Similarly, comments such as "authors have not observed in their figures"<sup>592</sup> creates a desire to view the materials in Ruysch's possession. In other cases, codes of decorum prevent the anatomist from including images and the author's descriptions suggest that access to these objects would have also been curtailed within the cabinet. For example, in his eighth *thesaurus* Ruysch discusses a monstrous birth, but explains that it is kept behind a wet preparation of an intestine in the cabinet itself and is "not to be seen by everyone."<sup>593</sup> Understandably, a print of this figure is not included in Ruysch's catalogue and representations of monstrous births are rare in Ruysch's collected works. This example suggests that within his cabinet, Ruysch could determine which individuals saw particular preparations. In his printed catalogues, the anatomist curates the experience of his viewer, often erring on the side of caution. Once in circulation, Ruysch no longer had control over the reader's engagement with and interpretation of his specimens and therefore he employs strategies in text and image to moderate the untrained eye.

#### ***D. Conclusion***

Placing the publications of Bidloo and Ruysch side-by-side the immediate disparities

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<sup>592</sup> "autheuren in haare figuren niet hebben geobserveert" (Ruysch "Het Achtste Anatomisch Cabinet," *Alle Werken*, 753).

<sup>593</sup> "om niet van een yder gezien te werden." (Ruysch, "Het Achtste Anatomisch Cabinet," *Alle Werken*, 754).

between the works is striking. Bidloo's *Anatomia* is a massive and even opulent tome. The volume is comprised of paired images and written explanations that have been printed on a heavy-weight, high-quality paper, and uses only single-sided printing for the images, presumably to prevent the details of the designs from being marred by ink transferring through the page. Ruysch's quarto-size *thesauri* are not only dwarfed in comparison but the anatomist's economy is also evident. The majority of the plates include multiple figures per page and the quality of paper varies in relation to the size of the image.<sup>594</sup> Moreover, his selection of artists that primarily worked as book illustrators is a stark contrast to De Lairese's fame and reputation in this period. At first glance, these distinct approaches to publishing could be considered evidence for the level of care and value each anatomist placed in his printed works. However, this interpretation overlooks the distinct functions of these genres and negates the ways in which these anatomists use the graphic medium to advance their individual ambitions.

Bidloo's anatomical atlas was executed with the aim of positioning its author as the successor to Vesalius. As such, the *Anatomia* had to surpass the *Fabrica* in its depth of analysis and visual appeal. Increasing his number of images and using a highly-naturalistic style of representation, Bidloo encouraged the comparison of his work with that of Vesalius through the integration of particular formats and devices that reference the earlier publication. Considering the prevalence of Vesalius's illustrations in the early-modern period, it could even be argued that these types of views were expected in an anatomical

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<sup>594</sup> Later editions and compendiums of Ruysch's *thesauri* use thin paper, likely in an effort to mitigate costs and compress the weight of the volumes. However, in his early editions, Ruysch uses single-sided printing and in some cases the larger scale prints use a heavier quality of paper. This would be more durable for constant folding and refolding and enables the print to remain open more easily.

atlas and without these devices and motifs Bidloo's works could not be considered as a serious contender within this genre. At the same time, Bidloo endeavored to supplant the sixteenth-century anatomist through the introduction of new elements, such as microscopic views and mathematical diagrams.

Ruysch shares Bidloo's competitive spirit but took his contemporaries as his rivals and used print to make evident the significance and superiority of his preparation technique. Focusing on specimens and anatomical discoveries that had never been seen or illustrated before, Ruysch used print to disseminate his findings in a way that his preparations could not. Through his catalogues, the viewer could make easy comparisons between different specimens and the works of other anatomists. As a relatively new genre of publication, the illustrated catalogue did not have the same type of pictorial tradition with which Ruysch's artists were required to engage, and this allowed for more experimentation in the *thesauri*'s plates. Through a range in pictorial formats and devices, Ruysch invites his reader into his anatomical cabinet but is careful to maintain a boundary between the printed and prepared specimens.

In their manipulation of the graphic medium to their own ends and their shared use of pictorial representation to guide their audiences, these otherwise adversarial anatomists are united. Both employ features found in still life painting, most notably *trompe l'oeil* motifs, and language, such as the term *ad vivum*, to inform their viewers' interpretation of their works. For Bidloo, this encouraged a conflation of the space and time of dissection with that of the viewer, which reinforced the believability of his tables. Alternatively, Ruysch's artists avoid a literal depiction of the anatomical cabinet and use visual and verbal strategies to evoke the experience visitors could enjoy therein. Through these techniques the anatomists

seek to compel the viewer and legitimize their anatomical findings. At the same time, these works promote a particular type of encounter with the depicted subjects, ensuring the anatomist maintains his position of authority and respectability.

## CONCLUSION

Included among the rows of glass phials that lined the cabinets of Frederik Ruysch's (1638-1713) seventeenth-century anatomical collection was a prepared specimen of a hand holding a vulva, adorned with a linen bow and white sleeve that served to conceal the embalmer's work.<sup>595</sup> Today, the preparation survives in the Leiden University Medical Center (LUMC) Anatomical Museum, making possible physical inspection of the object. In her work on Ruysch's anatomical collection, Rina Knoeff has observed that specimens of the genitals were often kept on higher shelves and, fortuitously, at the time of my visit to the LUMC in the summer of 2014, the specimen was similarly displayed above eye level.<sup>596</sup> As it was lifted from its display case, the liquid in the glass stirred, causing the fabric to flutter and the suspended vulva to pendulate.<sup>597</sup> Completing the illusion of life encouraged by the colored wax injections and fabric ornaments, the act of touching the specimen created movement; a coveted sensation and one of the core ambitions for early-modern artists.

This object exemplifies the intersecting approaches of early-modern artists and anatomists to the represented body and the mutual dependence of the two fields. Anatomists relied upon period pictorial conventions and a framework of familiarity to make claims concerning their credibility and position of authority. Concurrently, with the shift in respectability among medical practitioners and the increased emphasis on anatomical

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<sup>595</sup> An image of Ruysch's preparation can be found in Luuc Kooijmans, *Death Defied: The Anatomy Lessons of Frederik Ruysch*, Diane Webb trans. (Leiden; Boston: Brill, 2011), 284, fig. 35.

<sup>596</sup> Rina Knoeff, "Sex in Public: On the Spectacle of Female Anatomy in Amsterdam around 1700," *L'Homme. Europäische Zeitschrift für Feministische Geschichtswissenschaft*, vol. 23 no.1 (2012), 51.

<sup>597</sup> My thanks to Andries J. van Dam for leading me through the LUMC collection and humoring my request to have Ruysch's preparations taken out of their display cabinet to test this theory.

practice, artists expanded their theoretical training to include this subject. Notably, these borrowings were then put to distinct functions that fostered the creation of professional boundaries between these fields. Through the preceding chapters, we have seen how members of each profession repurposed existing materials, strategies, or techniques to create something new and further their ambitions.

As illustrated in Ruysch's object, attention to movement and the approximation of life stands among the uniting interests of both artists and anatomists in the seventeenth-century Netherlands. Motion and action in figural depiction are central to the published works of Jacob van der Gracht (1593-1651), Samuel van Hoogstraten (1627-1678), and Willem Goeree (1635-1711), particularly in their shared attention to the concept of *welstandt* and their interest in creating believable figures. Through text and image these authors sought to educate their readers in the form, function, and inter-relation between different parts of the body and provided theoretical anatomical knowledge that could be lent to the study of living models and classical statues. The integration and repurposing of text and image from period anatomical sources to art literature and the presentation of anatomical training as fundamental to artists' study of the body, mark a shift in the standards of artists' education. At the same time, the use of material and pictorial devices in anatomical works that suggest the kinetic potential of the depicted body, such as the double-sided arms and flaps of Martin Sagemolen's (c. 1620-1669) drawings, or the momentarily-stilled fly in Gerard de Lairesse's (1640-1711) prints, testify to the reciprocal exchange between these professions.

Through their ability to replicate or elicit the appearance of life in their works, artists earned acclaim and honor, and we also find evidence of this motivation in the images they produced for early-modern anatomists. The phrase *naar het leven* or *ad vivum* appears in the

writings of both professions and communicates the connection between the depicted subject and the object found in nature. In the writings of Van der Gracht, Goeree, and Van Hoogstraten the term often refers to a working method and the young painter is frequently encouraged to train his mind and develop his judgment so that he can improve upon the example found in life. This term is applied more directly to the anatomical images of Sagemolen, De Lairesse, and the many draughtsmen Ruycb employed; at once identifying the artist as witness, as Claudia Swan has noted, and priming the viewer to regard the image's content as he would the physical subject, as Sachiko Kusukawa observed.<sup>598</sup> This capacity was vital to the reception of anatomical images and the construction of credibility on behalf of the anatomist. Thus, we see a reciprocal relationship between early-modern artists and anatomists, but the products of their exchange are put to distinct aims and in their writings these fields often create distance between their professions.

In response to the comments of artists and anatomists that negate the contact that occurred, this study has focused on addressing the question of how these disciplines engaged with one another and the products of their interactions. The representational materials of both disciplines offer evidence of their working and intellectual relationships, and document the restrictions artists and anatomists imposed as a means of constructing their own authority and professional boundaries. Anatomists made use of naturalistic styles, included illusionistic devices, and worked within pictorial traditions to persuade their audiences, while simultaneously asserting their control over the information on display. In turn, artists adopted and adapted visual and written materials from anatomical publications and

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<sup>598</sup> Claudia Swan, "Ad vivum, naer het leven, from the life: defining a mode of representation," *Word & Image*, vol. 11, issue 4 (1995), 354-357; Sachiko Kusukawa, *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-century Human Anatomy and Medical Botany* (Chicago, University of Chicago Press, 2012), 174-175.

incorporated them into art literature. Through this process, artists adjusted their training in response to new developments in the study of the body and aligned their field with the prestige awarded to physicians.

The surviving evidence suggests that seventeenth-century Dutch artists favored encounters through secondary sources, from printed images to plaster casts, and rarely participated in the practical experience of anatomy gained through the dissection of cadavers. This narrative contrasts with that of early-modern Italy, which has, until now, dominated our understanding of the Dutch artist-anatomist in this period. The reasons for this disparity has not been the subject of this project, but it would be useful to situate the practices in the Northern Netherlands within the larger scope of early-modern Europe and investigate the potential reasons for these alternative approaches to the subject of anatomy. Given the officially Protestant affiliation of the Dutch Republic and its unique political structure, particularly in comparison to the Catholic South, future research could investigate further the roles of religion and government in the practices surrounding early-modern anatomy and how this effected artists' access. Moreover, practitioners of medicine and the arts traveled extensively, as did their published works. It would be illuminating to consider how the pictorial strategies examined in this study compare to those of artists and anatomists in other regions and how foreign audiences interpreted them.

The dissemination and communication of ideas was perhaps most easily facilitated by print. Consequently, this medium has been central to the current project, though questions of transferal between media and the effects of changing contexts of study have also informed this dissertation. However, prepared specimens also traveled and were used to create social and professional networks. How do these materials compare to their printed representations



and to what extent were they designed to promote the professional and epistemic ambitions of their makers, as seen in their published counterparts? The example of Ruysch's hand holding a vulva, together with the anatomist's descriptions of his specimens as "living" (*levendig*) in appearance suggest that, in the space of his collection, the anatomist deployed the pictorial language of persuasion recorded in period art literature. The application of this visual rhetoric to a constructed space furthers our understanding of the integration between these disciplines and lends vital context to the interpretation of published materials. Modern scholars have not yet undertaken this approach to anatomical cabinets and future research of the relationship between art and anatomy should include this analysis.

The ways in which artists engaged with three-dimensional examples of the anatomical body should also be investigated in future research. For example, both Van Hoogstraten and De Lairese reference working with prepared skeletons for their studies of proportion and a more extensive study of artists' biographies may yield further insight into this practice. Similarly, period art literature and artists' inventories could yield valuable insight into the use of plaster casts, which offered an alternative means for studying the body in the round and are recommended by Philips Angel (1616-1683) and De Lairese. However, in paintings and prints that feature these models we can often distinguish between casts made after natural limbs or classical statues and those that represent the flayed body. When do anatomical casts become popular and how do they compare to the information provided in art literature?

Similar lines of inquiry could be directed towards bronze and plaster *écorché* figures. These statuettes appear in depictions of artists at work, such as Gerard van Honthorst's (1592-1656) possible self-portrait of 1655, now at the Rijksmuseum, and further

investigation of artists' inventories would also help us determine the prevalence of these types of aids [Fig. 161]. Significantly, these materials can be associated with the unlabeled *écorchés* found in early-modern art literature and do not instruct in the way that is encouraged with the adoption of anatomical atlases' contents and format. However, the depiction of artists with these types of objects reinforces the claims to authority found in period art literature and it would be interesting to determine whether this trend precedes or accompanies the integration of these images into artists' texts.

This brings us to the question of the consequences of anatomical study for artist's pictorial compositions. The relationship between Sagemolen's *Apollo Flaying Marsyas* (1658) and his works for Johannes van Horne (1621-1670) is examined in chapter three, and Eric Jan Sluijter recently suggested that Ferdinand Bol's (1616-1680) *Neptune Enters the Amsterdam Admiralty's Service* (c. 1661-1662) makes use of one of Jacob van der Gracht's distinctive poses [Fig. 19 and 162].<sup>599</sup> However, it is often challenging to determine the explicit relationship between paintings or *kunstprenten* and anatomical materials used during an artist's training. Karel van Mander (1548-1606), Van der Gracht, Van Hoogstraten, and Goeree warn their reader against reproducing the overworked musculature seen in anatomical illustrations. Following this advice would obscure references to these types of educative materials and challenges the art historian's ability to trace artists' preparation and training through their finished works. Moreover, the poses found in many anatomical atlases can be connected to classical statues and the works of early-modern masters, which further obscures the artist's source. Therefore, in their use of these images, did artists endeavor to

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<sup>599</sup> Amsterdam Museum, inv. No. SA 3001; Eric Jan Sluijter, "Out of Rembrandt's shadow: Flinck and Bol as history painters," in: Norbert Middelkoop ed., *Ferdinand Bol and Govert Flinck. Rembrandt's Master Pupils*, Zwolle/Amsterdam: W Books, 2017), 250 note 64.

draw upon the expertise of the ancients or display their more recent command over anatomical knowledge? Is there a change in the depiction of the body following the inclusion of anatomical materials in art literature? Or, if not, what does this suggest for the practical application of this training? Does the integration of anatomical prints in art literature accompany or follow its inclusion in the curriculum of the artist's education in drawing and painting?

Of course, training in the pictorial arts was not limited to professional artists and in the early modern period these skills were considered part of a complete education for learned gentleman, a group to which many physicians and surgeons belonged. Proudly proclaiming his role as draughtsman, Ruysch included the phrase, "Delineavit Fr. Ruysch," on an illustration of a horse's liver in his publication on the lymphatic system [Fig. 163].<sup>600</sup> In his depiction of the organ, Ruysch enlarged the lymph vessels and reduced the number of glands, enhancing the visibility of these features. Thirty years later, Govard Bidloo (1649-1713) criticized these adaptations and ridiculed Ruysch for signing his name, assuming the role of an artist.<sup>601</sup> To this, Ruysch responded that he did not see a problem with a physician undertaking this task himself, time permitting.<sup>602</sup> Surveying the drawings and prints of

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<sup>600</sup> Frederik Ruysch, "Fig. II," *Dilucidatio Valvularum in Vasis Lymphaticis* (The Hague: Ex Officina Harmani Gael, 1665), 22.

<sup>601</sup> "And as is common in this art, I included my name, but our Bidloo rebuked this; consequently, to have added the name to my depicted figure appeared to him to be a great disgrace!" ["En gelykerwys men gewoon is in die konst, heb ik 'er myn naam bygevoegt, maar dit bestraft onze *Bidloo*; derhalven de naam by die van my afgebeelde figuur bygevoegt te hebben, shynt hem een grote schande te zyn!"] (Frederik Ruysch, "Antwoord van Frederik Ruysch op het Boekje van Govert Bidloo," *Alle Werken*, 456-457); see also, Govard Bidloo, *Vindiciae quarundam dilineationum anatomicarum contra ineptas anima adversiones Frederik Ruyschii* (Lugd Batavorum apud Jordanum Luchtmans, 1697), 47.

<sup>602</sup> "What I mean, is that it is not to be despised if an anatomist takes the art of drawing in hand, and when time allows, the art of painting, although Bidloo has wanted to deride this, or object to me, as was said here before." [Dat mene ik, dat het niet te veragten is, Indien een Ontleder zelfs de tekenkonst, en wanneer de tydt het toeliet, de schilderkonst by der hand neemt, 't welk nochtans *Bidlo* heeft willen belachten, of my

Ruysch's contemporaries, we can see that the anatomist was in good company. Jan Swammerdam (1637-1680) was called upon more than once to produce drawings for Van Horne, and Arent Cant (1695-1723) published an entire volume on anatomical subjects, the *Impetus primi anatomici ex lustratis cadaveribus nati* (Leiden, 1721), for which he provided drawings [Fig. 164]. The role of early-modern pictorial practice and theory in the execution of these "amateur" images would complement the narrative recounted here concerning professional artists' contributions. How do the images of commissioned artists compare to those of pictorially-trained anatomists? Did the drawings of medical professionals face the same challenges and criticisms as those of professional artists? What does this tell us about the function of professional affiliation and training in the study and depiction of natural subjects in this period?

This dissertation begins to answer these questions though, clearly, there remains much for future investigation. I have focused on contradictions and changes, which I interpret as evidence of boundaries under negotiation and in flux. During the seventeenth century, artists transition from *écorchés* to anatomical forms and formats, as this subject was introduced to art literature. In this new context, these images were augmented and made to accommodate the new aims and ambitions of this profession. Among artists these works were malleable, and we see Van der Gracht, Van Hoogstraten, and Goeree apply them to distinct professional ambitions, signaling that this subject has not been systemized within the curriculum of artists' training. The history of artists' employment in the service of medical practitioners and the ways in which pictorial practice and theory were used to advance the careers of anatomists runs alongside these transitions. Contrasting three types of anatomical

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tegenwerpen, gelyk hier vore gezegt is.] (Ruysch, "Antwoord van Frederik Ruysch op het Boekje van Govert Bidloo," *Alle Werken*, 457).

volumes, we have seen that anatomists at once sought to evoke the space and subject of observation for their viewer and mediate his experience. Using representational strategies, anatomists involve the viewer and maintain authority over this subject. In the process, they place limitations on their audience and reinforce these restrictions through both text and image, distinguishing the knowledge constructed through the pictorial subject from that of the physical object. Access to anatomical knowledge is also restricted in the publications of artists, who reduce the details of their figures and the volume of explanation on offer in an effort to better suit the needs of their audiences. As a result, we see the creation and reinforcement of professional boundaries between these fields, which contributed to the divide that solidified in the eighteenth and nineteenth centuries and continues to the present day.

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ELO – Erfgoed Leiden en Omstreken, Leiden City Archives

LB – Leiden Bibilioteek, Erfgoed Leiden en Omstreken

DTB – Doop-, Trouw en Begraafboeken

SAA – Stadsarchief Amsterdam

UVA – University of Amsterdam, Special Collections

BIU – Bibliothèque Interuniversitaire

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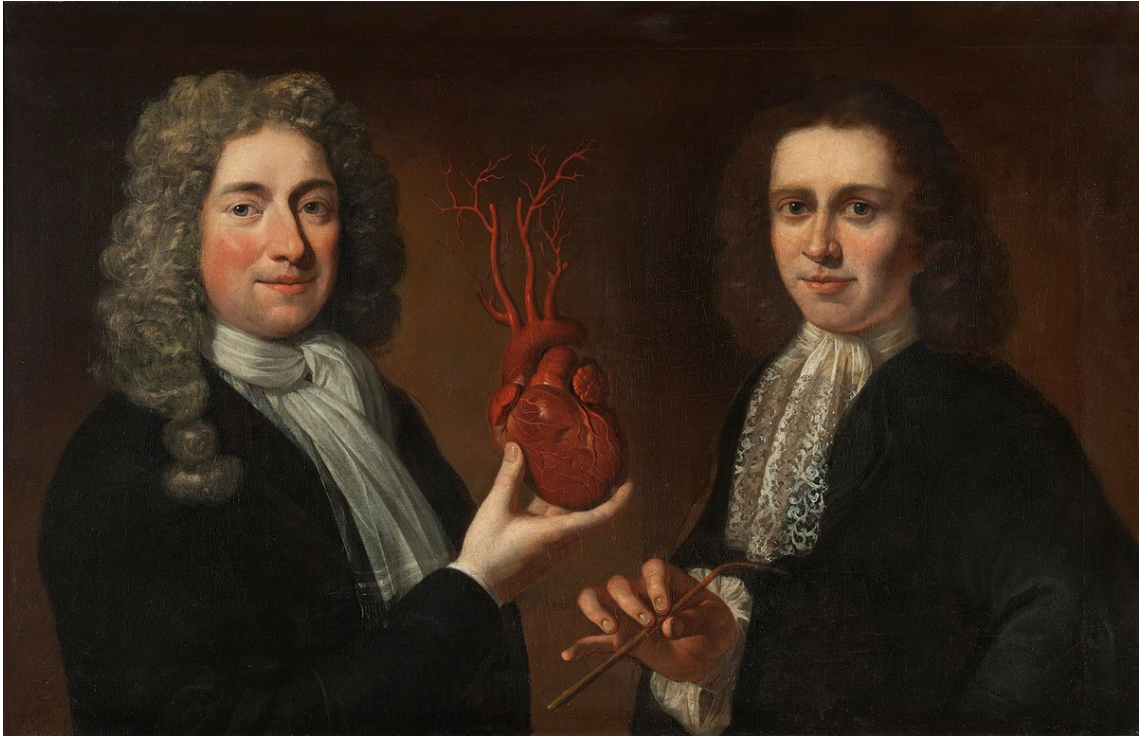
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FIGURES



1. Juriaen (II) Pool, *Two Regents of the Surgeon's Guild*, 1699. Oil on canvas. Amsterdam Museum, Amsterdam. (image: Wikimedia Commons)



2. Jan Steen, *The Drawing Lesson*, 1665. Oil on panel. The J. Paul Getty Museum, Los Angeles. (image: The J. Paul Getty Museum, digital image courtesy of the Getty's Open Content Program)





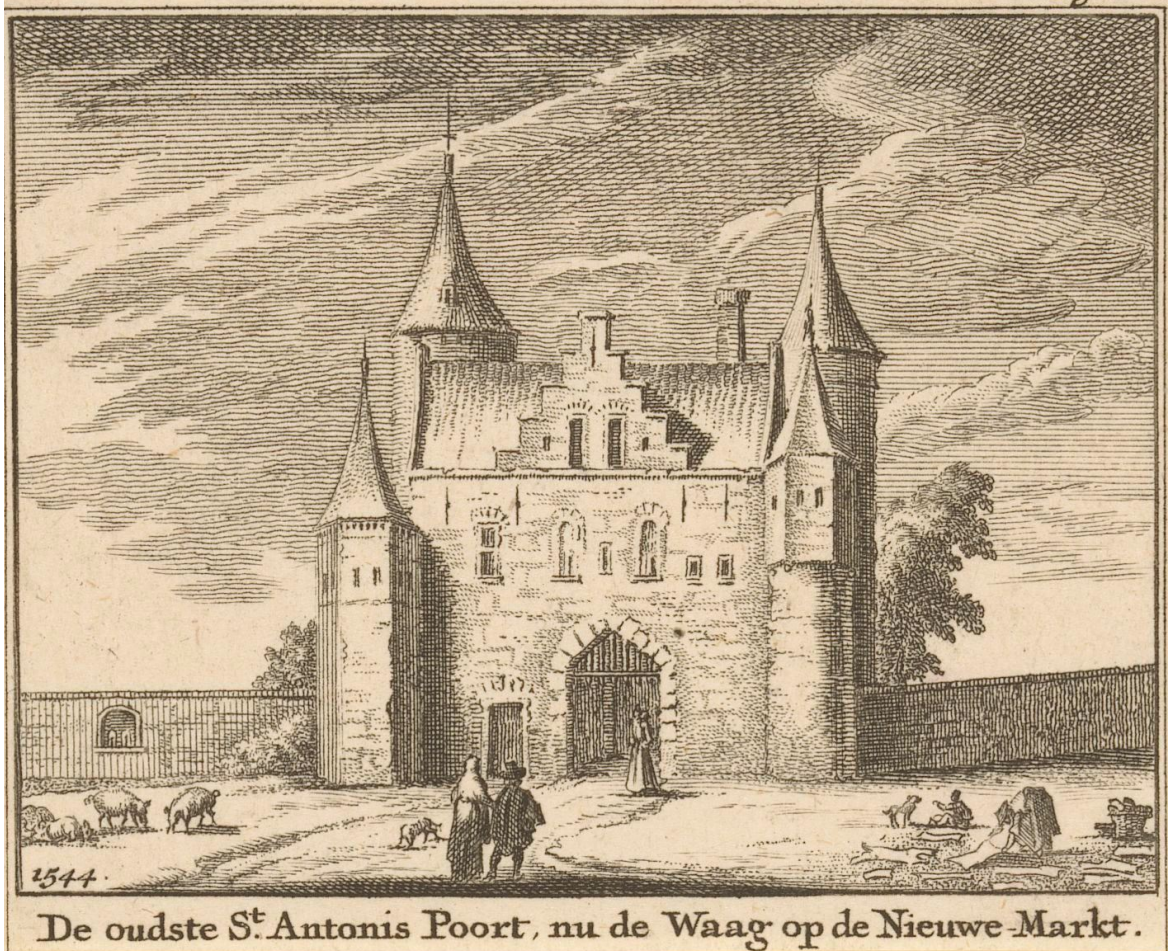
3. Anonymous, *Academiegebouw van Leiden*, c. 1698. In Frederik de Wit, *Theatrum ichnographicum omnium urbium et præcipuorum oppidorum Belgicarum XVII Provinciarum peraccurate delineatarum* (Amsterdam: Frederik de Wit, 1698). (image: Wikimedia Commons)





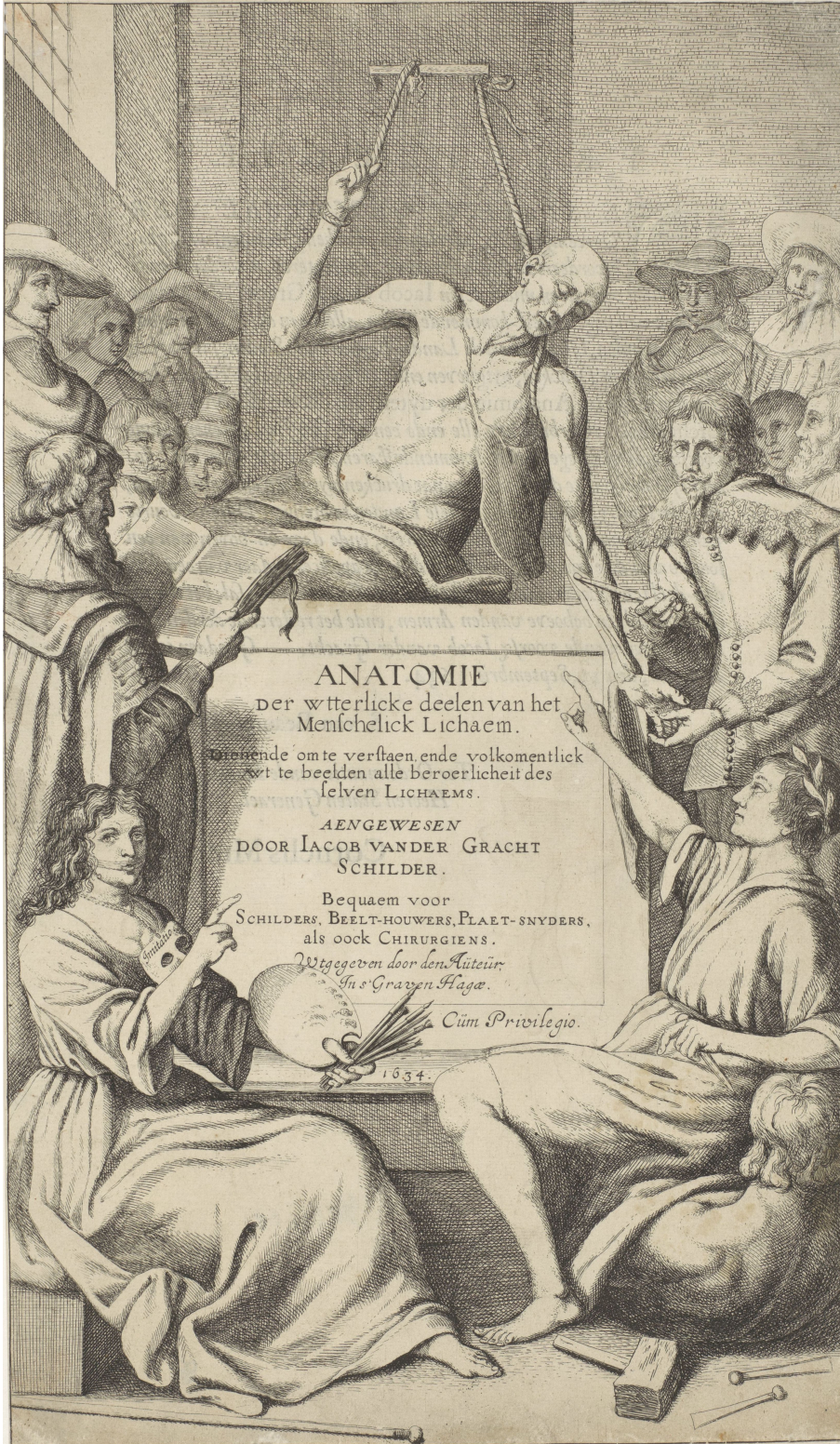
4. Andries Jacobsz. Stock, after Jacob de Gheyn (II), *Anatomical Lesson of Professor Paaw*, 1615. Engraving. (image: Rijksmuseum, Amsterdam)





5. Jan Goeree, *Gezicht op de Eerste Sint-Antoniespoort te Amsterdam, 1544, 1723-1738*. Etching and engraving. (image: Rijksmuseum, Amsterdam)





6. Jacob van der Gracht, "Frontispiece," in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Rijksmuseum, Amsterdam)





7. Cornelis Cort after Jan van der Straet (Stradanus), *The Practitioners of the Visual Arts*, 1578. Engraving. (image: Rijksmuseum, Amsterdam).



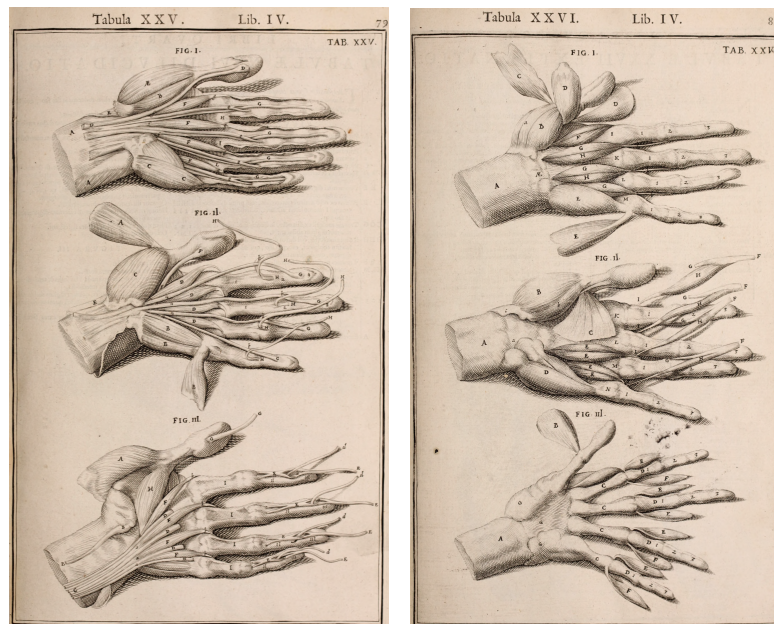


8. Attr. Jan van Calcar, "Portrait of Andreas Vesalius," in Andreas Vesalius, *De humani corporis fabrica* (Basel, 1543). Woodcut. (image: The Metropolitan Museum of Art)



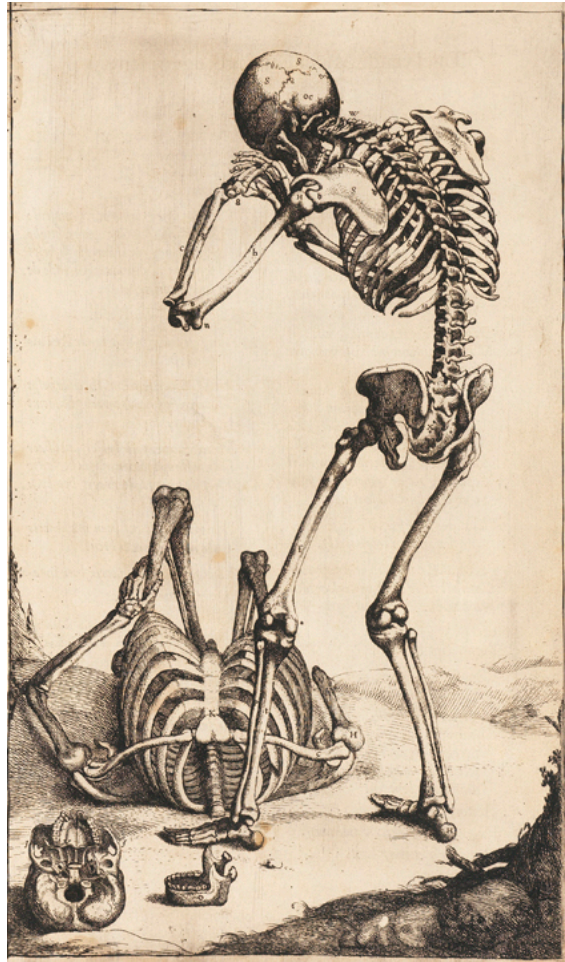
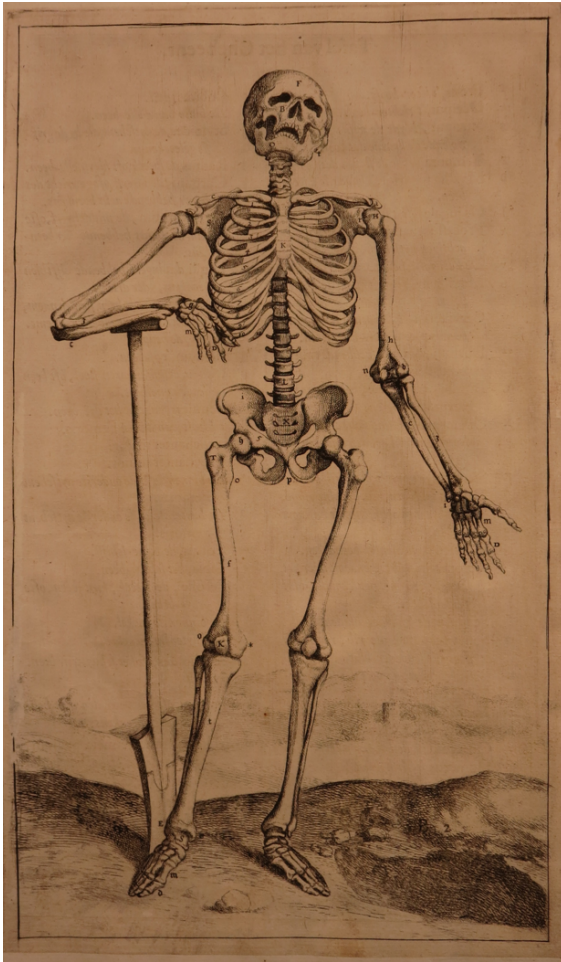


9. Jacob van der Gracht, “Vijftienste Figuer with register,” in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)



10. Anonymous, “Tabula XXV Lib. IV,” in Andrianus Spigelius, *Anatomica operum omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)

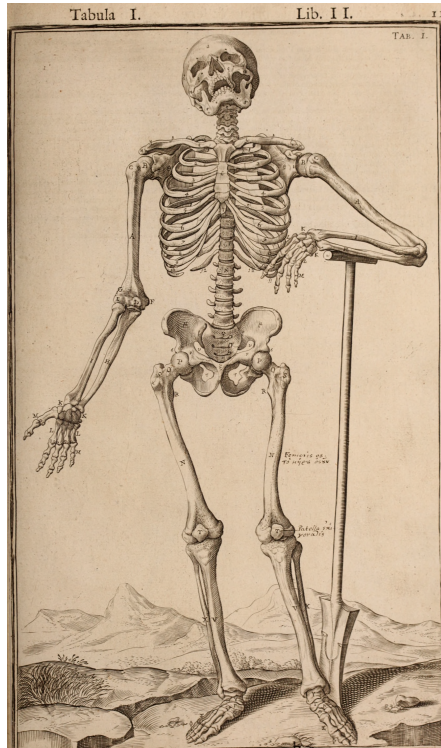
11. Anonymous, “Tabula XXVI Lib. IV,” in Andrianus Spigelius, *Anatomica operum omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)



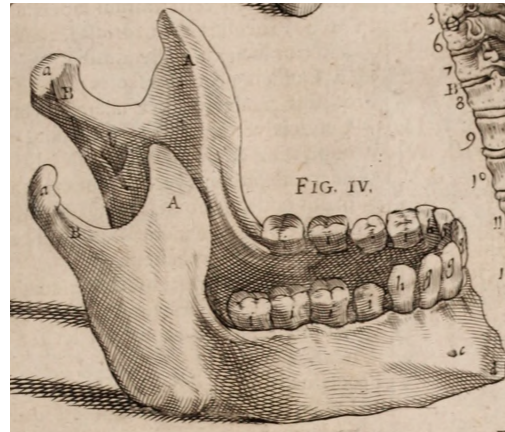
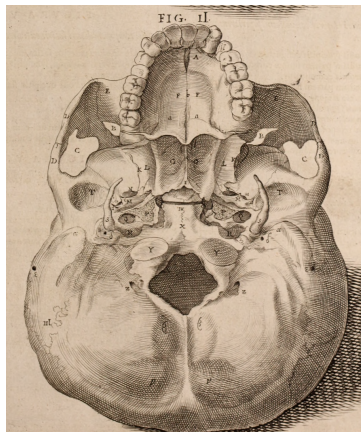
12. Jacob van der Gracht, "Skeleton A," in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Erin Travers)

13. Jacob van der Gracht, "Skeleton B," in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)





14. Anonymous, "Tabula I Lib. II," in Andrianus Spigelius, *Anatomica operum omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)
15. Anonymous, "Tabula II Lib. II," in Andrianus Spigelius, *Anatomica operum omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)



16. Anonymous, detail "Fig. II, Tabula II, Lib. II," in Andrianus Spigelius, *Anatomica operum omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)
17. Anonymous, detail "Fig. IV, Tabula VII, Lib. II," in Andrianus Spigelius, *Anatomica operum omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)

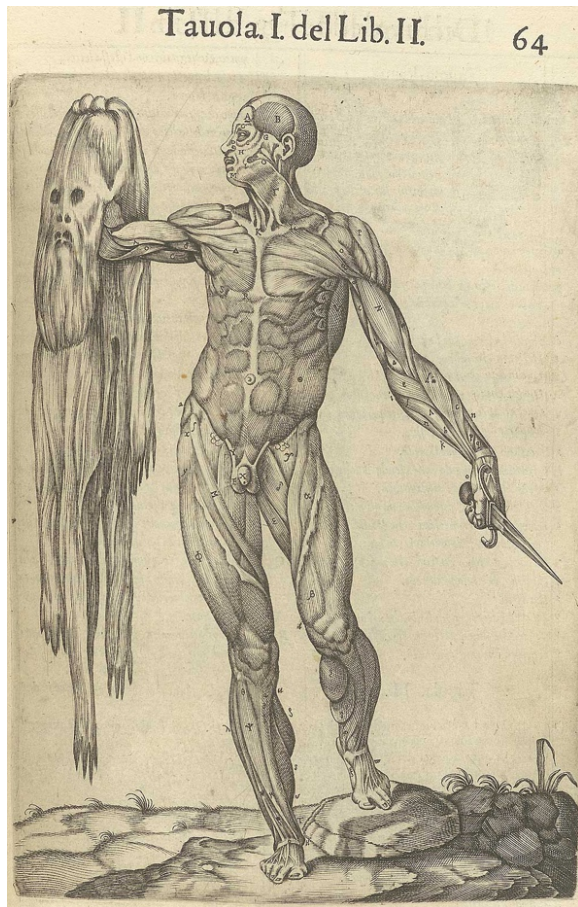


18. Attr. Jan van Calcar, "Teris quas sustinent partibus," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)



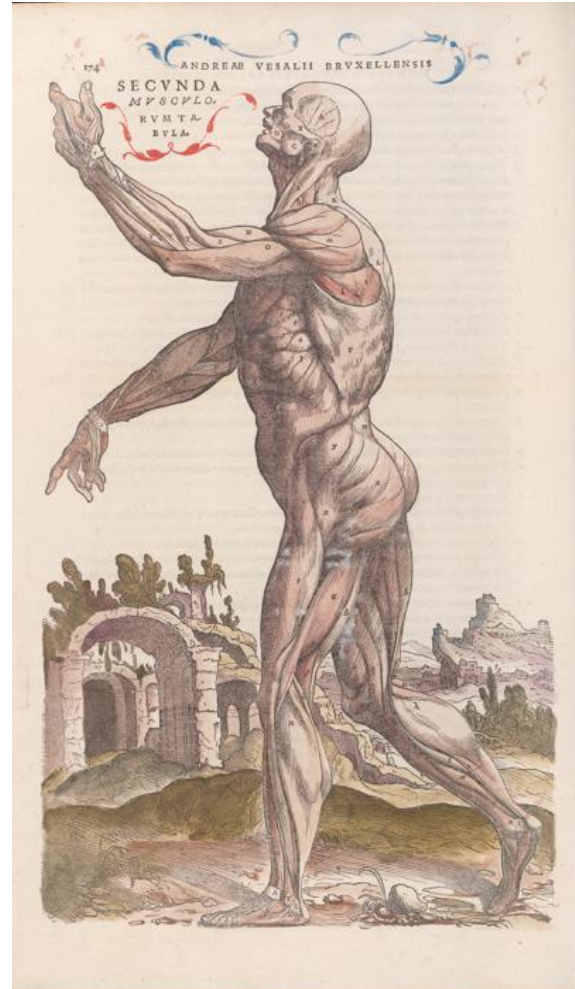


19. Jacob van der Gracht, "Eerste Figuer," in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)
20. Jacob van der Gracht, "Tweede Figuer," in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)



21. Attr. Gaspar Becerra, "Tabula I, Lib. II," in Juan Valverde de Amusco, *Historia de la composicion del cuerpo humano* (Rome, 1556). Engraving. (image: Wellcome Collection)
22. Attr. Gaspar Becerra, "Tabula II, Lib. II," in Juan Valverde de Amusco, *Historia de la composicion del cuerpo humano* (Rome, 1556). Engraving. (image: Wellcome Collection).





23. Attr. Jan van Calcar, "Prima Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)

24. Attr. Jan van Calcar, "Secunda Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)



25. Jacob van der Gracht, "Derde Figuer," in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)
26. Attr. Jan van Calcar, "Tertia Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)





27. Anonymous, "Figure VIII," in Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Red chalk, Pen, and wash. (image: Erin Travers)

28. Attr. Jan van Calcar, "Octava Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)



29. Jacob van der Gracht, "Achste Figuer," in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)



30. Anonymous, "Figure XIV," in Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Red chalk, Pen, and wash. (image: Erin Travers)

31. Attr. Jan van Calcar, "Decima Quatra Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)



32. Jacob van der Gracht, "Veertienste Figuer," in *Anatomie der wterlickce deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)





33. Anonymous, "Figure XIII," in Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Red chalk, Pen, and wash. (image: Erin Travers)
34. Attr. Jan van Calcar, "Decima Tertia Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)



35. Jacob van der Gracht, "Veertienste Figuer," in *Anatomie der wterlickce deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)



36. Anonymous, "Figure VII," in Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Red chalk, Pen, and wash. (image: Erin Travers)

37. Attr. Jan van Calcar, "Septima Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)



38. Jacob van der Gracht, "Sevenste Figuer," in *Anatomie der wtterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)





39. Anonymous, “Figure VII,” in Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Red chalk, Pen, and wash. (image: Erin Travers)

40. Attr. Jan van Calcar, “Sexta Musculorum Tabula,” in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)



41. Jacob van der Gracht, “Seste Figuer,” in *Anatomie der wterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)



42. Anonymous, "Figure VII," in Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Red chalk, Pen, and wash. (image: Erin Travers)
43. Attr. Jan van Calcar, "Quinta Musculorum Tabula," in Andreas Vesalius, *De humani corporis fabrica* (Basil, 1543). Woodcut. (image: Basel University Library, AN I 15)

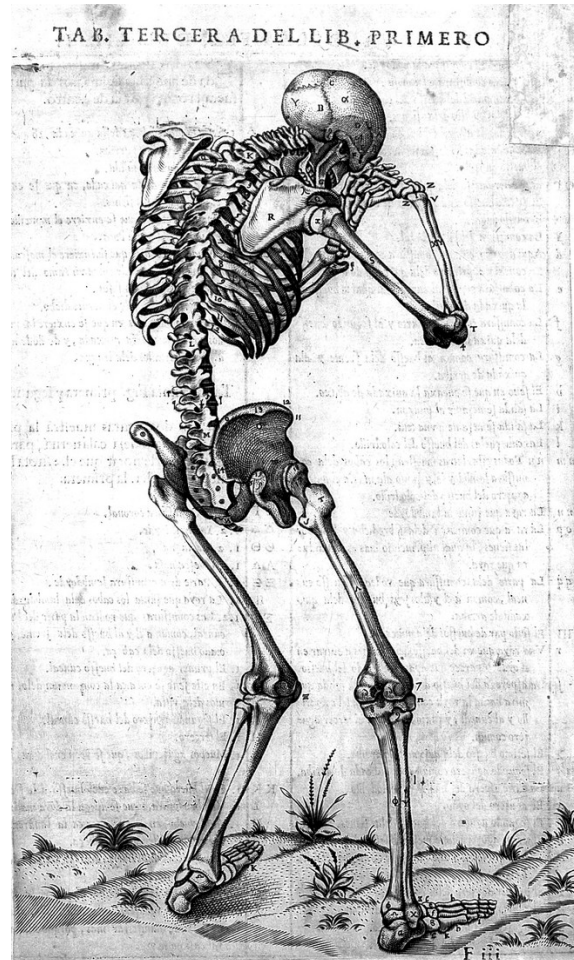


44. Jacob van der Gracht, "Vijfde Figuer," in *Anatomie der witterlicke deelen van het menschelick lichaem* (The Hague, 1634). Engraving. (image: Paul Dijstelberg, Universiteit van Amsterdam, Bijzondere Collecties)



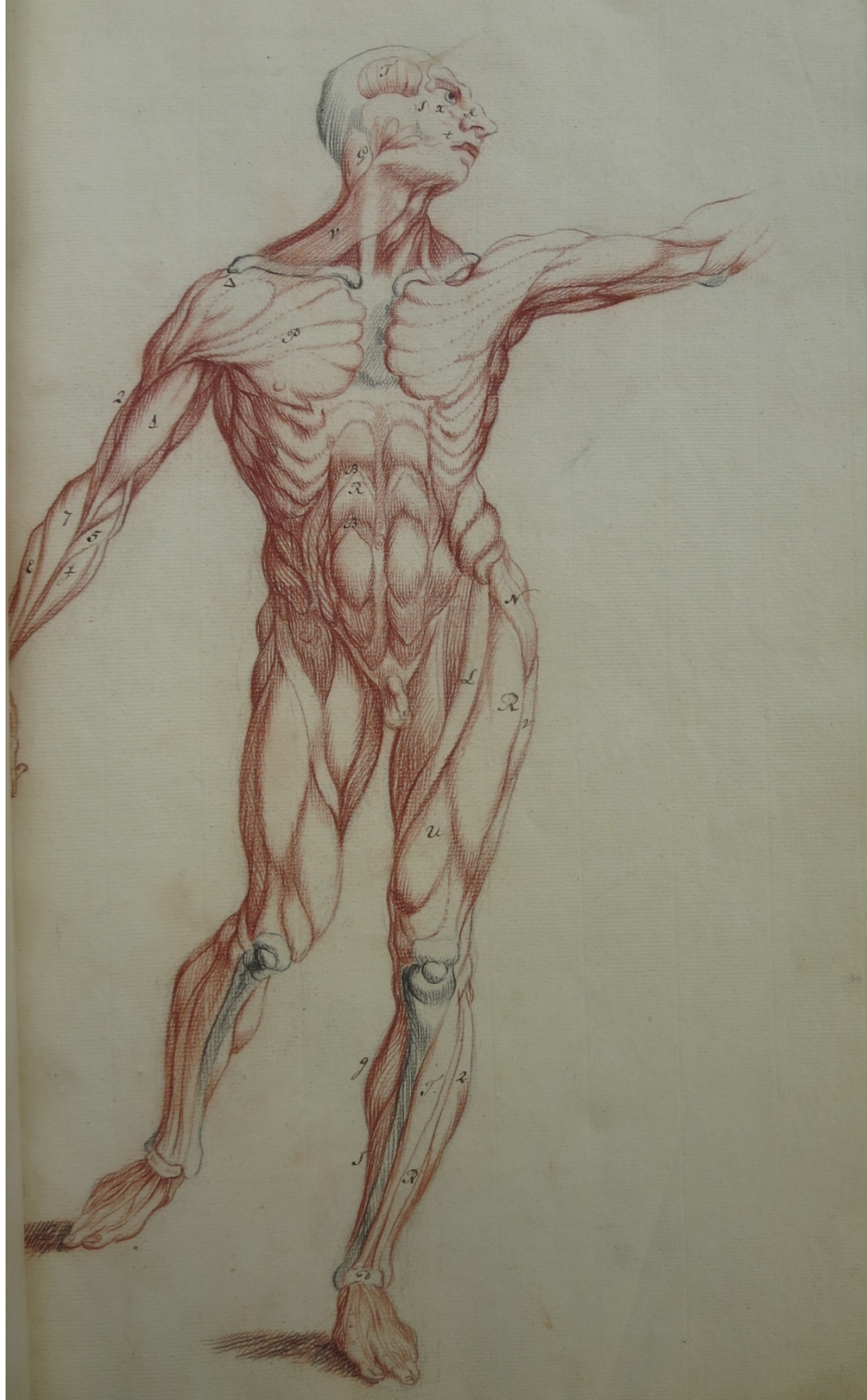


45. Anonymous, "Skeleton A," in Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Pen and ink wash. (image: Erin Travers)



46. Anonymous, after Juan Valverde de Amusco, "Tabula III Lib. I," *Vivae Imagines Parium Corporis Humani* (Antwerp, 1568). In Folder of anatomical drawings, Print and Drawing collection, Rijksmuseum, Amsterdam (RP-T-1989-258-TM-289). N.d. Red crayon. (image: Erin Travers)
47. Attr. Gaspar Becerra, "Tabula III Libri I," in Juan Valverde de Amusco, *Historia de la composicion del cuerpo humano* (Rome, 1556). Engraving. (image: Wellcome Collection)



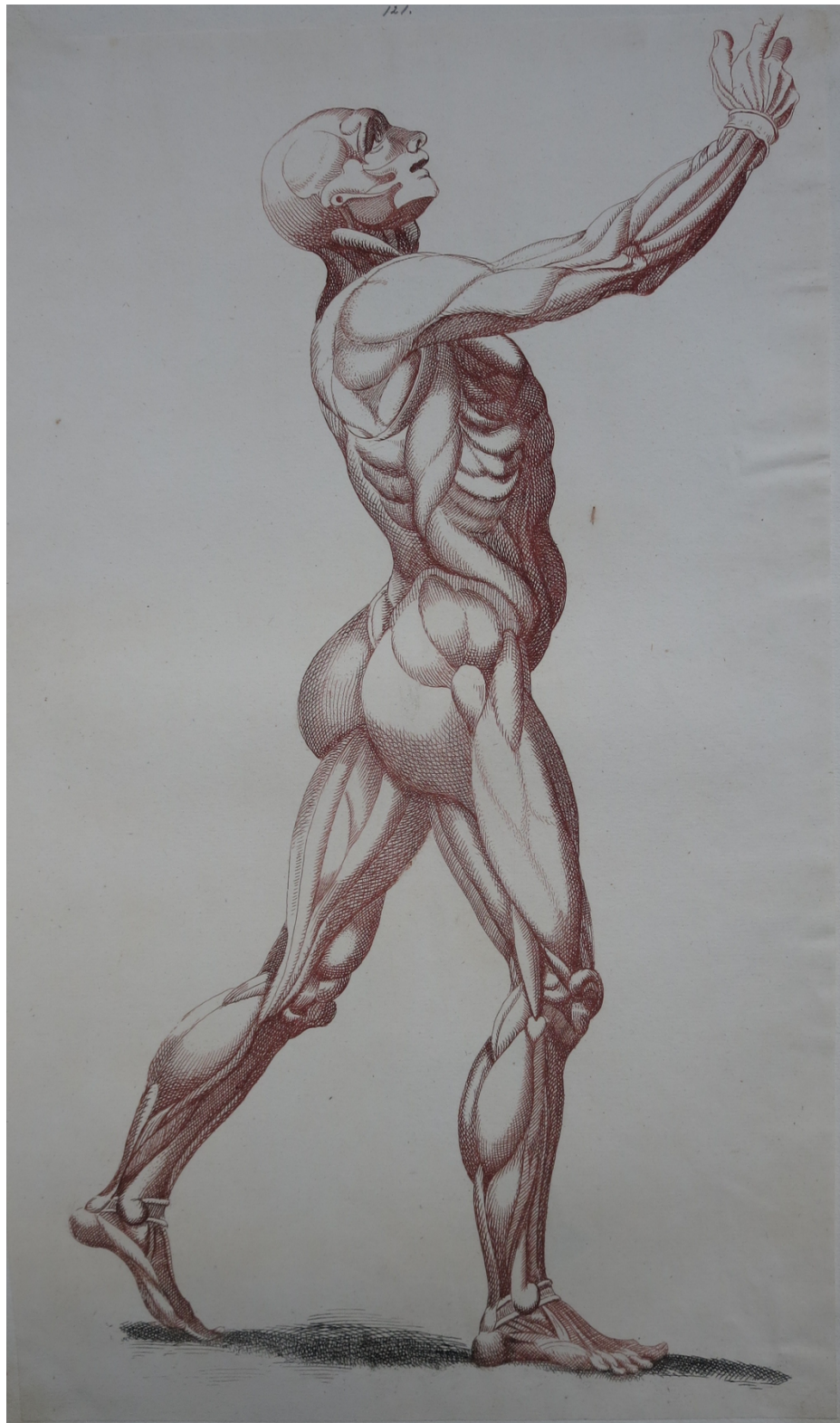


48. Anonymous, "Table I", *Cushing Manuscript*, Harvey Cushing/John Hay Whitney Medical Library, Yale University, New Haven. N.d. Red and black crayon. (image: Erin Travers)



49. John Singleton Copley, "Figure VII," *Anatomy Book*, c. 1756. British Museum, London (1864,0514.136-143). Red chalk with brown ink. (image: Erin Travers)





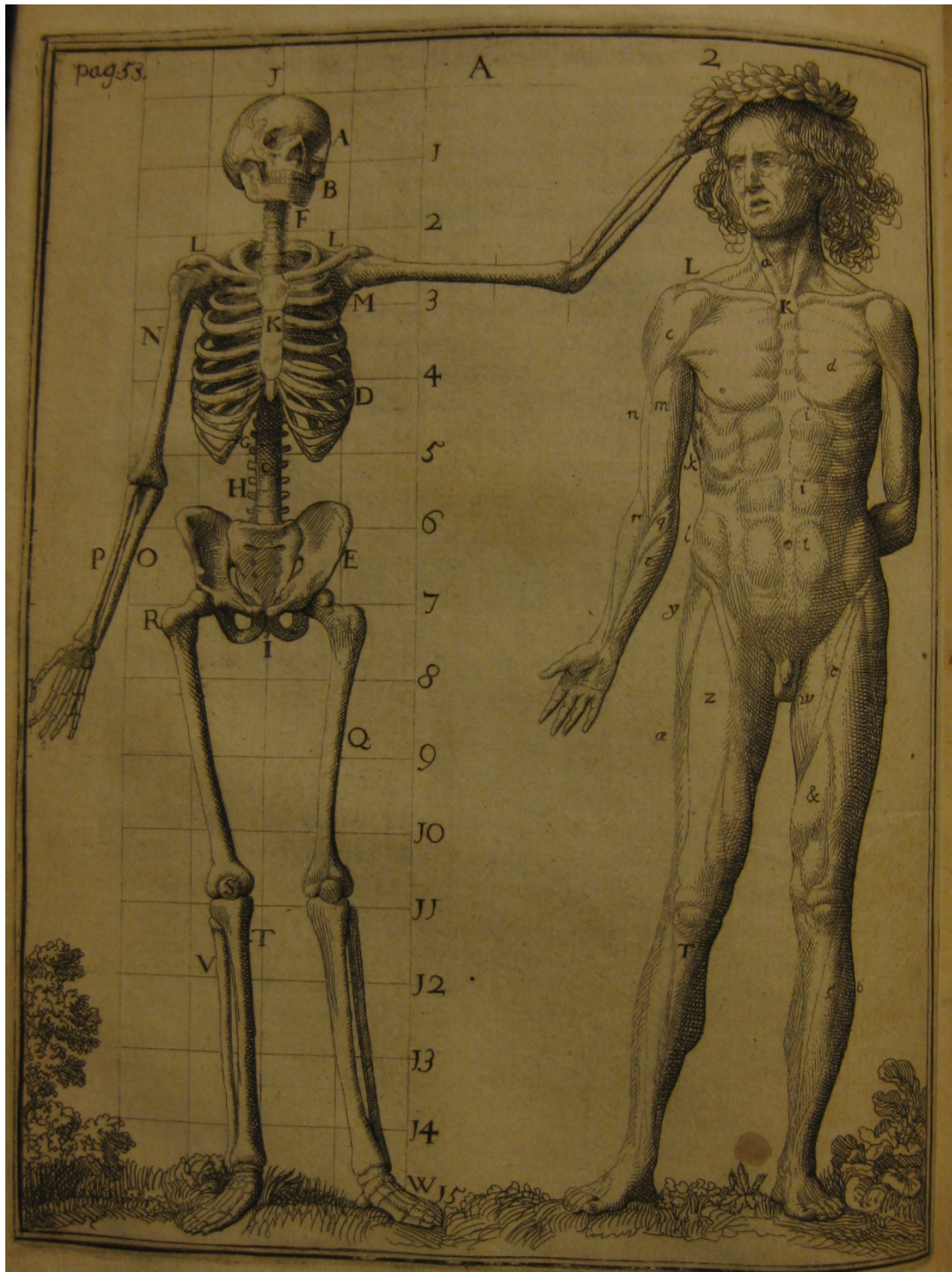
50. Johannes Teyler, Folio 127 in *Opus Typochromaticum*, c. 1688-1700. British Museum, London (1871,1209.5123). Etching printed à la poupée in black and red-brown ink. (image: Erin Travers)





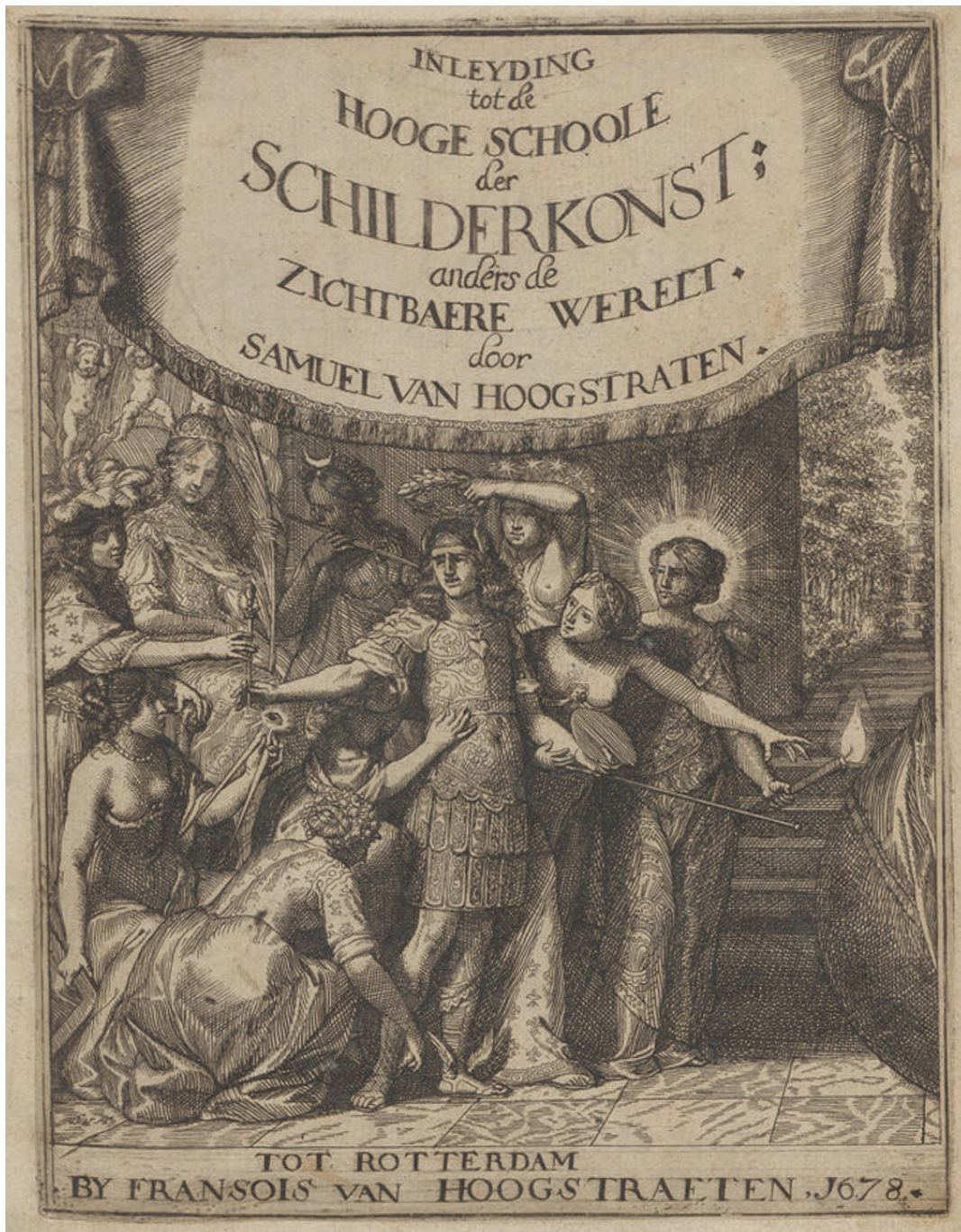


52. Anonymous after Andreas Vesalius, “Teris quas sustinent partibus,” *De humani corporis fabrica* (Basil, 1543), in Jacob van der Gracht *Anatomie der wterlijke deelen van het menschelick lichaem* (The Hague, 1634). The British Library, (General Reference Collection, 544.I.11.[1.]). Pen and ink wash. (image: Erin Travers)

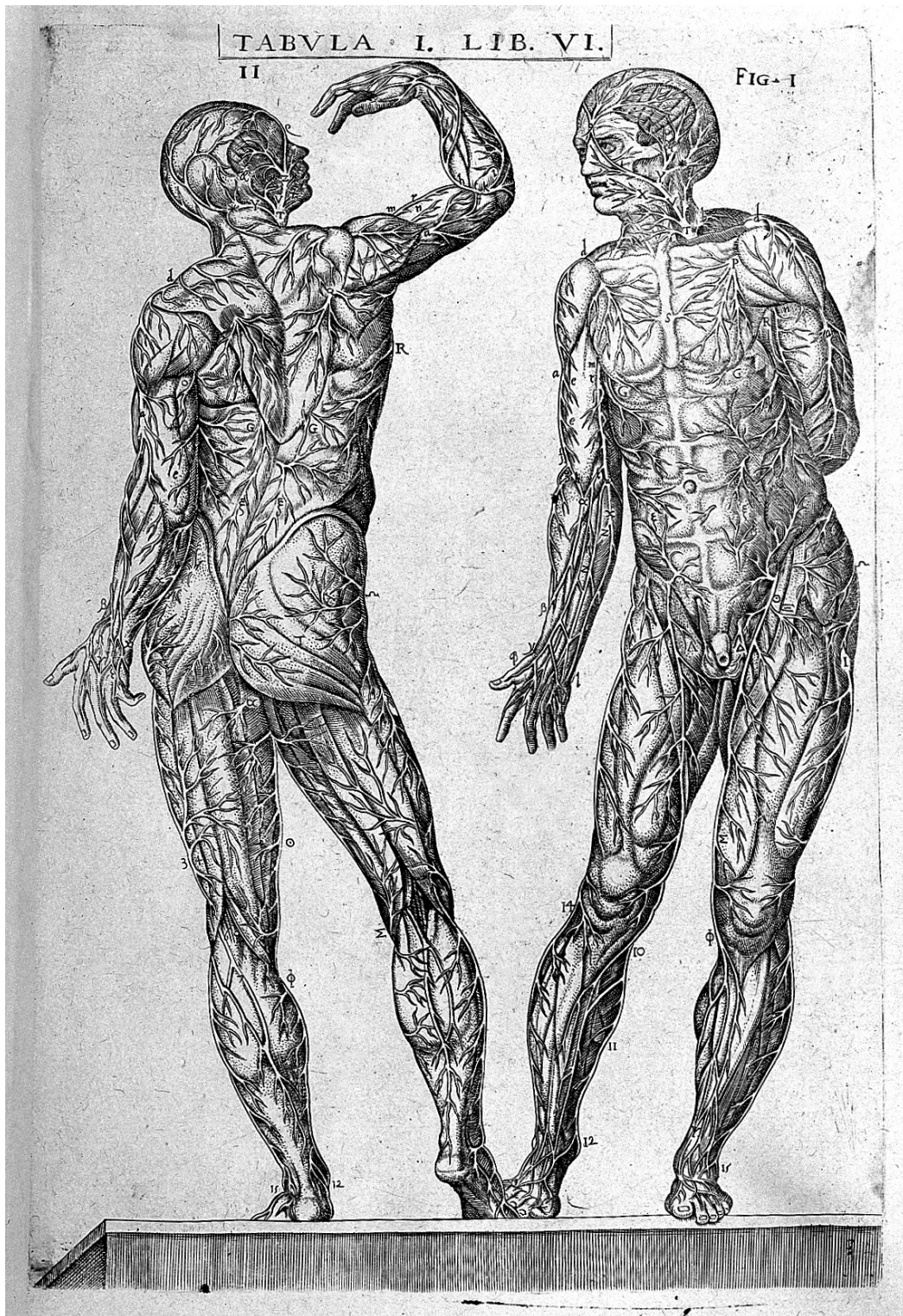


53. Samuel van Hoogstraten, "Plate A," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Erin Travers)





54. Samuel van Hoogstraten, "Frontispiece," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Wikimedia; Universiteitsbibliotheek Radboud Universiteit Nijmegen, Bijzondere Collecties)



55. Attr. Gaspar Becerra, "Tabula I, Lib. VI," in Juan Valverde de Amusco, *Historia de la composicion del cuerpo humano* (Rome, 1556). Engraving. (image: Wellcome Collection)





56. Samuel van Hoogstraten, "Plate B," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Wikimedia; Universiteitsbibliotheek Radboud Universiteit Nijmegen, Bijzondere Collecties)





TAB. VIII.

57. Anonymous, "Tabula VIII, Lib. IV," in Andrianus Spigelius, *Anatomica operum omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)





58. Rembrandt van Rijn, *The Bathers*, 1651. Etching. (image: Rijksmuseum, Amsterdam)





59. Rembrandt van Rijn, *Study of a Young Man, Sitting and Standing*, 1644-1648. Etching. (image: Rijksmuseum, Amsterdam)



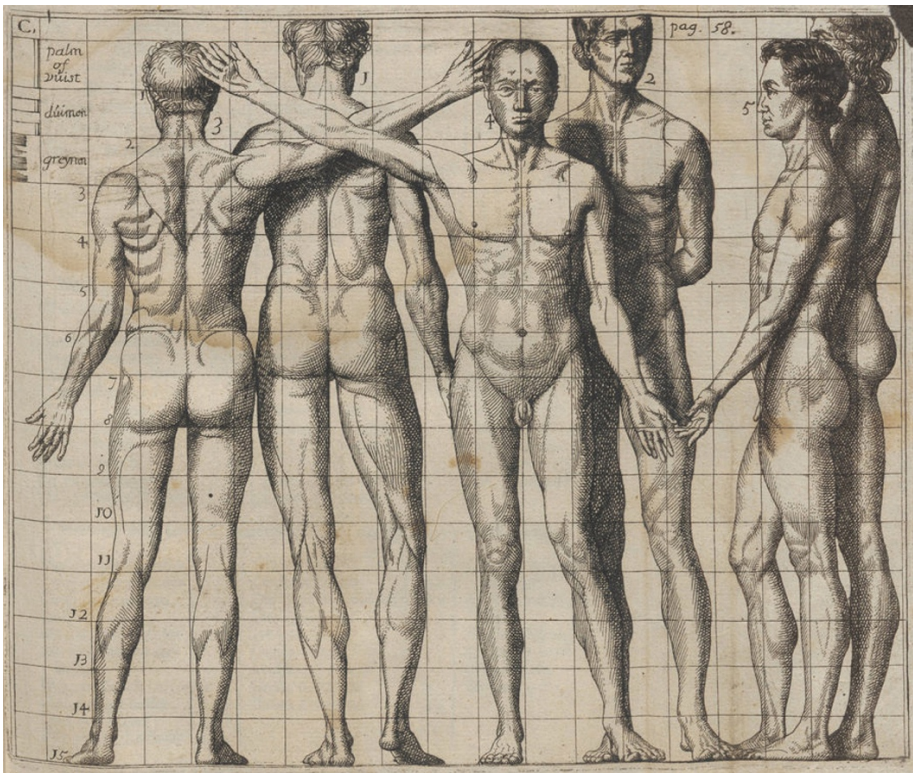


60. Samuel van Hoogstraten, "Polymnia," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Wikimedia Commons; Universiteitsbibliotheek Radboud Universiteit Nijmegen, Bijzondere Collecties)



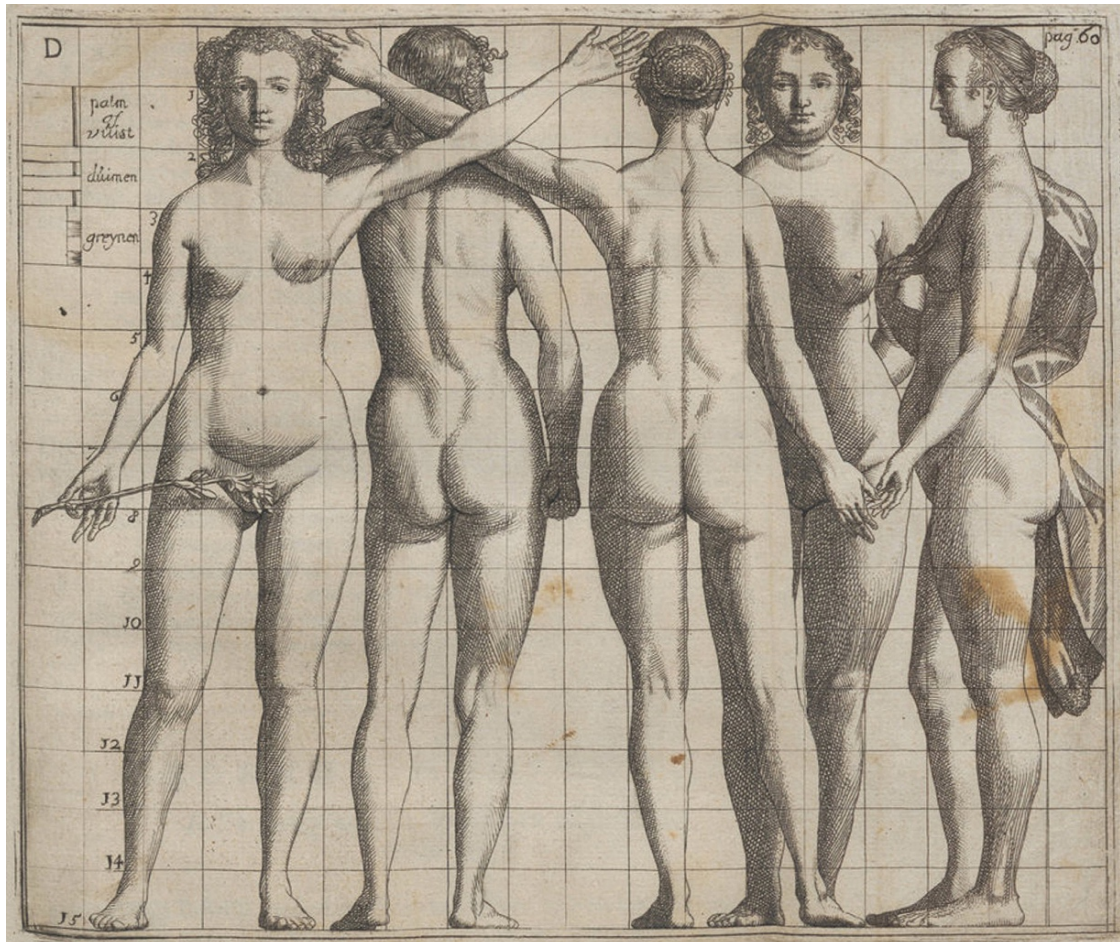


61. Detail. Samuel van Hoogstraten, "Polymnia," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Wikimedia Commons; Universiteitsbibliotheek Radboud Universiteit Nijmegen, Bijzondere Collecties)



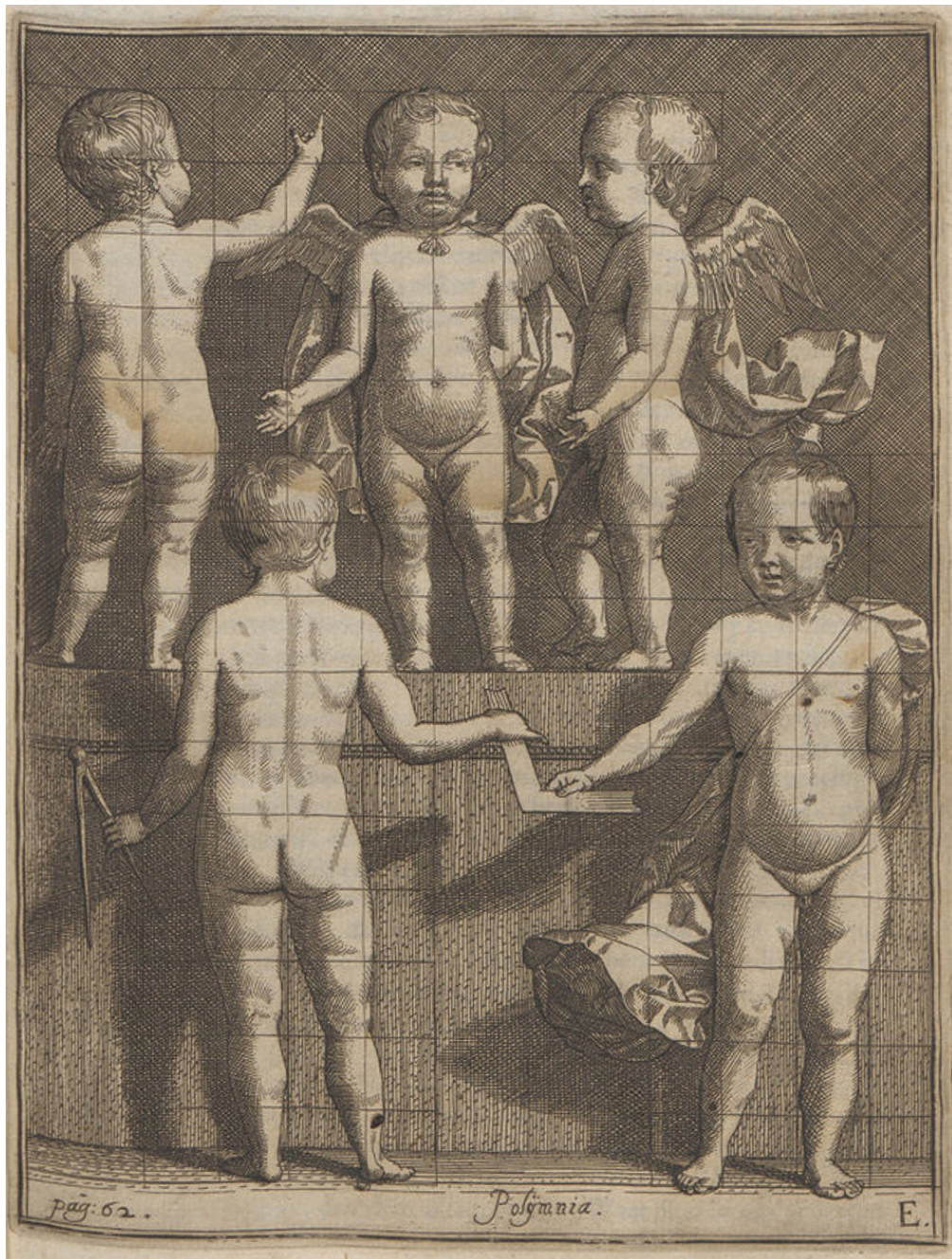
62. Samuel van Hoogstraten, "Plate C," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Wikimedia Commons; Universiteitsbibliotheek Radboud Universiteit Nijmegen, Bijzondere Collecties)



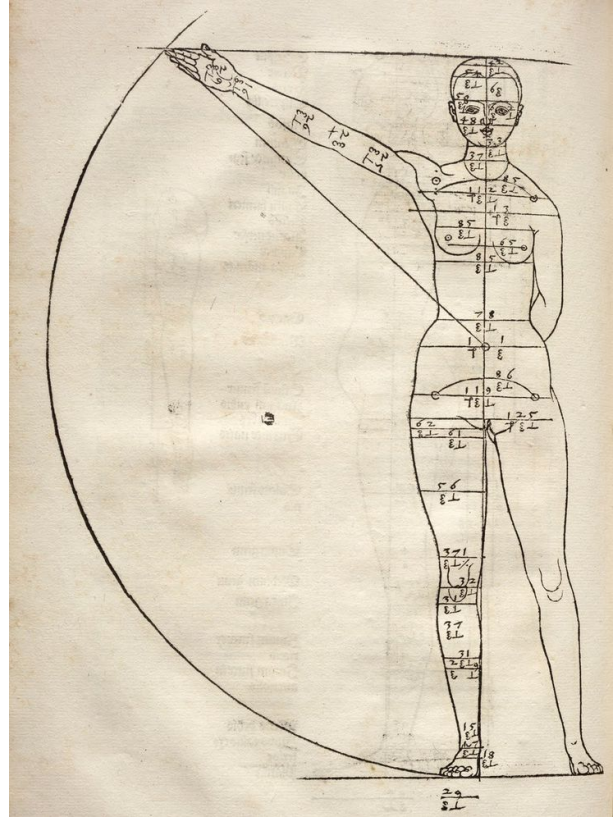
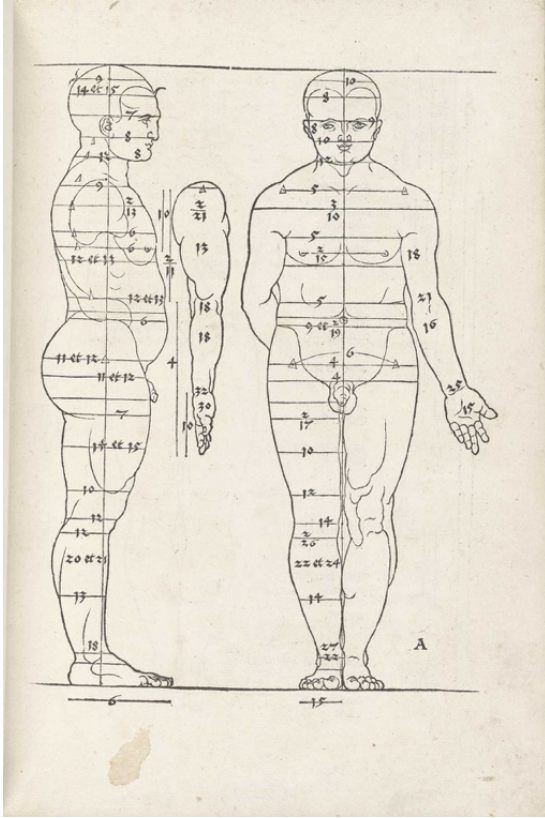


63. Samuel van Hoogstraten, "Plate D," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Wikimedia Commons; Universiteitsbibliotheek Radboud Universiteit Nijmegen, Bijzondere Collecties)





64. Samuel van Hoogstraten, "Plate E," in *Inleyding tot de Hooge Schoole der Schilderkonst, anders de Zichtbaere Werelt* (Rotterdam, 1678). Etching. (image: Wikimedia Commons; Universiteitsbibliotheek Radboud Universiteit Nijmegen, Bijzondere Collecties)

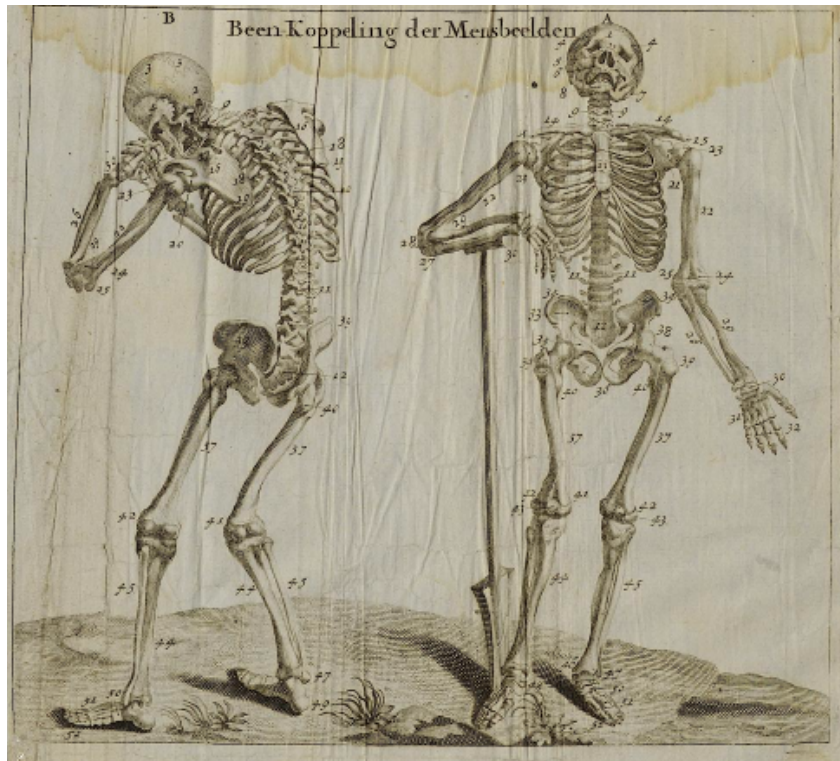


65. Albrecht Dürer, *Vier Bücher von menschlicher Proportion* (Nuremberg, 1528). Woodcut. (images: Glasgow School of Art Library)





66. Anonymous, "Een Beeld in Sijn eenvoudige Welstand," in Willem Goeree, *Menschkunde Ontworpen*, Amsterdam, 1682), 244. Engraving. (image: University of California Libraries, Internet Archive)
67. Nicolas Poussin, "della gratia delle membra," in Leonardo da Vinci, *Trattato della Pittura* (Paris, 1651), 62. Engraving. (image: Getty Research Institute)



68. Anonymous, "Been-Koppeling der Mensbeelden," in Willem Goeree, *Menschkunde Ontworpen*, Amsterdam, 1682), 244. Engraving. (image: Universitätsbibliothek Heidelberg)



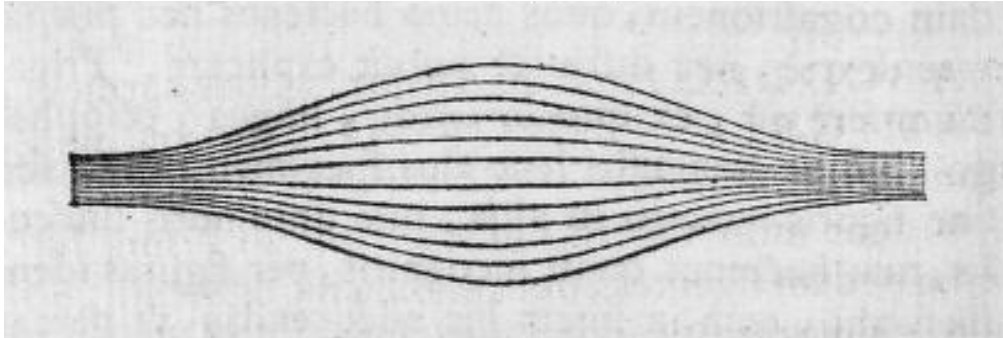
69. Anonymous, "De Sigthbare Muskelen der Mensbeelden door driderley Standen Vertoond," in Willem Goeree, *Menschkunde Ontworpen*, Amsterdam, 1682), 244. Engraving. (image: Erin Travers)



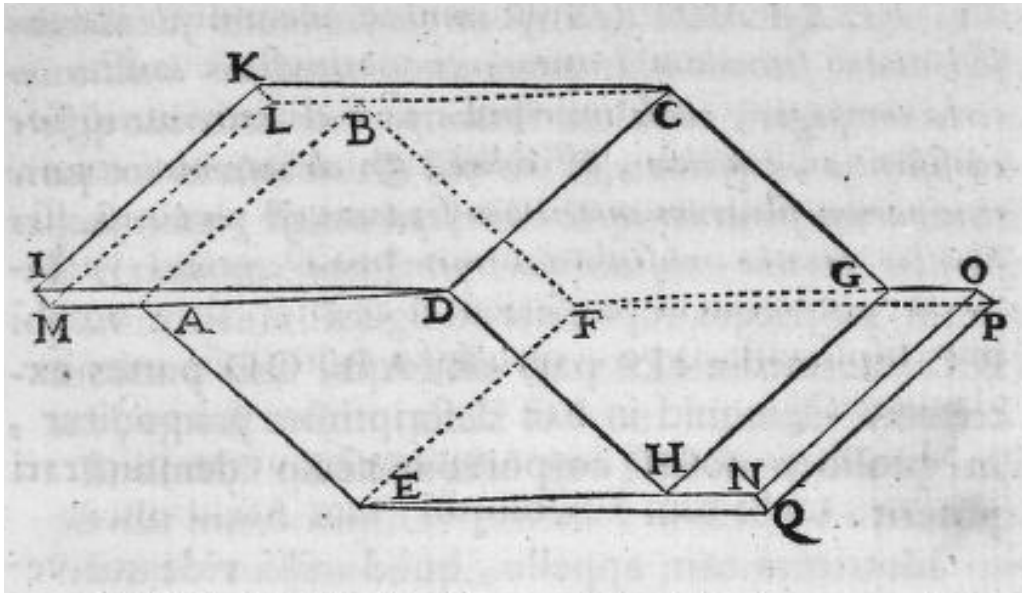


70. Hendrick Goltzius, *The Great Hercules*, 1589. Engraving. (image: Rijksmuseum, Amsterdam)

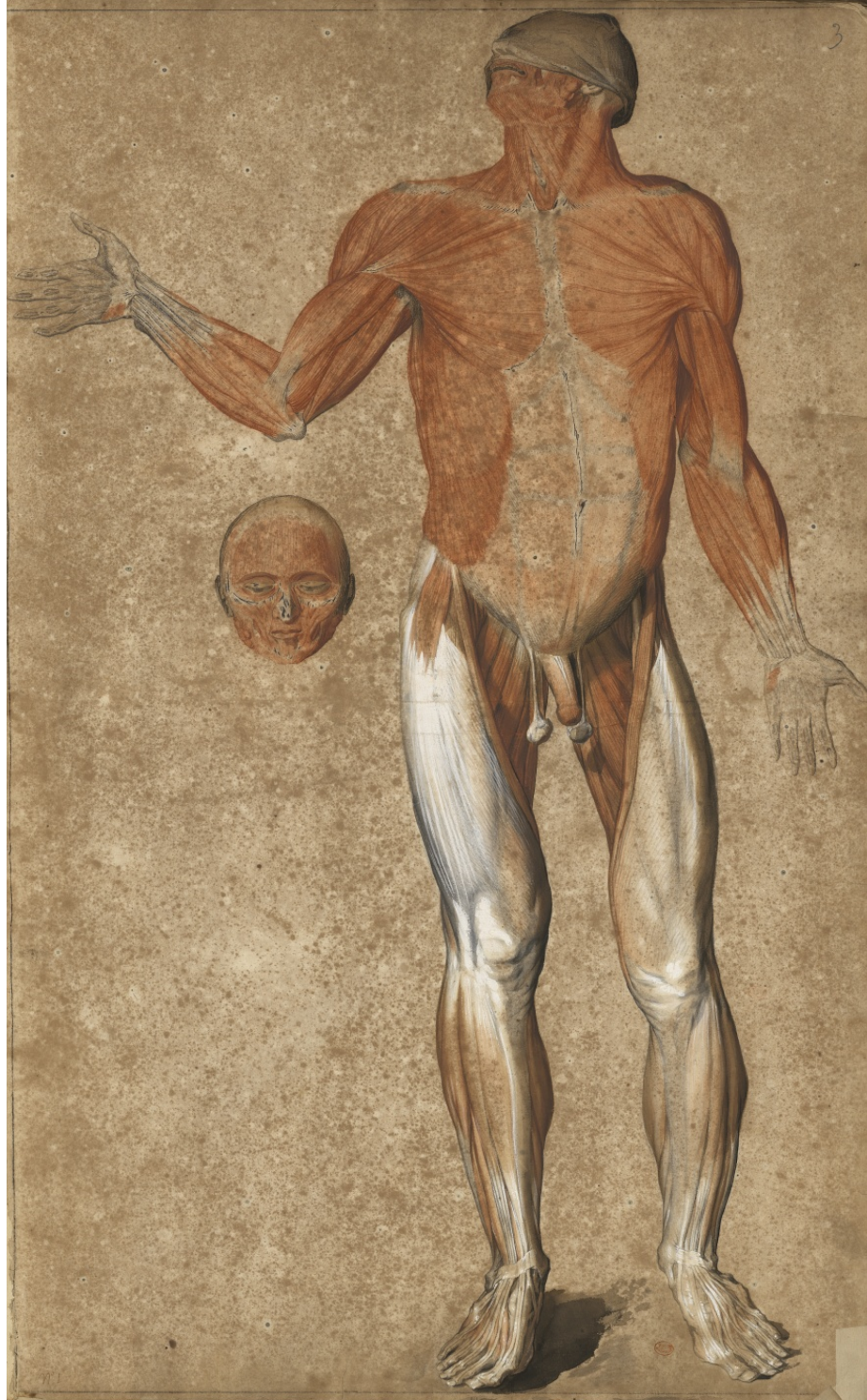




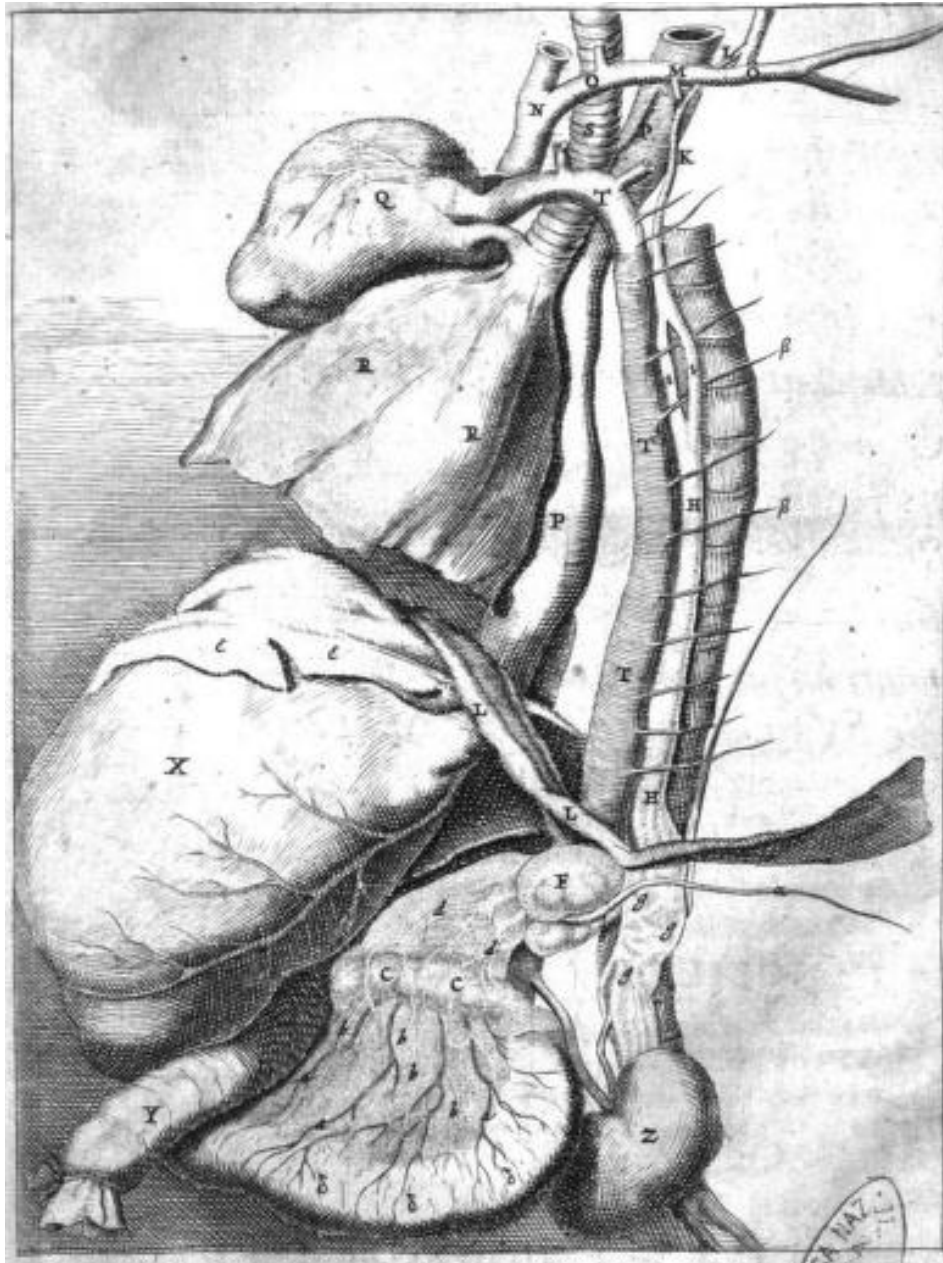
71. Anonymous, "Spindle-shaped muscle," in Nicolas Steno, *Elementorum Myologiae Specimen* (Florentiae, 1667), 2. Woodcut. (image: Bibliothèque Interuniversitaire (BIU) de Santé, Paris)



72. Anonymous, "Muscle Specimen," in Nicolas Steno, *Elementorum Myologiae Specimen* (Florence, 1667), 3. Woodcut. (image: BIU Santé, Paris)



73. Marten Sagemolen, *Frontal figure, No. 1*, MS 30, c. 1652-1660. Chalk, *gouache*, and pigmented washes, ink and lead white on paper. BIU Santé, Paris. (image: BIU Santé, Paris)



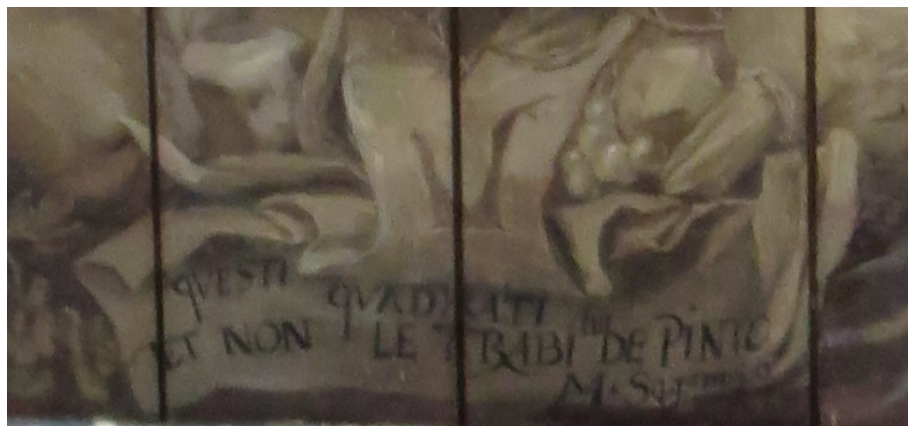
74. Anonymous, *Viscera*, in Johannes van Horne, *Novus ductus chyliiferus* (Leiden: Francisci Hackii, 1652). Engraving. (image: National Central Library of Rome)





75. Marten Sagemolen, *Twelve ceiling panels with putti, mythological figures, and fruit*, 1653. Oil on panel. Pieterskerkgracht 9, Leiden. (image: Photo Collection RKD-Netherlands Institute for Art History, The Hague)



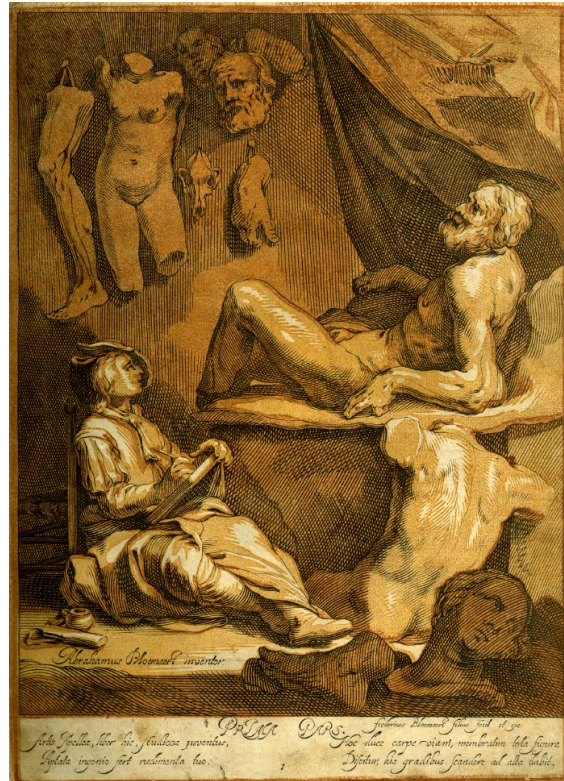


76. Marten Sagemolen, *Ceiling panel with artist's signature, and detail*, 1653. Oil on panel. Pieterskerkgracht 9, Leiden. (image: Erin Travers)



77. Marten Sagemolen, *Study of Fruits and Vegetables*, c. 1653. Pen and brown ink. The Metropolitan Museum of Art, New York. (image: The Metropolitan Museum of Art)





78. G. van der Gouwen, "Frontispiece," in Willem Goeree, *Natuurlyk en schilderkonstig ontwerp der Menschkunde* (Amsterdam, 1682). Engraving. (image: University of California Libraries, Internet Archive)
79. Abraham Bloemaert, "Frontispiece," *Het Tekenboek* (Utrecht, 1650-1656). Engraving. (image: The British Museum)





80. Marten Sagemolen, *External Leg, No. I, MS 29, 1654*. Ink, chalk, gouache, lead white, and pigmented wash. BIU Santé, Paris. (image: BIU Santé, Paris)





81. Marten Sagemolen, *Frontal view of Arm, No. 2, MS 29, 1654*. Ink, chalk, *gouache*, lead white, and pigmented wash. BIU Santé, Paris. (image: BIU Santé, Paris)







83. Marten Sagemolen, *Anterior Nude*, MS 30, c. 1652-1660. Chalk, *gouache*, and pigmented washes, ink and lead white. BIU Santé, Paris. (image: BIU Santé, Paris)
84. Marten Sagemolen, *Posterior Nude*, MS 30, c. 1652-1660. Chalk, *gouache*, and pigmented washes, ink and lead white. BIU Santé, Paris. (image: BIU Santé, Paris)





85. Marten Sagemolen, *Full Anterior Figure, No. 4*, MS 30, c. 1652-1660. Ink, gouache, colored wash, lead white, and chalk. BIU Santé, Paris. (image: BIU Santé, Paris)





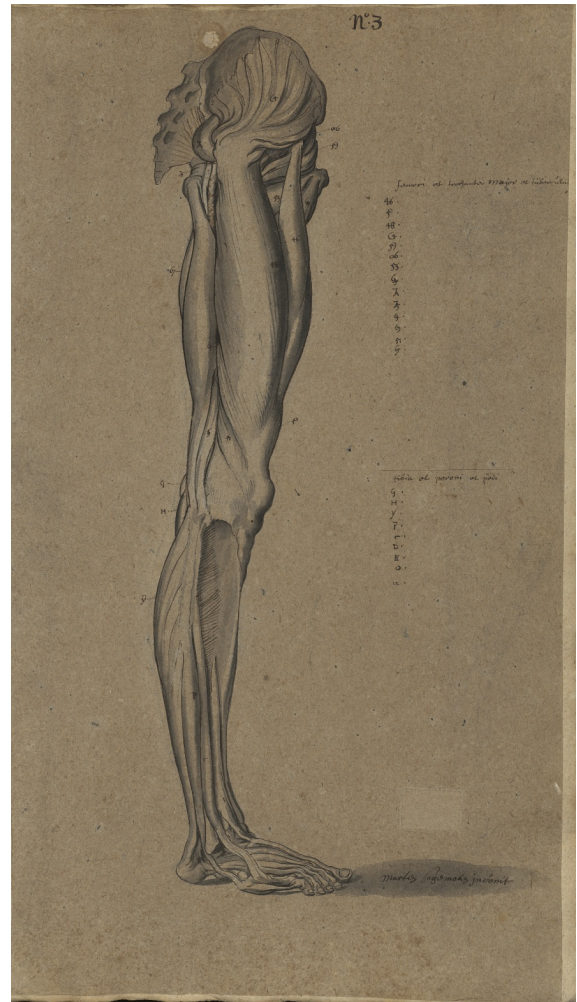
86. Marten Sagemolen, *Full Anterior Figure, No. 7*, MS 30, c. 1652-1660. Ink, gouache, colored wash, lead white, and chalk. BIU Santé, Paris. (image: BIU Santé, Paris)



87. Marten Sagemolen, *Profile Head, Nos. V*, MS 28, c. 1652-1660. Ink *gouache*, colored wash, lead white, and chalk. BIU Santé, Paris. (image: BIU Santé, Paris)

88. Marten Sagemolen, *Profile Head, Nos. VI*, MS 28, c. 1652-1660. Ink *gouache*, colored wash, lead white, and chalk. BIU Santé, Paris. (image: BIU Santé, Paris)





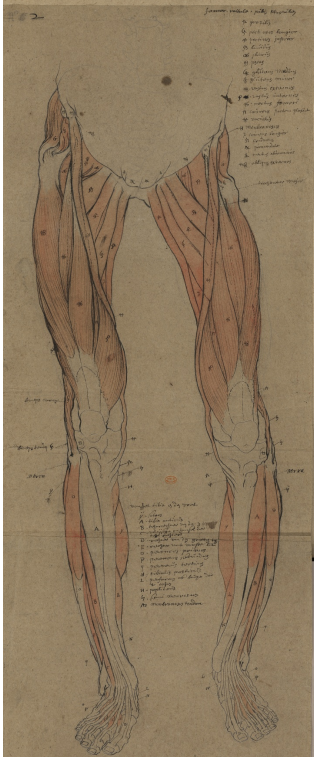
89. Marten Sagemolen, *Profile View Leg, Internal, Nos. 3, MS 29, 1660*. Pen and ink wash. BIU Santé, Paris. (image: BIU Santé, Paris)

90. Marten Sagemolen, *Profile View Leg, External, Nos. 3, MS 29, 1660*. Pen and ink wash. BIU Santé, Paris. (image: BIU Santé, Paris)

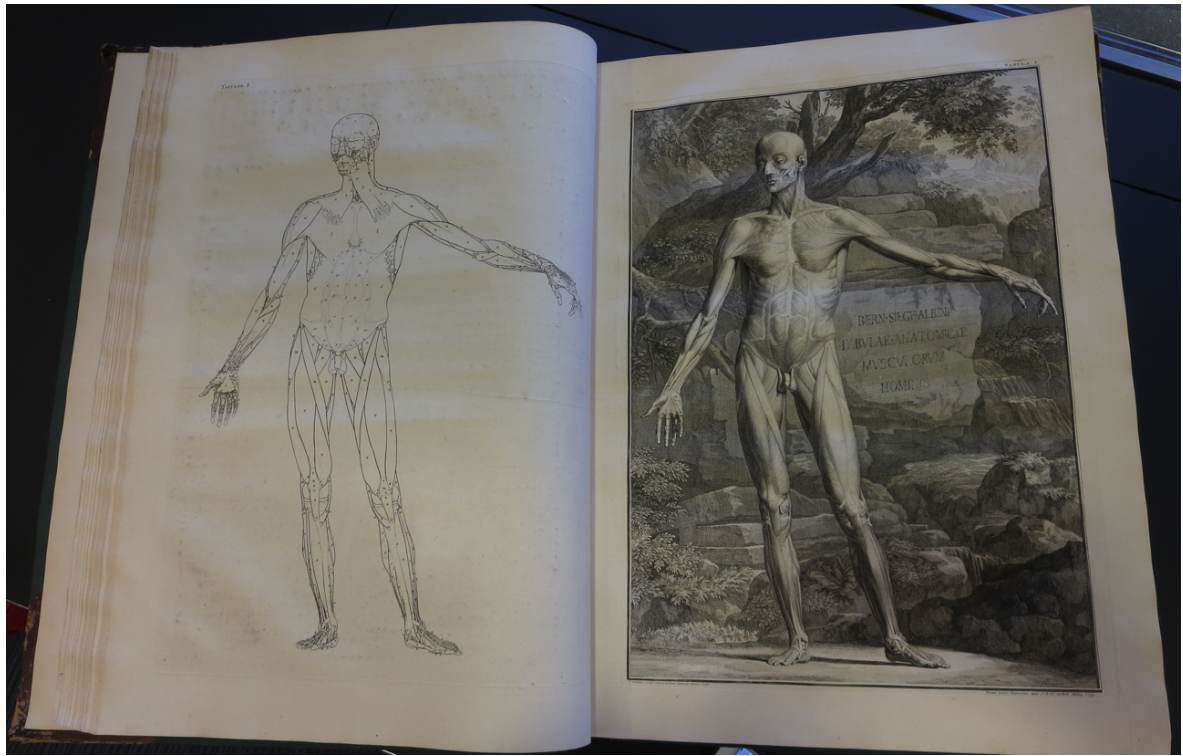


91. Marten Sagemolen, *Full anterior écorché Figure with Head, No. 2, MS 30*. c. 1652-1660. Black ink, *gouache*, colored wash, lead white, and red chalk. BIU Santé, Paris. (image: BIU Santé, Paris)
92. Marten Sagemolen, *Full anterior écorché Figure with Head, No. 2, MS 27*. c. 1652-1660. Black ink and colored wash, and lead white. BIU Santé, Paris. (image: BIU Santé, Paris)



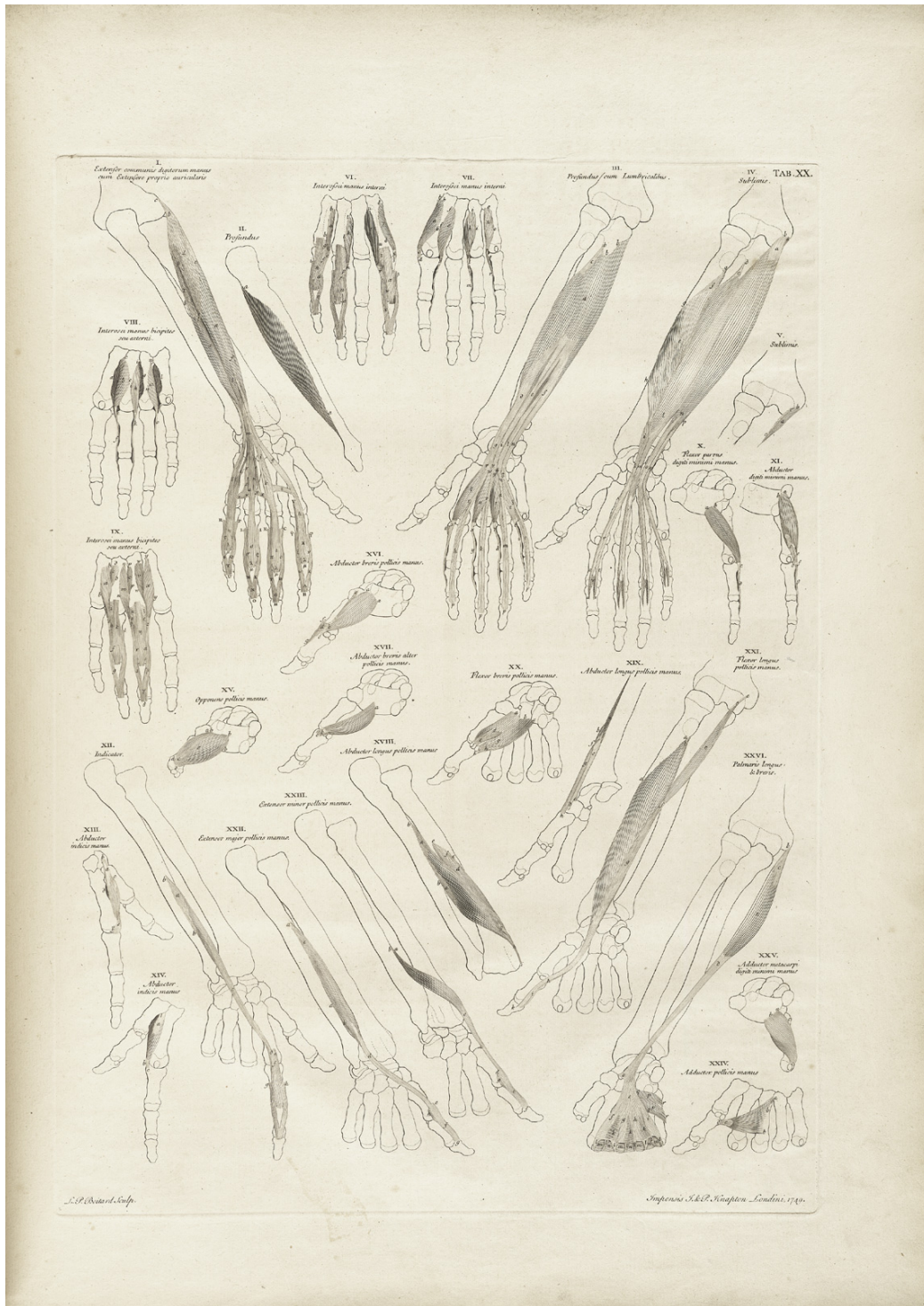


93. Marten Sagemolen, *Frontal legs, No. 2, MS 27, c. 1652-1660*. Black ink and colored wash. BIU Santé, Paris. (image: BIU Santé, Paris)
94. Marten Sagemolen, *Frontal legs, MS 29, c. 1652-1660*. Black ink and red chalk. BIU Santé, Paris. (image: BIU Santé, Paris)
95. Marten Sagemolen, *Frontal legs, No.2, MS 29, c. 1652-1660*. Black ink, gouache, lead white, and red chalk. BIU Santé, Paris. (image: BIU Santé, Paris)



96. Jan Wandelaar for Bernhard Siegfried Albinus, "Tabula I" and "Tabula I Outline," *Tabulae sceleti et musculorum corporis humani* (Leiden, 1747). Engraving. (image: Erin Travers)





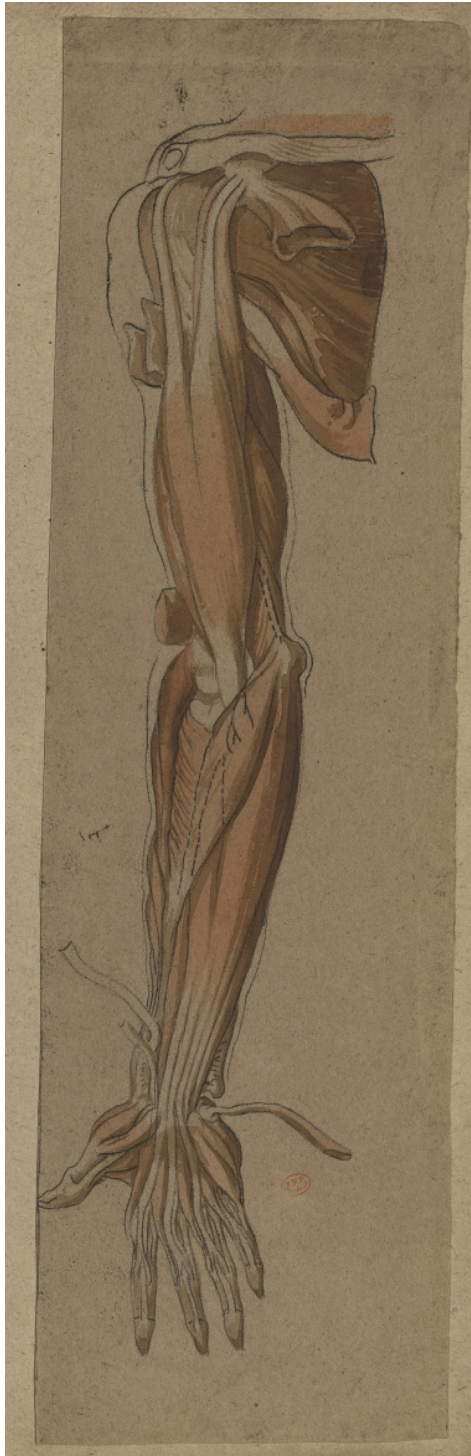
97. Jan Wandelaar for Bernhard Siegfried Albinus, "Tabula XX," *Tabulae sceleti et musculorum corporis humani* (Leiden, 1747). Engraving. (image: National Library of Medicine)







99. Marten Sagemolen, *Musculature of the Arm, No. 3 recto and verso*, MS. 27, c. 1652-1660. Ink, colored wash, and gouache. BIU Santé, Paris. (image: BIU Santé, Paris)

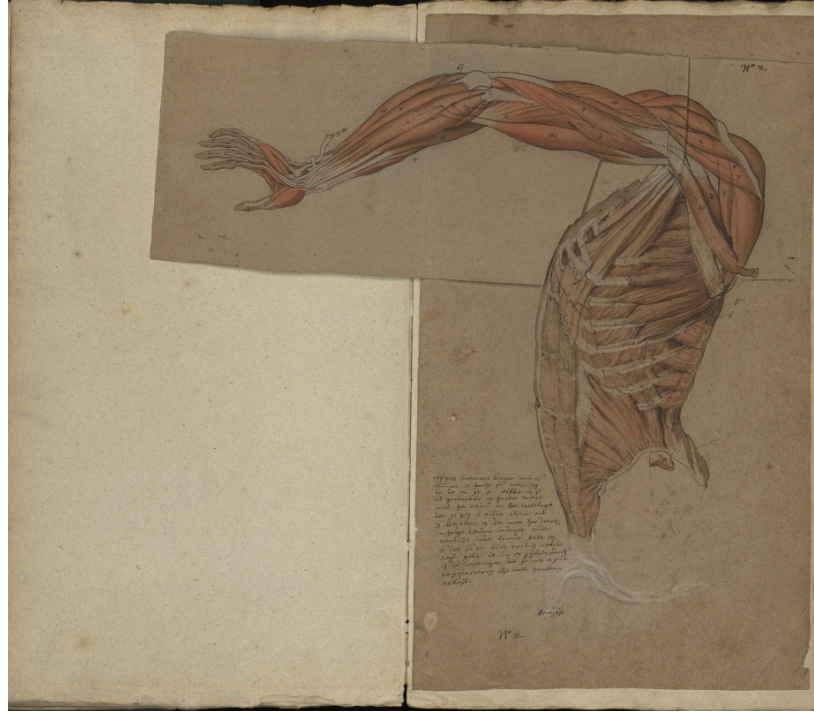


100. Marten Sagemolen, *Musculature of the Arm, No. 4 recto, and detail*, MS. 27, c. 1652-1660. Ink, colored wash, and gouache. BIU Santé, Paris. (images: BIU Santé and Erin Travers)





101. Marten Sagemolen, *Profile Torso with Arm, No. 2, MS 28, c. 1652-1660*. Ink, colored wash, and *gouache*. BIU Santé, Paris. (image: BIU Santé, Paris)



102. Marten Sagemolen, *Profile Torso with Arm Recto No. 2*, MS 29, c. 1652-1660. Ink, colored wash, chalk, and gouache. BIU Santé, Paris. (image: BIU Santé, Paris)



103. Marten Sagemolen, *Profile Torso with Arm Recto No. 2*, MS 29, c. 1652-1660. Ink, colored wash, chalk, and gouache. BIU Santé, Paris. (image: BIU Santé, Paris)





104. Marten Sagemolen, *Profile view leg, Internal, No. 2, MS 29, c. 1652-1660*. Ink, colored wash, chalk, and gouache. BIU Santé, Paris. (image: BIU Santé, Paris)



**ANATOMIE TRESVITILE POVR CON-**  
**NOISTRE LES PARTIES INTERIEURES DE LA FEMME, ET LA**  
 SITUATION, FIGURE, NOMBRE ET POSITION D'ICELLE.

**A**  
 ¶ LE CERUEAV de sa nature est froid & humide, duquel la composition est diuisee en deux parties, c'est à sçauoir en l'interieure & posterieure.

**B**  
 ¶ LE Poulmon est plein d'arteres, & coposé de l'artere ueneuse, & de l'artere, laquelle on appelle en Latin *Aspera artera*, instrument que nature a fait pour respirer. Les conduits & canaux duquel s'il font estoupez p humeurs epesses, & visculeux, ou par intemperance refroidies, procedent beaucoup de maladies, come toux, vlcération de poulmon, extenuation & megrete de corps, inflammation de poulmons, pleuresies, desquelles maladies le corps de l'homme est gradement consumé, d'adantage toutes sortes de maladies, qui viennent principalement, de fluxions, bilieuses, salées, ou de routes deux melées.

**C**  
 ¶ LE Diaphragme, est vne membrane nerveuse, contenant ce qui est compris dedans le torax, autrement appellé ventre superieur, separant les entrailles qui sont dessous ledit ventre superieur.

**D**  
 ¶ LE FOYE est plein de veines, chaud, fontaine des operations naturelles, plain de sang, & premierement fait la coction du sang, & par son touchement ayde la coction qui se fait au ventricule, de quoy redodent trois especes d'excrement, la premiere est la cholere amere qui coule & chet en la vesie, qui est adierée au Foye. La seconde, est la melan cholie, qui se distille & descend en la rate. Les Reins attirent le troisieme, & le purgent en la vesie.

**E**  
 ¶ Parmi les entrailles apparoissent deux conduits, qui sortent & s'effluent, par lesquels l'enfant en la matrice attire & se distribue l'aliment qui luy est necessaire.

**F**  
 ¶ Les Reins sont chauls, & fers, composés de chair subtile, & estienent vñ excrement humide, ainsi come vne fosse, ou tranchée, qu'on fait pour escouler les eaux: lequel excrement lesdits Reins expurgent, quant besoing est en la vesie de l'ytine, par petites rayauls, que representent vñ long col, ou vne petite langue estroite.

**G**  
 ¶ D'adantage, vers les costés, au fond de la matrice d'vn costé & d'autre sont situés les couillons de la femme, & recoyent semblable circonvolution, que les couillons du male, mais ilz sont beaucoup plus petit que ceulx du male.

**H**  
 ¶ LA Vesie est vne partie destinée à recevoir l'excrement, en laquelle les Reins comme dedens vñ bouteille par les vaisseaux qui portent la semence, lesquels prennent leur origine de la teste & partie superieure du couillon & vont à la nature de la femme.

**I**  
 ¶ Le Cœur est le commencement & origine de la chaleur vitale, & de la vie aussi, duquel le sang & aussi l'esprit vital en sort, c'est à dire, le sang spirituel.



**K**  
 ¶ La Region des costez soubs le ventricule, des Grecs est appellée *hypochondria*, mais come vn mot que à plusieurs significations, veult dire aussi les entrailles interieures froides: & humides arteres, desquel les la faculté est de pouler: & aussi les nerfs, qui sont de leur nature froids, & signifie aussi vne chair enfiée & spongieuse, come est le poulmon & la rate, mais le sang des entrailles aucunement se mue en lait ainsi appellé plein de ius.

**L**  
 ¶ Le ventricule est l'instrument accommodé à exciter l'appetit, & de faire la coction des viandes, semblable à vn pot qui boult, durant le temps qu'il fait la coction, duquel l'aliment apres qu'il est engendré, est porté au foye, du foye le sang est distribué aux autres parties du corps.

**M**  
 ¶ LA Rate, est vne partie des entrailles, située à la partie fenestre de l'animal, laquelle on appelle *palechyma*, c'est à dire, effusion d'humeurs autrement vne assemblée d'humeurs epesses & caillées, composée d'une chair rare & lache: en maniere de sponge, afin que plus facilement elle attire du foye & retienne en soy les humeurs crasses & epesses, dont procede souuent l'oye vne maladie, qu'on appelle vulgairement douleur de Rate.

**N**  
 ¶ Le Flux de sang qui vient aux femmes par chacun mois, procedent du foye au commencement peu à peu, & come par interualle de tēps iusques à ce qu'ilz foyent venus aux petits vaisseaux qui sont sur le premier commencement & origine du col de la matrice, lesquels flux de sang ces vaisseaux vident à grande abondance comme si cestoit vn conduit ouuert, ainsi qu'il appert en ceste figure.

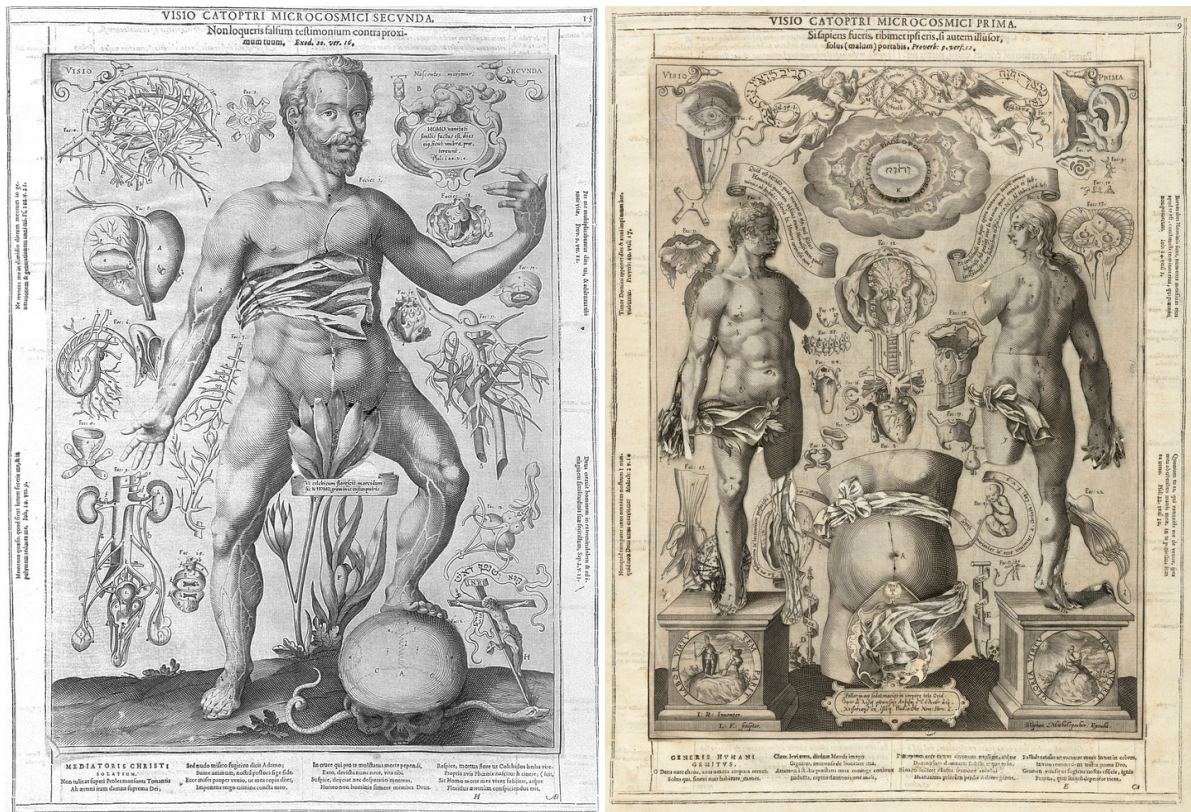
**O**  
 ¶ La Matrice est charneuse: mais p le dedans plus charneuse, en laquelle est receu l'enfant, dessous laquelle y a vne petite vesie adherente, en laquelle le flux qui vient aux femmes est digeré, lequel ainsi epars, ceste petite vesie le vaide par le col de la matrice, quand est besoing, mais cela ce fait apres qu'il est assemblé des excremens inutiles, qui se font delachez de par tout le corps, principalement du Foye.

**P**  
 ¶ EN ceste partie que lon appelle le trou du Cul, ya aucunes veines qui ouuert leur orifice, lesquelles en temps certain espurgent & retiennent du sang vñ sang epes. & melancholique duquel se font les hemorrhoides, c'est à dire, effluxion de sang, desquelles apres qu'elles ont induit & prins vne intemperance vitieuse lon est apres gradement malade, tout ainsi comme de la maladie de la matrice, en le feing & capacity interieure de laquelle de tous costés s'assemblent deux petites vaisseaux qui s'ouurent çà & là, & viennent de la veine en vulgaire appellée Cauer, laquelle se couille & traine en bas par dessus l'os de l'eschine, & ces deux vaisseaux estans tous deux ensemble, viennent iusques à la capacity de la matrice, vñ à la partie deure, l'autre à la fenestre, laquelle chose demontre plus appertement ceste figure icy escripte.

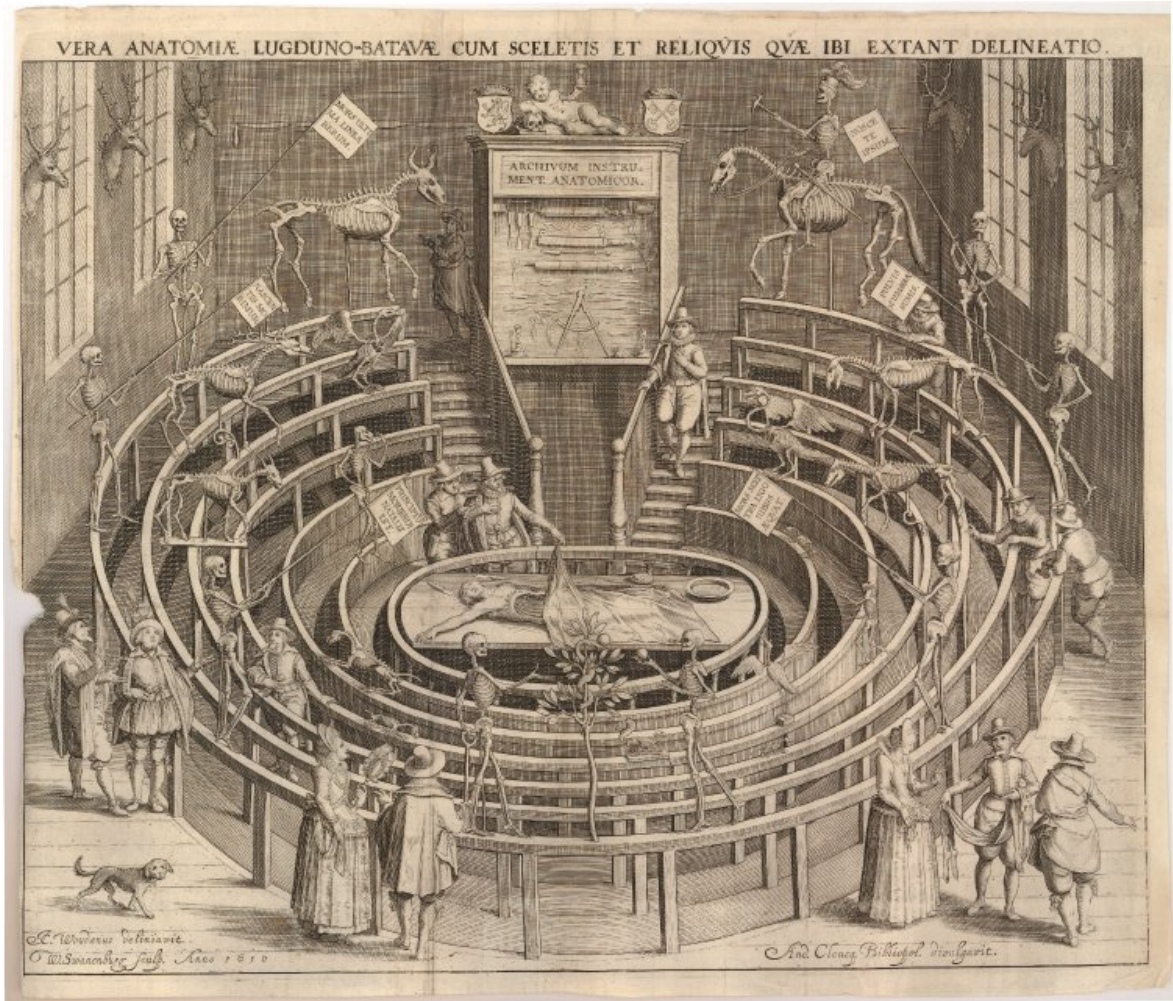
A Paris, chez Alain demaronniere, Rue de Montorgueil, à la Corne de Dru.

105. Heinrich Vogtherr, *Anatomical Fugitive Sheet of Female Figure*, c. 1560. Woodcut. (image: Wellcome Collection)



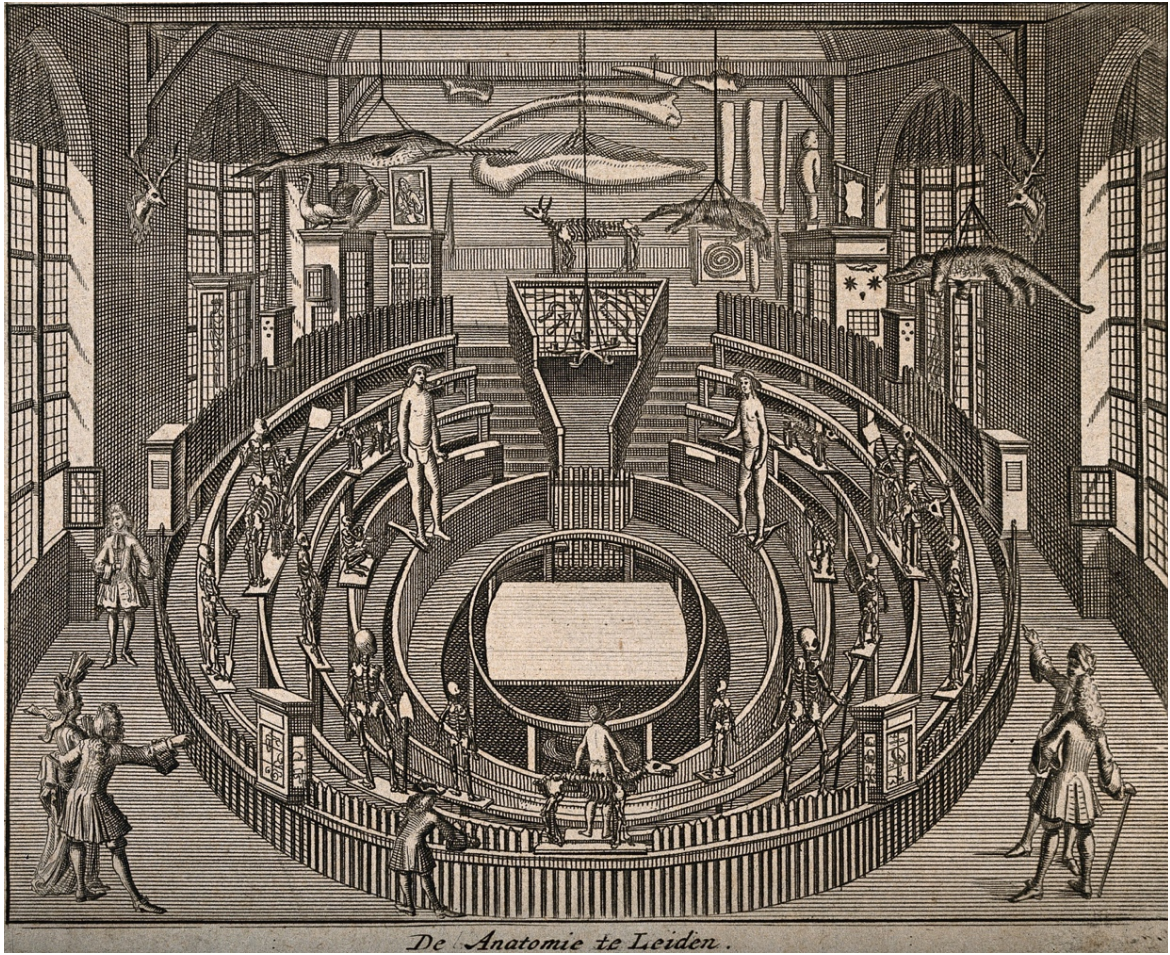


106. Johann Remmelin, *Catoptrum microcosmicum*, 1619. Engraving. (images: Wellcome Collection)



107. Willem Swanenburg after Johannes Woudanus, *Vera Anatomiae, Views of the University of Leiden*, 1610. Engraving. (image: The British Museum, London)





108. Petrus van der Aa, *Les Delices de Leide*, 1712. Engraving. (image: Wellcome Collection)





109. Marten Sagemolen, *Profile-view Left Arm, Skeleton, No. 8, MS 28, 1656*. Pen and gouache. BIU Santé, Paris. (image: BIU Santé, Paris)



110. Rembrandt van Rijn, *The Anatomy Lesson of Dr Nicolaes Tulp*, 1632. Oil on Canvas. Mauritshuis, The Hague. (Mauritshuis, The Hague)





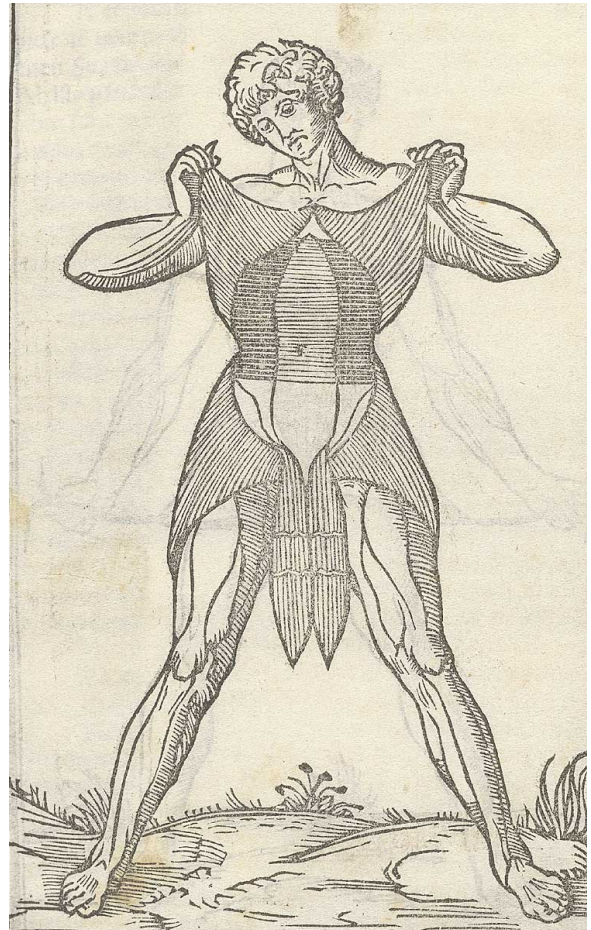
111. Abraham Blooteling after Gerard de Lairesse, *Portrait of Govard Bidloo*, in Govard Bidloo, *Anatomia Humani Corporis* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

112. Jan Wandelaar, *Portrait of Frederik Ruysch*, 1723. In Frederik Ruysch *Alle de Ontleed- Genees- en Heelknidige Werken* (Amsterdam, 1744). Engraving. (image: National Library of Medicine)





113. Gerard de Lairese, *Frontispiece*, in Govard Bidloo, *Anatomia*, (Amsterdam, 1685). Engraving. (image: Getty Research Institute)



114. Gerard de Lairesse, *Table Thirty-Three*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

115. Anonymous in Jacopo Berengario da Carpi, *Anatomia Carpi, Isagoge breves perlucide ac uberime, in Anatomiam humani corporis* (Bologna, 1535). Woodcut. (image: National Library of Medicine)



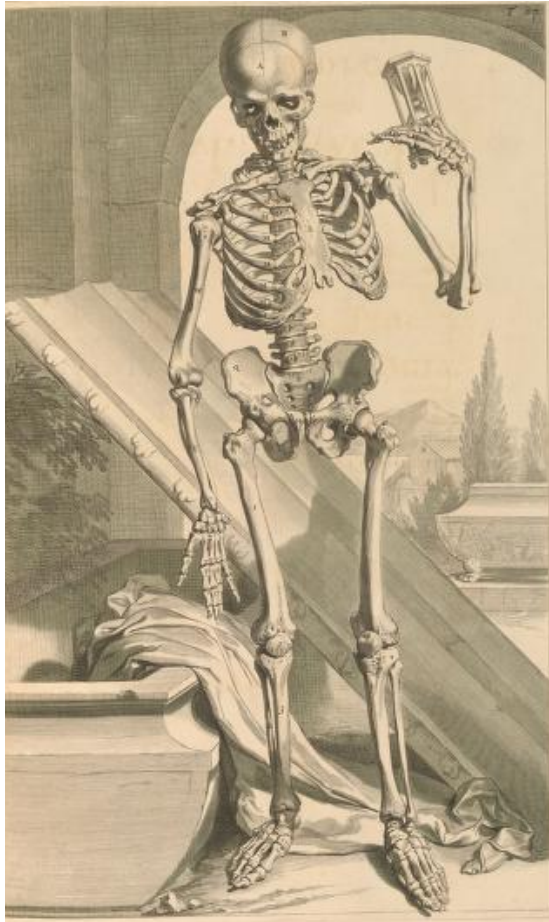


116. Gerard de Lairese, *Table Twenty*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

117. Attr. Jan van Calcar, *Prima/Quatra Musculorum Tabula*, in Andreas Vesalius, *De humani corporis fabrica* (Basel, 1543). Woodcut. (image: Basel University Library, AN I 15)



118. Gerard de Lairesse, *Table Eighteen*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

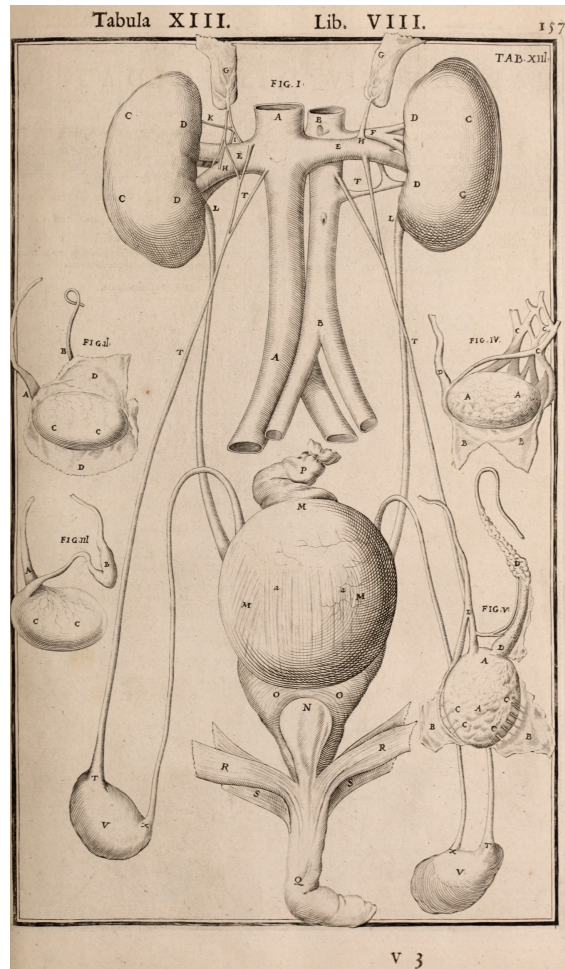
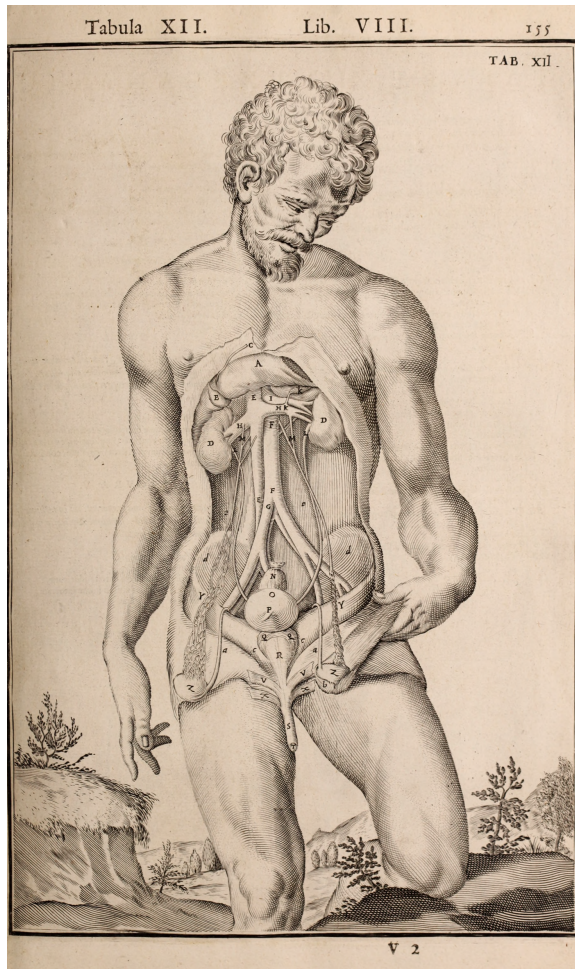


119. Gerard de Lairesse, *Table Eighty-Seven*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)



120. Gerard de Lairesse, *Table Eighty-Eight*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)





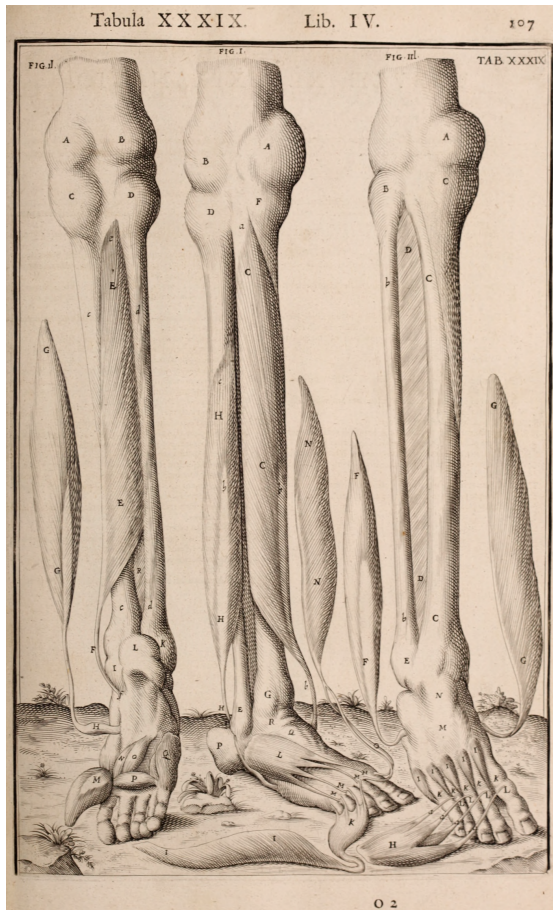
121. Anonymous, *Tabula XII Lib. VIII*, in Andrianus Spigelius, *Anatomica Operum Omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)
122. Anonymous, *Tabula XIII Lib. VIII*, in Andrianus Spigelius, *Anatomica Operum Omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)



123. Gerard de Lairesse, *Table Twenty-One*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685).  
Engraving. (image: Getty Research Institute)

124. Gerard de Lairesse, *Table Twenty-Four*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685).  
Engraving. (image: Getty Research Institute)





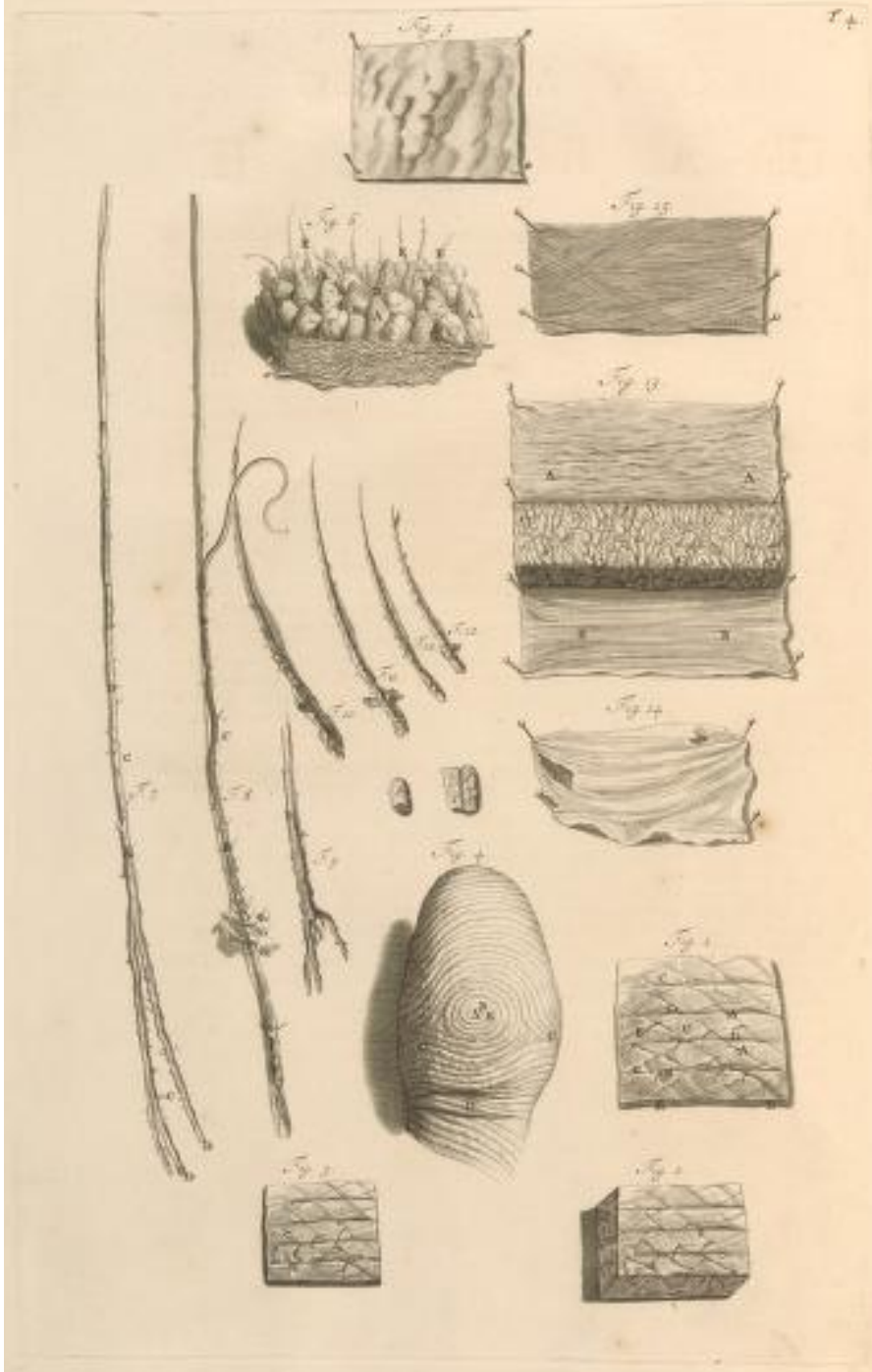
125. Anonymous, *Tabula XXXIX Lib. IV*, in Andrianus Spigelius, *Anatomica Operum Omnium* (Amsterdam, 1645). Engraving. (image: University of Maryland, Baltimore Digital Archive)

126. Gerard de Lairesse, *Table Eighty-Two*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)



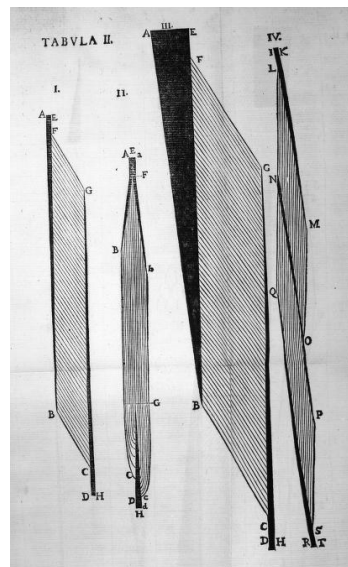
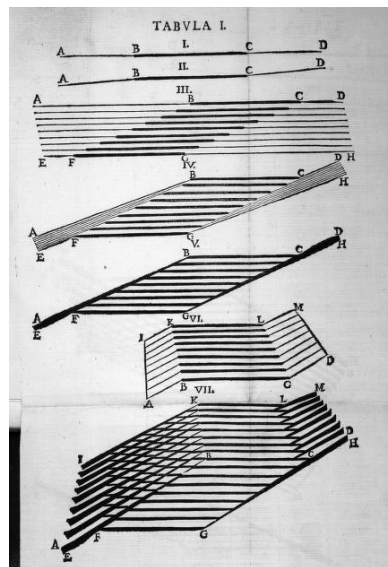
127. Anonymous, *Tab. VIII*, in Andrianus Spigelius, *De Formato Foetu liber singularis* (Padua, 1626). Engraving. (image: University of Maryland, Baltimore Digital Archive)

128. Gerard de Lairese, *Table Sixty-Two*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)



129. Gerard de Lairesse, *Table Four*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)





130. Gerard de Lairesse, *Table Sixty-Four*, in Govard Bidloo, *Anatomia*, (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

131. Anonymous, *Tabula I*, in Nicolas Steno, *Elementorum Myologiae Specimen* (Florentiae, 1667). Woodcut. (image: BIU Santé)

132. Anonymous, *Tabula I*, in Nicolas Steno, *Elementorum Myologiae Specimen* (Florentiae, 1667). Woodcut. (image: BIU Santé)



133. Gerard de Lairesse, *Table Fifty-Two*, in Govard Bidloo, *Anatomia*, (Amsterdam, 1685). Engraving. (image: Getty Research Institute)



Stiftung Preußischer Kulturbesitz Jan Vermeer, Junge Dame mit Perlenhalsband, Ident. Nr.: 912B © Foto: Gemaldegalerie, Staatliche Museen zu Berlin Fotografin: Christoph Schmidt

134. Gerard de Lairesse, *Table Fifty-Five*, in Govard Bidloo, *Anatomia*, (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

135. Johannes Vermeer, *Woman with a Pearl Necklace*, c. 1662-1665. Oil on canvas. Staatliche Museen Preußischer Kulturbesitz, Gemaldegalerie, Berlin. (image: Gemaldegalerie, Berlin)



136. Gerard de Lairesse, *Table Sixty-Nine*, in Govard Bidloo, *Anatomia*, (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

137. Willem Claesz. Heda, *Still Life with a Pewter Jug, Drinking Glass, and a Ham*, 1634. Oil on Panel. Private Collection. (image: image: Photo Collection RKD-Netherlands Institute for Art History, The Hague)





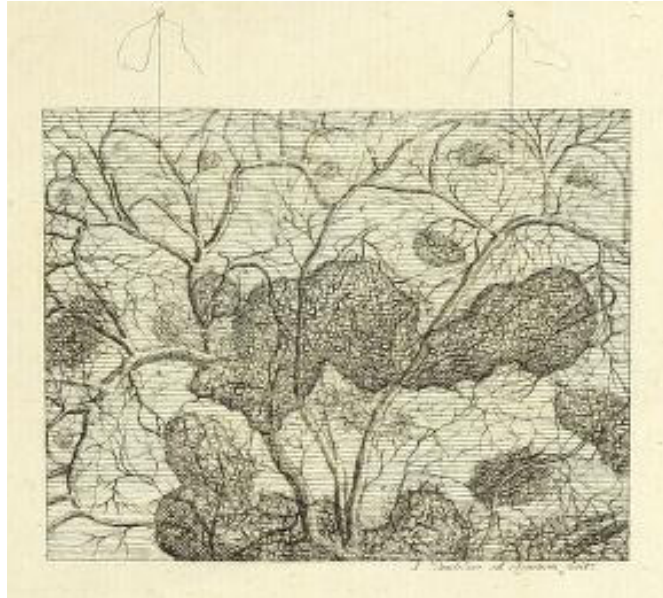
138. Gerard de Lairesse, *Table Eighty-Nine*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

139. Gerard de Lairesse, *Table Twenty-Two*, in Govard Bidloo, *Anatomia* (Amsterdam, 1685). Engraving. (image: Getty Research Institute)

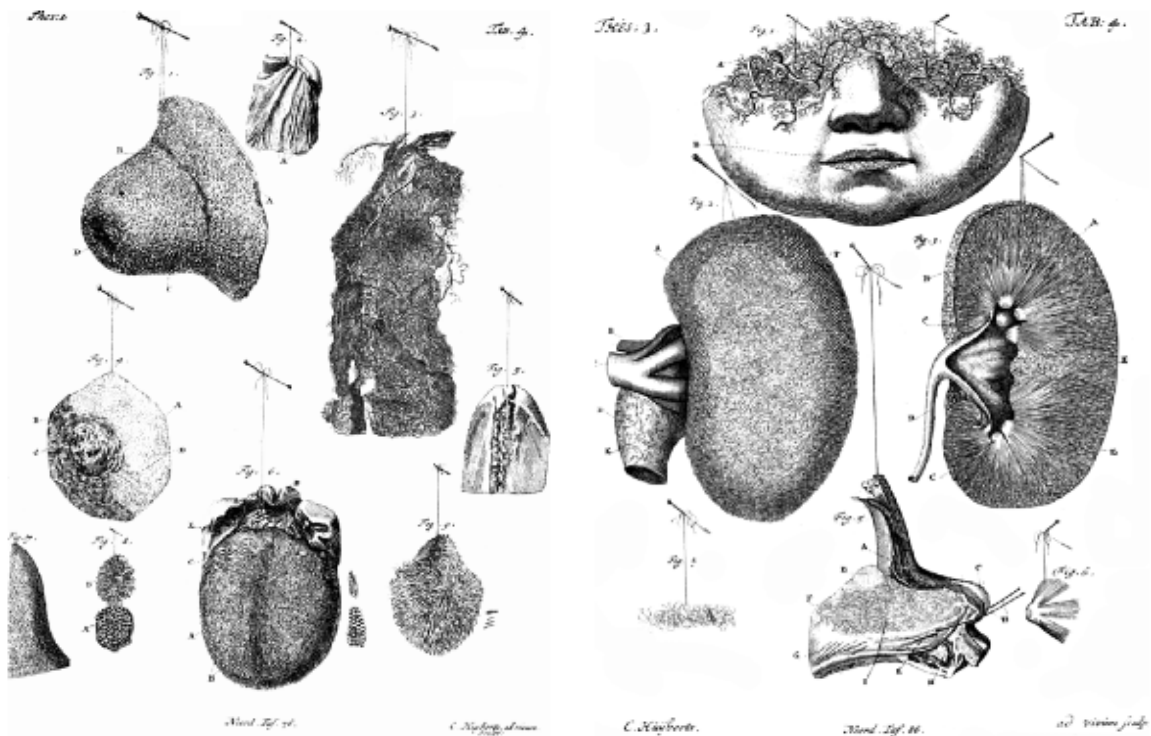




140. Cornelis Huybrechts, *Frontispiece*, in Frederik Ruysch, *Opera Omnia* (Amsterdam, 1720). Engraving. (image: Wellcome Collection)

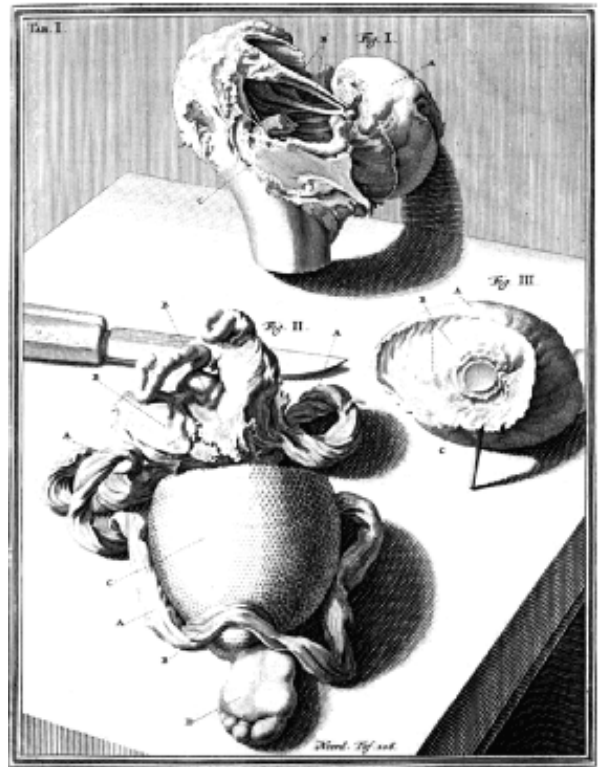
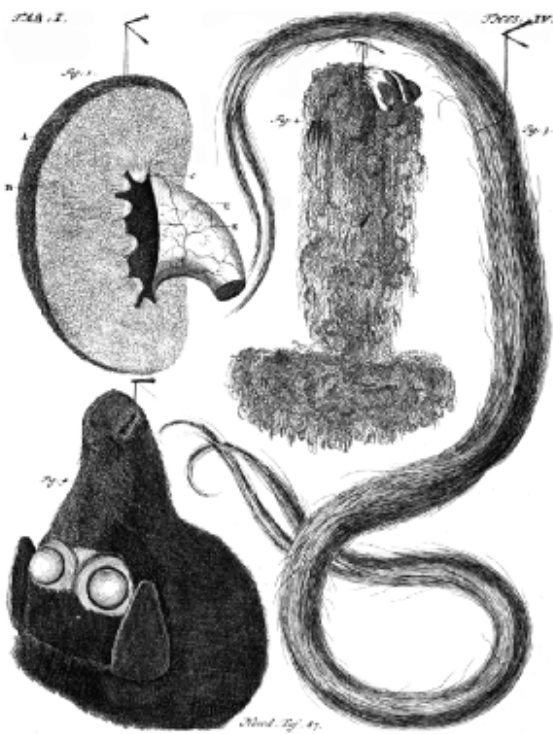


141. Johannes Wandelaar and Arent Cant, *Neerd. Taf. 131*, in Frederik Ruysch, *Ontleekundige Brief van Frederik Ruysch waar mede hy den zeer Beroemden Heer Boerhaave* (Amsterdam, 1722). Engraving. (image: University of Maryland, Baltimore Digital Archive)



142. Cornelis Huybrechts, *Thes. I Tab. IV*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

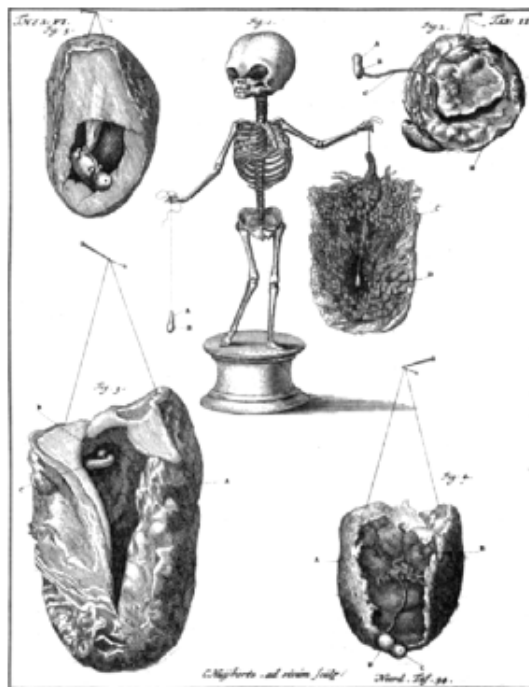
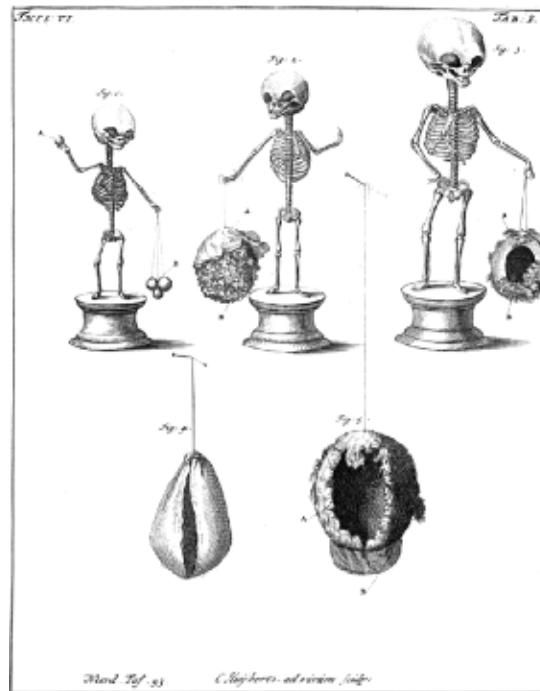
143. Cornelis Huybrechts, *Thes. III Tab. IV*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)



144. Anonymous, *Thes. IV Tab. I*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

145. Joseph Mulder, *Thes. IX Tab. I*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

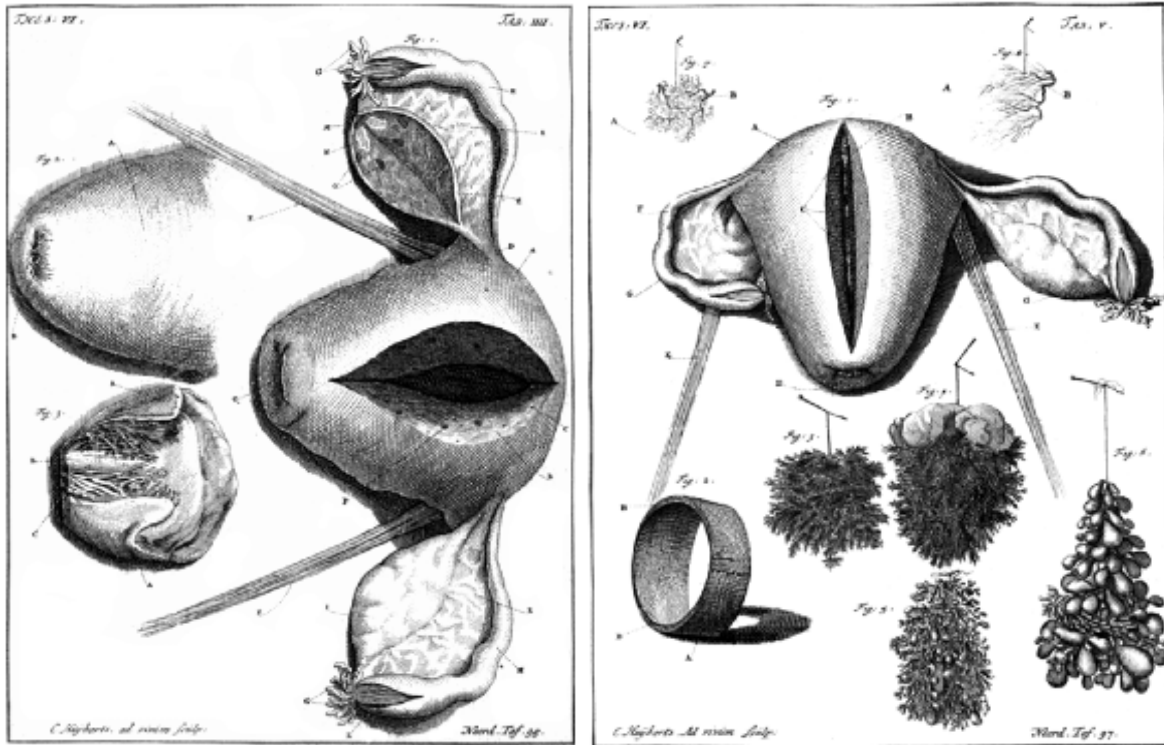




148. Cornelis Huybrechts, *Thes. VI Tab. I*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

149. Cornelis Huybrechts, *Thes. VI Tab. II*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

150. Cornelis Huybrechts, *Thes. VI Tab. III*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)



151. Cornelis Huybrechts, *Thes. VI Tab. IV*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

152. Cornelis Huybrechts, *Thes. VI Tab. V*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

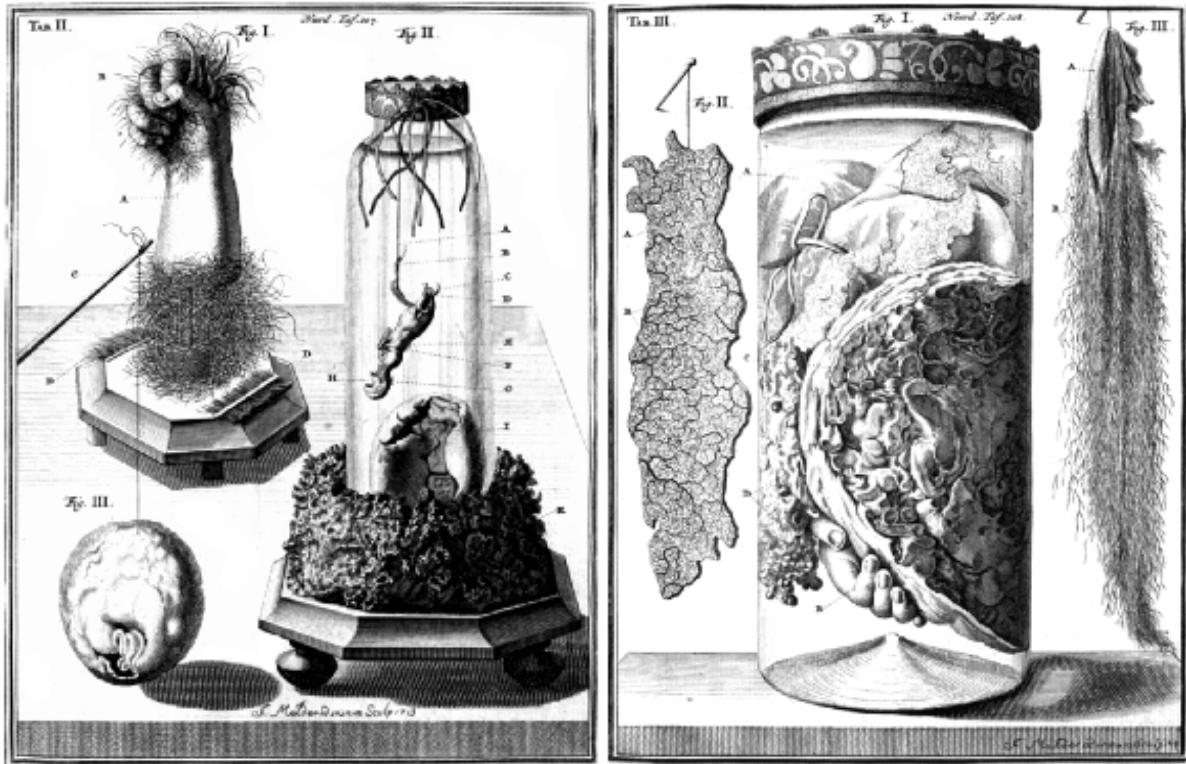




153. Jan Baptist Weenix, *Dead Partridge Hanging from a Nail* (c. 1650-1652). Oil on panel. Mauritshuis, The Hague. (Mauritshuis, The Hague)

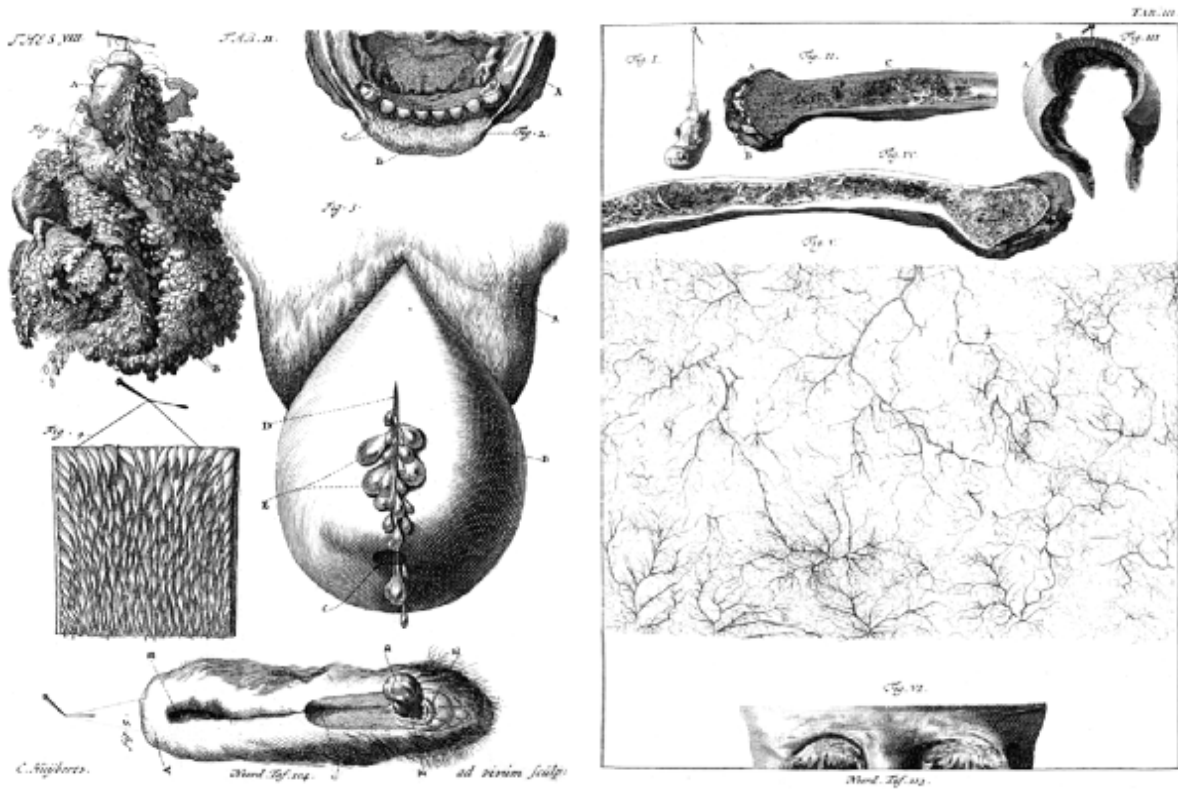
154. Cornelis Huybrechts, *Thes. I Tab. II*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)





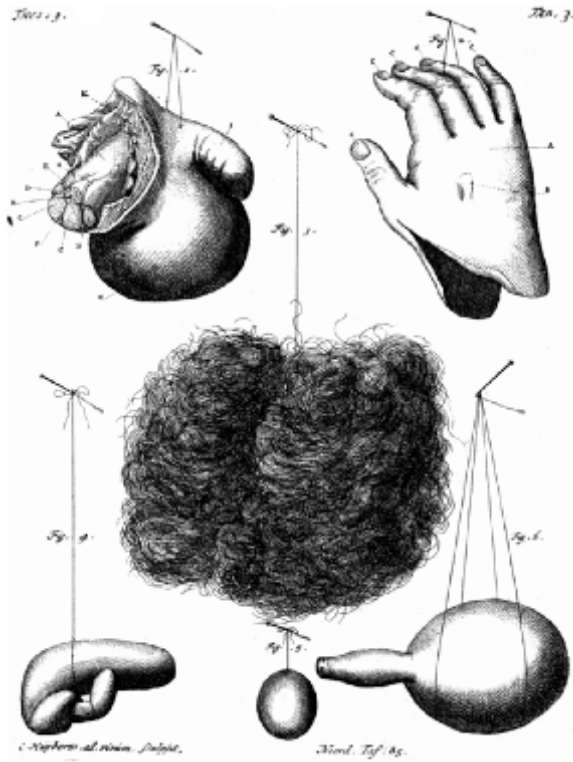
155. Joseph Mulder, *Thes. IX Tab. II.*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744).  
Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

156. Joseph Mulder, *Thes. IX Tab. III.*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744).  
Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)



157. Cornelis Huybrechts, *Thes. VIII Tab. II*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

158. Anonymous, *Thes. X Tab. III*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)



159. Cornelis Huybrechts, *Thes. III Tab. III*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

160. Cornelis Huybrechts, *Thes. II Tab. III*, in Frederik Ruysch, *Alle Werken* (Amsterdam, 1744). Engraving. (image: KB|Nationale Bibliotheek, BMN 1-65)

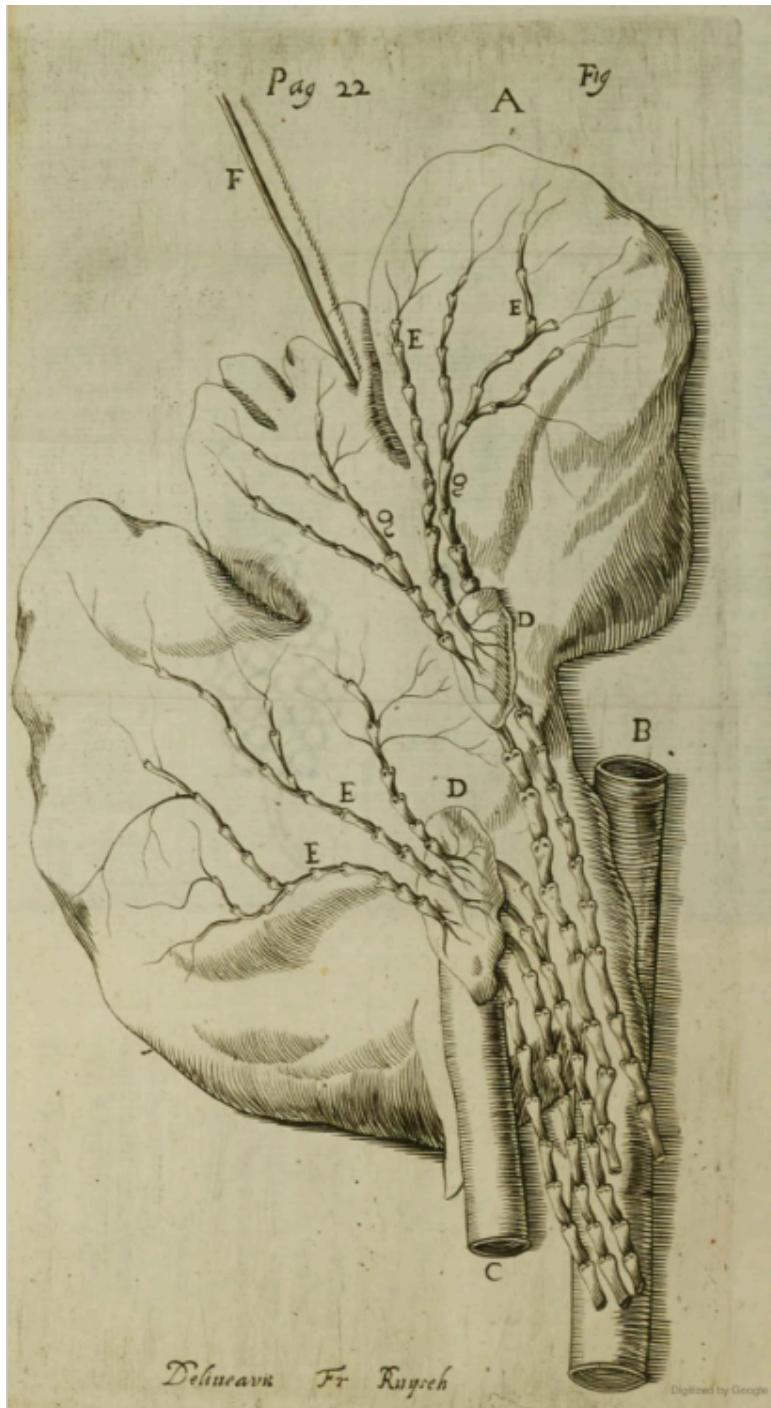


161. Gerard van Honthorst, *Portrait of an Artist*, 1655. Oil on canvas. Rijksmuseum, Amsterdam (photo: Rijksmuseum, Amsterdam)



162. Ferdinand Bol, *Neptune Enters the Amsterdam Admiralty's Service*, c. 1661-1662. Oil on canvas. Amsterdam Museum, inv. no. SA 3001. (Photo: Amsterdam Museum, Amsterdam)





163. Frederik Ruysch, "Fig. II," *Dilucidatio Valvularum in Vasis Lymphaticis* (Leiden: Jacobum Moukee, 1687), p. 22. Engraving. Universiteit van Amsterdam, OK 62-1995 (image: KB|Nationale Bibliotheek, BMN 1-92)



164. Arent Cant, "Tab. 4," *Impetus primi anatomici ex lustratis cadaveribus nati* (Leiden, 1721). Engraving. Universiteit van Amsterdam, OL 63-1505 (image: Erin Travers)