FROM ALLEGORY TO EMBLEM: UNCOVERING THE BRAIN IN LORENZ
FRIES’ SPIEGEL DER ARTZNEY AND HANS VON GERSDORFF’S
FELDTBUCH DER WUNDARZNEY

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ABSTRACT

From Allegory to Emblem: Uncovering the Brain in Lorenz Fries’ *Spiegel der Artzney* and Hans von Gersdorff’s *Feldbuch der Wundartzney*

This dissertation attempts to understand the diverse signs used to present the brain in medical doctor Lorenz Fries’ *Mirror of Medicine* (1518) and surgeon Hans von Gersdorff’s *Fieldbook of Surgery* (1517). In the history of the brain, the pre-Vesalian period between the turn of the 16th century and 1543 has either been denigrated for its medieval emphasis on the antiquated theory of the inner senses and symbolic images or praised for its more modern use of the techniques of dissection and visually accurate representations. Texts like the *Mirror of Medicine* and *Fieldbook of Surgery*, however, present the brain through the inner senses, dissection and visually accurate images. In order to account for these diverse presentations, I use theories of allegory and emblem to explain the simultaneous presence of multiple epistemic styles.

In addition to this unique approach that uses allegory and emblem to explore the history of medicine, surgery, and the brain, I provide evidence that questions the historical emphasis on Fries’ and denigration of Gersdorff’s text while offering a fruitful method of understanding knowledge forms in medicine and surgery in the early 16th Century. I show that a medieval allegorical thought style classified signs within a hierarchy of knowledge that moved through the hierarchically ordered signifying structures of gesture, image, and word, each separating the subject by degrees from the ideal object knowable in one’s intellectual faculty. Prior to the 16th Century, the proper performance of the inner senses of common sense, imagination, reason and memory helped the intellect use these faculties to bridge the gap between thought and object and
can be seen in Fries’ allegorical medieval medicine. Gersdorff’s surgical manual, however, teaches by moving between the equally valuable domains of speech, writing and print, images and gestures, thereby relating fragmented signs emblematically.

Four main chapters explore the performativity and theatricality of words, images, and gestures that represent the brain in the early 16th Century. After an introduction to the authors, texts, and milieu, *The Inner Senses: from Allegory to Emblem* provides the theoretical foundation for the use of allegory and emblem to understand the performativity and theatricality of knowledge of the brain found in Fries and Gersdorff’s texts. *Knowing the Brain in the Early 16th Century* explores medical and surgical discourses and the performative aspects of diagnosis, treatment, and proper performance of the inner senses whereby doctor, surgeon, and patient moved through common sense, imagination, reason, and memory. *The Theatricality of the Head and Brain in the Early 16th Century* argues that in the 16th Century, the brain did not yet exist as an isolated object but should be understood in a conceptual relationship to the allegory of the head. Finally, *The Brain as Emblem* provides an emblematic reading of the oft-ignored fugitive sheet in Gersdorff’s text and demonstrates an alternate future to the brain’s fragmentary and enigmatic construction that influences late 16th Century cerebral anatomy as well as Philip Melanchthon’s Protestant education reforms.
TABLE OF CONTENTS

List of Tables…………………………………………………………………………………..vii
List of Figures…………………………………………………………………………………..viii
Preface & Acknowledgements………………………………………………………………xiii

Chapter 1 INTRODUCTION…………………………………………………………………1

1.1. Introduction……………………………………………………………………………1
1.2. The Brain as Allegory and Emblem………………………………………………..5
1.3. Texts and Authors……………………………………………………………………9
1.4. Audiences of Spiegel der Artzney and Feldbuch der Wundartzney …………16
1.5. State of the Field……………………………………………………………………20
1.6. Dissertation Structure………………………………………………………………25
1.7. Conclusion…………………………………………………………………………27
1.8. Figures………………………………………………………………………………29

Chapter 2 THE INNER SENSES: FROM ALLEGIORY TO EMBLEM…………33

2.1. Introduction……………………………………………………………………………33
2.2. History of the Inner Senses…………………………………………………………34
2.3. Presentation of the Inner Senses……………………………………………………40
2.4. The Inner Senses and The Emblematic Trinity………………………………….44
2.5. The Performativity and Theatricality of the Inner Senses…………………………49
2.6. The Allegorical and Emblematic Word, Image, and Gesture…………………58
2.7. Figures…………………………………………………………………………………70

Chapter 3 THE INNER SENSES……………………………………………………………76

3.1. Introduction……………………………………………………………………………76
3.2. There was once a Lord from Strassburg…………………………………………78
3.3. Common Sense and Fantasy: Front of the Head…………………………………84
3.4. Reason: Middle of the Head………………………………………………………..103
3.5. Memory: Back of the Head…………………………………………………………113
3.6. Figures…………………………………………………………………………………128
Chapter 4 THE ALLEGORICAL HEAD AND BRAIN

4.1. Introduction ................................................................. 137
4.2. Translating the Spoken Head and Brain to Graphic Marks ........ 147
4.3. The Visual Head and Brain ............................................ 165
4.4. The Dissected Head and Brain ....................................... 190
4.5. Figures ......................................................................... 208

Chapter 5 THE BRAIN AS EMBLEM ............................................... 226

5.1. Introduction ................................................................. 226
5.2. Cerebral Enigma .......................................................... 229
5.3. The Brain as Emblem ................................................... 238
5.4. Hans von Gersdorff and the Deadman Fugitive Sheet .......... 245
5.5. Visualizing the Pituitary Gland ...................................... 261
5.6. The Inner Senses, The Pituitary Gland, and Anatomy in Wittenberg ........................................................................... 273
5.7. Figures ......................................................................... 289

Chapter 6 CONCLUSION ................................................................. 314

BIBLIOGRAPHY ......................................................................... 319
List of Tables

**Table 1**: The *hegemonikon*, Modified from Sudhof (1913) and Hagner (1996).........39

**Table 2**: Brain Complexion from Lorenz Fries’ *Spiegel der Artzney* (1518) ..........93

**Table 3**: Visual Diagnostic Procedure for Head Pains from Lorenz Fries’ *Spiegel der Artzney* (1518).................................................................159

**Table 4**: Visual Diagnosis in Fries’ *Spiegel der Artzney* (1518)......................160
List of Figures

Chapter 1.............................................................................................................29

Fig. 1. Anatomy in Situ from Lorenz Fries’ *Spiegel der Artzney* (Strassburg, 1518) rpt. Bayerische Staatsbibliothek [2053].

Fig. 2. Fugitive Sheet of Anatomy in Situ from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. National Library of Medicine.

Fig. 3. Diagnosing the Leper in Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Fig. 4. The Inner Senses from Albrecht Dürer in Ludovicus Pruthenus *Trilogium animae* (1498). rpt. *The Complete Woodcuts of Albrecht Durer* (Dover: W. Kurth, 1936).

Chapter 2.............................................................................................................70

Fig. 5. Title page Berengario da Carpi’s *Tractatus de fractura calve sive cranie a Carpo editus*, (Bologna: H. de Benedictus 1518). rpt. Wellcome Image Library, London.

Fig. 6. The brain cells of cerebral ventricles, and ways of excretion of humours.


Fig. 7. Male figure showing (from left to right) common sense, imagination, reason, memory in Johannes de Kethem’s *fasciculus medicinae* (15th Century). rpt. Wellcome Image Library, London.


Fig. 9. Zodiac Man from Gregor Reisch’s *Margarita philosophica*. Printed by Johann Schott (Strassburg, 1503) rpt. Wellcome Image Library, London.

Fig. 10. Konrad Gesner’s Representation of the Aristotelian hierarchy of souls in Eduard-Rudolf Muellener, “Konrad Gessners Illustrationen zu De Anima.” rpt. Zentralbibliothek Zürich & UB Basel; also in *Gesnerus* 22 (1965) 160-175.

Chapter 3.............................................................................................................128

Fig. 11. Woundman from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 12. Melusine leaving a window, woodcut from *Histoire de Mélusine* (Genève, A. Steinschaber, 1478) rpt. Bibliothèque Nationale, Paris.

Fig. 13. Death at the Print Shop in Matthias Huss’ *La Grant Dance Macabre* (Lyons, 1499) © The British Library Board, 065110.

Fig. 14. Plague and Leprosy from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Fig. 15. Letter ‘a’ shows the site for fantasy. Lettingman, Laßman or Visible Anatomy from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Fig. 16. Geometry Villard de Honnecourt sketchbook’s (13th Century). rpt. Bibliothèque Nationale, Paris, Manuscript No. 19093.

Fig. 17. Grades of medicine Lorenz Fries’ *Spiegel der Artzney* (Strassburg, 1518) rpt. Bayerische Staatsbibliothek [2053].

Fig. 18. Serratura from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Fig. 19. Saint Anthony from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Chapter 4…………………………………………………………………208

Fig. 20. Grammatica from Gregor Reisch’s *Margarita philosophica* (Freiburg: Johann Schott, 1508). rpt. Max Planck Institute for the History of Science.

Fig. 21. The Inner Senses from Gregor Reisch’s *Margarita philosophica* (Freiburg: Johann Schott, 1508). rpt. Max Planck Institute for the History of Science.

Fig. 22. Pattern Poem in Lorenz Fries’ *Spiegel der Artzney* (Strassburg, 1518) rpt. Bayerische Staatsbibliothek [2053].

Fig. 23. A Demonstration of Surface Markings second half of fifteenth century. © 2011 Biblioteca Apostolica Vaticana MS 4804. rpt. in C. Singer *Studies in the History and Method of Science*. (Oxford 1917), 70-85.

Fig. 24. Skull with Ornamental Frame by Hans Wächtlin, 1510-1511. ©The Trustees of the British Museum. All rights reserved.

Fig. 25. HVMANI CAPITIS from Johann Dryander’s *Anatomiae* (Marburg, 1537). rpt. Wellcome Image Library, London.
Fig. 26. Sick Patient in Hieronymous Brunschweig’s *Das buch der wund Arzney. Handwirckung der Cirurgia* (or) *Von der Anathomi* (Strassburg 1515) rpt. In Lorenz Fries’ *Spiegel der Arzney* (Strassburg 1518). rpt. Bayerische Staatsbibliothek [2053].

Fig. 27. Visible Anatomy or Bloodletting Manikin from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Fig. 28. Anatomy in situ from Gregor Reisch’s *Margarita Philosophica* (Freiburg: Johann Schott, 1508). rpt. Max Planck Institute for the History of Science.

Fig. 29. Anatomy in situ from Hieronymus Brunschwig’s *Liber de Arte Distillandi* (Strassburg 1515) rpt. National Library of Medicine.

Fig. 30. Saint Sebastian at the Column, engraving by Albrecht Dürer (1500). Rpt. In *Dürer in Dublin: Engravings and woodcuts of Albrecht Dürer*. Chester Beatty Library, 1983.

Fig. 31. Lassman with poem from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Fig. 32. Vascular System with *rete mirable* from Andreas Vesalius’ *Tabulae Sex* (1538). Rpt. Wellcome Image Library, London.

Fig. 33. Brain from Georg Bartisch’s *Ophthalmodouleia*, (1583). rpt. University of Kansas Medical Center.

Fig. 34. Instrument to Correct a Crooked Arm from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].

Fig. 35. Dissected Head from Charles Estienne’s *La dissection des parties du corps humain diuisee en trios liures*, (Paris: 1546). rpt. National Library of Medicine.

Fig. 36. Trepanation from Hans von Gersdorff’s *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. In Wellcome Image Library, London.

Fig. 37. Cure of Folly, Removing the Stone of Madness from Hieronymous Bosch (ca. 1494-1516). Museo Nacional del Prado.
Chapter 5

Fig. 38. Alembic from Hieronymous Brunschweig’s Liber de arte distillandi de compositis (Strassburg: Grüninger, 1512). rpt. Max Planck Institute for the History of Science.

Fig. 39. Fugitive Sheet Skeleton or Death figure from Hans von Gersdorff’s Feldtbuch der Wundartzney (Strassburg, 1517) rpt. National Library of Medicine.

Fig. 40. Skeleton from Hieronymus Brunschwig’s Das buch der wund Artzney. Handwirckung der Cirurgia (or) Von der Anathomi (Strassburg 1515) rpt. Welcome Image Library, London.

Fig. 41. Lettingman from Johann Dryander’s Arzney Spiegel (Engenolf, 1547) rpt. National Library of Medicine, Bethesda.

Fig. 42. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 43. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 44. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 45. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 46. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 47. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 48. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 49. Dissected Head from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from National Library of Medicine.

Fig. 50. Female anatomy from Charles Estienne’s La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). rpt. Welcome Images.
Fig. 51. Anatomy of the mouth and tongue from Johann Dryander’s *Arzney Spiegel* (Engenolf, 1547) rpt. National Library of Medicine.

Fig. 52. Dissected Body from Lorenz Fries’ *Spiegel der Arzney* (Strassburg, 1519) rpt. Wellcome Image Library, London.

Fig. 53. Brain image from Johann Dryander’s *Arzney Spiegel* (Engenolf, 1547) rpt. National Library of Medicine.

Fig. 54. Brain image from Berengario Da Carpi *Isagoge Brevis*, (Bologna,1523). rpt. Wellcome Image Library, London.

Fig. 55. Dissected Head from Walther Hermann Ryff *Omnium humani corporis partium descriptio* (Strassburg, 1541) 14'. Zentralbibliothek Zürich & UB Basel. rpt. Singer (1952).

Fig. 56. Dissected head from Johann Dryander in *Anatomia capitis humani* (Marburg, 1537). rpt. Wellcome Image Library, London.

Fig. 57. Close up of the *rete mirabile* from Andreas Vesalius’ *Tabulae Sex* (1538). rpt. Wellcome Images. From © BIU Santé Paris.

Fig. 58. Figure 15 of the infundibulum pituitary region from Chapter VII of Vesalius’ *De humani corporus fabrica libri septem*. from © BIU Santé Paris.

Fig. 59. Figure 16 of the infundibulum pituitary region from Chapter VII of Vesalius’ *De humani corporus fabrica libri septem*. from © BIU Santé Paris.

Fig. 60. Figure 17a of the infundibulum pituitary region from Chapter VII of Vesalius’ *De humani corporus fabrica libri septem*. from © BIU Santé Paris.

Fig. 61. Figure 17b of the infundibulum pituitary region from Chapter VII of Vesalius’ *De humani corporus fabrica libri septem*. from © BIU Santé Paris.

Fig. 62. Figure 18 of the infundibulum pituitary region from Chapter VII of Vesalius’ *De humani corporus fabrica libri septem*. From © BIU Santé Paris.

Fig. 63. Male Figure Anatomical Fugitive Sheet: Wittenberg, 1573. rpt. Wellcome Image Library, London.

Fig. 64. Female Figure Anatomical Fugitive Sheet: Wittenberg, 1573. rpt. Wellcome Image Library, London.

Fig. 65. Skeleton Anatomical Fugitive Sheet: Wittenberg, 1573. rpt. Wellcome Image Library, London.
PREFACE & ACKNOWLEDGEMENTS

This dissertation would not have been possible without non-academic and academic, financial and personal support and a brief history of its origins is in order. Following the summer of 2001, while parenting younger teenage brothers, working as a mental health case manager and teaching English language and literature at Madison Center Hospital for Children in South Bend, IN, I became increasingly fascinated, perplexed, and concerned at how the word ‘brain’ was used in hospital, school, family, institutional, and social settings. In all its diverse applications, the same word ‘brain’ was applied across social, economic, and educational backgrounds with an accumulated meaning that went far beyond the brain as an anatomical object. The idea of the brain transformed everyday rituals into an amalgam of fragmented brain activities that had collected histories and projected futures. With this problem in mind, I would eventually attempt to complete my graduate studies as a search for how to understand the brain as a performative object. For those students, doctors, and parents still struggling with how one lives and performs one’s brain properly, I hope this dissertation offers support and encouragement.

During my Ph.D. studies at the Pennsylvania State University—along the way switching from literary studies to the history of medicine—I received a Fulbright Fellowship to research the history of the brain under Prof. Dr. Michael Hagner at the Swiss Federal Institute of Technology (ETH) in Zürich, Switzerland. While at the History of Medicine archives at the University of Zürich, I found what would be the beginning of my dissertation: two men in the 16th Century, a surgeon and a doctor, wrote very clearly about their own ideas of the brain. They also participated in an established
discourse with its own rituals and rules for brain performances. My dissertation would
turn into a project that uncovered the idea of the brain in Hans von Gersdorff and Lorenz
Fries’ surgical and medical manuals.

Academic support for this project came in many diverse forms, whether through
personal contact, close readings, or feedback at conferences and colloquia. First and
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would like to thank the various institutions that allowed me access to their texts as well as
permission to reprint images. I have attempted to contact all owners of respected texts
and images to receive permission to reprint. Where I have been unable to contact the
owner or institution, I have cited the most recent edition or location available.

Conference presentations at the German Studies Association, The 16th Century
Studies, and The National Library of Medicine helped me organize arguments for diverse audiences, ultimately allowing this project to speak across the traditional disciplinary boundaries. Editors and readers for publishers at Historia medicinae, Focus on German Studies, and the University of Michigan Press provided much needed critique on many parts of this dissertation.

Financial support turned this dissertation into reality and I would like to thank the following: The German Department at the Pennsylvania State University; The Sparks and Thompson Families for the fellowship, travel, and research opportunities; The Fulbright Program and The Paul B. and Mildred Seydel Foundation for support to conduct research in Switzerland; The National Library of Medicine for research opportunities and funds to present my findings; and The Pennsylvania State University Department of Science & Technology, and Society and the Society for Literature, Science, and the Arts for conference travel support.

Personal support came from colleagues, friends and family alike. I would like to thank all my friends who suffered through fictional, poetic, screenplay, and theatrical versions of this project before it transitioned to academic prose. My parents—Wishart & Mary—encouraged and supported me in more ways that I can acknowledge here. My siblings—Michael, Emily, Alan, and Jon—provided encouragement and patient and critical ears as I talked more and more about the brain, brain rituals, and brain performances: you listened when neither of us knew what I was saying. Finally, I would like to thank my wife İpek: you supported and encouraged me whether I was working an ocean away or in the same room, whether I was distressed and discouraged or elated and excited. Seni Seviyorum, canım.
CHAPTER ONE

SICKMAN: 0, Master Doctor, are you the one
Whose fame's been trumpeted so long,
Who helps each one in wondrous wise?
I've come to you to seek advice,
Since my paunch so huge is blown
Like some woman pregnant grown.
Something stirs there night and day.
Dear Doctor, what is it? Can you say
Whether it's dropsy or-I'm loath
To say it-some foul hideous growth?
0, see if you can help me, please,
And by your healing arts bring ease.
Your cures have never gone amiss.

DOCTOR: Have you caught your morning's piss?
Then give it here and let me see it.
The sick man hands him a urine sample.

SICKMAN: Indeed, dear sir, amen, so be it.
Here, take and examine, you or your fellow.
The doctor examines the urine sample.

DOCTOR: Friend, your piss is cloudy and yellow.

—Hans Sachs, *Fool Surgery* (1561)¹

1.1 Introduction

In the year 1517, a public dissection occurred in Strassburg,² Germany, from which a woodcut image of the body and brain was cut (Figures 1 & 2). This image appeared in a single fugitive sheet broadside attached to Hans von Gersdorff's *Feldtbuch der Wundartzney* (Fieldbook of Surgery) and was reprinted in Lorenz Fries’ *Spiegel der Artzney* (Mirror of Medicine). In the history of the brain, medicine, and surgery, this

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² For consistency, I will use the 16th Century spelling of ‘Strassburg’ rather than the contemporary ‘Strasbourg.’
image that was made after an eyewitness account of a dissection marks the transition from the medieval period to the renaissance. The brain appears on stage for the first time.

Theater professor and theorist Erika Fischer-Lichte writes “The moment an actor appears on stage, the audience has already received information which allows it to identify the character being portrayed as a specific character.”3 The frame of the stage, actor’s speech, body gestures, clothing, and audience expectations conceal the actor and project the character in a mutual acceptance of fiction. However, what if that character is an object or a body part? How does one distinguish the difference between a real object and theatrical property, or “prop?” Barbara Duden has shown that some body parts do not often announce themselves as in the previously mentioned brain image. The objects remain hidden away or vanish under the garments of history that obscure them.4 Ornamental objects are often concealed by the main action or celebrated central characters. The glare of the lights can even blind the audience. In this dissertation, I will attempt to define the contours of an object that has had no formal introduction because its first appearance was marred by the glitz of new technology and its own fading costume. I will present the brain in two 16th Century medical and surgical texts.

Lorenz Fries, the academically trained medical doctor who wrote Spiegel der Artzney in 1518, provides his readers with a list of theoretical axioms about medicine. From those axioms, he deduces practical medical treatments for the body from ‘head to foot’.5 If we linger a bit on the head, we will see the brain in a new light, or like the doctor in Hans Sachs’ Fool Surgery, in old piss. In the first book on the theory of

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5 Unless otherwise noted, all references will be to the 1518 version of *Spiegel der Artzney* (Mirror of Medicine) found at the Bayerische Staatsbibliothek.
medicine, Fries offers suggestions on reading a patient’s urine to understand their head
and brain ailments. Fries describes the common diagnostic procedure of uroscopy that
had been used for centuries to define ailments of the body in general and the head in
particular. Since urine in a glass flask is of a similar shape as the human body, the top,
middle, and bottom correspond to the body’s three souls of head, chest and abdomen.
Regardless that the shape of glass could be otherwise, he writes, “First: Of the Circle. The
circle is nothing other than the upper part of the urine. And it means the subtlety of the
head.”6 Thereafter, Fries provides a list of signs (colors, dregs, heat, and humors) that
may be in the urine that a doctor must recognize in order to treat the illness of the head
and brain. By recognizing the ideal head and the patient’s deviation, a doctor can restore
a patient’s head and brain to their proper balance so the patient could properly use his or
her inner senses of common sense, imagination, reason, and memory.

If we look for signs of the brain mentioned by Hans von Gersdorff, the town
surgeon from Strassburg who penned *Feldbuch der Wundartzney*, we find traces in an
astrological chart at the end of the first book on anatomy and bloodletting.7 If we
examine his description of the head, we find rituals related to treating head and brain
ailments. The first astrological sign in this chart is Aries the ram, which rules the head.
Gersdorff further writes that Aries is a sign of the month of March, which is a good time
for bloodletting, but not good for head treatments. For those unfortunate enough to be
wounded in the head in the month of March, that man will die of his wounds, or he will

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6 Lorenz Fries, *Spiegel der Artzney* (Die Bayerische Staatsbibliothek: 1518) 64r. “Zum ersten von dem
zirckel. Der zirckel ist nit anders dan das oberteil in dem harn. Un bedüt die geschicklichkeit des haubts.”
7 Unless otherwise noted, all references will be made to the 1517 version of *Feldbuch der Wundartzney*
(Fieldbook of Surgery) found at the Bayerische Staatsbibliothek. Images will be from various sources
available and cited accordingly.
remain untreatable. After completing the astrological chart from “head to foot,”

Gersdorff concludes with two short rules a surgeon-in-training must remember:

All arteries of the arm/ the same of the genitals,
Should be let before eating.
All arteries of the head/ the hand/ or the thigh and the foot
Should be let after eating.

Uroscopy, astrology, and phlebotomy were three common diagnostic techniques that doctors and surgeons used to fit the human body (microcosm) within a larger cosmological framework (macrocosm). Many more such aphorisms, rituals, images and strict regiments of ordering the day, months, and year around of treatments of the body, head, and brain appear throughout Fries’ Spiegel der Artzney (Fig. 1) and Gersdorff’s Feldtbuch der Wundartzney (Fig. 2). Yet, because of visually accurate woodcut images of the head and brain that appear in both of their texts, the bright clothes of the more visual presentation have concealed the many diverse statements about the head and brain. By reintroducing verbal, visual and gestural statements made about the head and brain by Fries and Gersdorff, I will show that this doctor and surgeon were part of a transitional epistemology in the early 16th Century. Such an epistemology combined the strict rules of scholastic academic medicine and social hierarchy with new techniques of visualization and experimentation. I will define this transition as a movement from allegory to emblem that can be seen in Fries, Gersdorff and many other 16th Century doctors’ and surgeons’ approaches to the body and brain. By allowing the brain to appear in all its clothes—rather than just the sexiest or most accessible to a contemporary

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audience—I will show that in order for an object to appear, the audience must boast a proper thought style by which to recognize it. I argue that understanding a thought style in transition from allegory to emblem in the early 16th Century will help us recognize the brain as it appeared on the renaissance stage. In order to recognize the 16th Century brain, one must attempt to think in allegorical and emblematic terms.

1.2. The Brain as Allegory and Emblem

Allegory in the late 15th and early 16th Century has been defined in literary, religious, and artistic terms. I will outline allegory in more detail in chapter one, but Johann Huizinga provided an introductory definition that is useful here: allegory gives a sensible vehicle to a metaphoric connection knowable in the intellect.10 Fries situates this distinction in Aristotelian terms, between singular and universal, where the common man sees the singular, a doctor with proper training can see the universal directly.11 The popular humanistic term of opifex deus, or “divine artisan” signaled that God created the world with a specific purpose. Fries calls the opifex an object’s nature, or the principle that guides the material form.12 One knows this purpose in one’s intellect.

The purpose of the head and brain before the 16th Century was found in the intellectual faculty, or the inner senses located in the ventricles of the brain. By the 16th Century in Western European academic discourses, the inner senses were codified into common sense, imagination (fantasy), reason, and memory thought to be located in the brain’s cavities or ‘cells.’ A well-trained doctor could use these inner senses to

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11 Fries, Spiegel 16r.
perform knowledge and know the world. An object’s allegorical purpose in sensible form could then be contemplated internally. As such, all created things were divine works of a universal kind in a material form. For Fries to use urine to know the head and brain assumed not that he would need to know the urine, the head, or the brain material, but he would know them as vehicles, metaphors, or transporters of a specific purpose that he could sense, recognize in imagination, and then contemplate in a meditative ritual by using the faculties of reason and memory.

If allegory is a meditative sign, emblems in the late 15th and early 16th Century can be understood as the fragmentation and externalization of allegorical signatures. Briefly, an emblem has been defined as a rhetorical device that combines allegorical images, written and spoken tropes, and often body gestures. In Gersdorff’s text, spoken medical tropes such as “brain injuries are fatal” were compared with other aural and visual fragments such as images of treating such a brain injury, Aries the ram, the proper month of treatment, and the speech of a patient who had injured one or more of his or her inner senses. The combination of such allegorical fragments created emblems in the early 16th Century so that Gersdorff could use a form of medical semiotics to interpret the patient. An image at the end of his *Feldtbuch der Wundartzney* of medical professionals at work—a doctor or surgeon touches a patient’s head, alongside another who examines a urine flask, and a third who prepares a plaster—provides readers with an example of this diagnostic procedure (Figure 3),

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15 Gersdorff, *Feldtbuch der Wundartzney* 27r-30v.
Members full of blood, urine, lumps and swollen glands,
Breath stinks, these many signs at hand
I tell you the truth, they all signify to me
This man is afflicted with leprosy.16

Examples of such diagnostic procedures are plentiful prior to the 16th Century, where by through resemblance, signs were analogically related to create a unified whole.17 Together, the fragmented allegorical signs made up the emblem.

In the last 100 years, emblems have been studied in many ways, three of which will be applied to this dissertation in an attempt to understand the allegorical and emblematic presentations of the head and brain in Fries and Gersdorff’s texts. First, an emblem has been studied as an ontological whole, or artistic and literary device that expresses a non-sensible truth. As a collection of fragmented signs, emblems are ideograms.18 The first “official” printed emblems appeared in 1531 when the humanist Andrea Alciati’s published a collection of aphorisms under the title Emblematum Liber, to which an Augsburg printer added small woodcut images. Thereafter, the emblem was born into being with the proper form of an inscriptio, pictura, and subscriptio. Praz calls this device, which is similar to an impresa, “nothing else than a symbolical representation of a purpose, a wish, or line of conduct by means of a motto and a picture which reciprocally interpret each other.”19 The goal of shared signification is to present an enigma in sensible form where by the words and images both contribute meaning. Such devices appeared before the first formal emblem, at least twenty eight times throughout

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Gersdorff’s *Feldbuch der Wundartzney*. However, these images and poetic descriptions of the body, illness, the head and brain, have yet to be interpreted.

A second method of approaching allegory and emblems is to find where allegorical fragments appear outside of the emblem book, giving rise to the field of applied emblematics in the 1960’s and 1970’s, particularly in German, French, and English studies. Here the etymology of the term “emblem” is taken to its full effect, where the word *emblem* stems from the Greek *emblema*, meaning mosaic-work or decorative inlay, which was a standard definition throughout the 16th Century.²⁰ Such ‘decorative’ work can be found in ceilings, plaster, stone carving, furniture, silverwork, tapestries and other handcrafts. As briefly suggested by emblem scholars Russell and Giordano, the human body is also the site for this fragmentation, ornamentation, and emphasis on detail.²¹ The emblematic presentation in the 16th century is a shift from the ‘essence’ of an object to the ‘trifles.’²² By fragmenting and combining several tropes of differing structures—structures such as words, images, and gestures—a doctor, surgeon, artist and printer created the brain as emblem where visible details of cerebral convolutions, ventricles, and the pituitary gland appeared and imaginary structures such as the *rete mirabile* and *inner senses* disappeared.

The third approach to the allegory and emblem is one that looks at these two

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epistemologies as specific styles of thought (Denkform).23 The allegorical thought style allowed medieval surgeons and doctors to have immediate sensible access to an allegorical truth of an object, situation, or environment. I will provide further contours to this thought style by equating allegory with the theory of the inner sense, which was popular as an esoteric style of thinking from the 4th through the 16th century. In this particular thought style, perceiving wit meant that one could actually sense a moral meaning in all objects, places and things.24 This meaning took the form of an enigma or puzzle to be solved. God created the world allegorically, and the human body was no exception. The inner senses allowed one to transform the material world into an intellectual truth and contemplate it internally. Emblems appeared at the end of the 15th and beginning of the 16th Century as a fragmentation, fusion and expulsion of these allegorical fragments, a visualized unit of the internally created world outside the body.

1.3. Texts & Authors

As of 2011, original copies of both Speigel der Artzney and Feldtbuch der Wundartzney can be found in major and minor academic libraries and medical archives around the world. Feldtbuch der Wundartzney was printed in both folio and quarto form, presumably home and travel versions. I have only found folio versions of Speigel der Artzney. Two secondary press versions of Feldtbuch der Wundartzney were produced for

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23 Daly, Literature 32-36, shows that the concept of an emblematic thought style (Denkform) was first introduced by Albrecht Schöne, Emblemak und Drama im Zeitalter des Barock (München: Beck, 1964) 48 and elaborated by Dietrich Walter Jöns, Das "Simmen-Bild": Studien zur allegorischen Bildlichkeit bei Andreas Gryphius (Stuttgart: J. B. Meylersche Verlagsbuchhandlung, 1966) 29-34. The emblematic thought form has subsequently been outlined in detailed fashion by Russell and can be applied outside the domain of emblem books proper. The aetas emblematica was coined by Daniel Russell, Emblematic structures 9.

24 Praz, Studies 22.
the 450th anniversary. I have personally consulted copies of both texts held in archives in Zürich, Basel, The British National Library, and the National Library of Medicine (Bethesda, MD), as well as referenced versions digitized by the Bayerische Staatsbibliothek.

Fries and Gersdorff’s texts went through many alterations while the author’s were alive and even more posthumously, creating a plethora of editions that may or may not be considered improvements upon the original. Unless otherwise stated, I will be referencing a 1517 edition of Hans von Gersdorff’s *Feldbuch der Wundartzney* and 1518 edition of Lorenz Fries’ *Spiegel der Artzney*. In order to account for mistakes in pagination in both texts, I will begin with the title page as “Page 1” of the 1517 version of Hans von Gersdorff’s *Feldbuch der Wundartzney* and 1518 edition of Lorenz Fries’ *Spiegel der Artzney* found at the Bayerische Staatsbibliothek. Images will come from available digital copies and the location will be cited accordingly. We will see that the notion of an author and book were not stable terms in the early printing world, where writers freely plagiarized previous works, printers changed, subtracted from or added to the text, artist drew and woodcutters cut based on both experience and prior images, and typesetters arranged the book often without having much or any knowledge of the subject or access to the author. Each of these factors had an influence on the final version of the text and the authority of the author. Because of the radical changes that occurred in the organization and compilation of the texts in subsequent editions, and the ease with which typography allowed a book to be fragmented, I will trace the changes in the brain images

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that went on to influence many other cultural domains outside of medicine and surgery, specifically social decorum and Protestant theology in the middle of the 16th Century.

If we turn to Lorenz Fries, we see his public biography in terms of his diverse interests brought to the readers through the medium of print. He was born roughly around 1483, though no documentation of his childhood or earlier years has been discovered. As an academic doctor, Fries, Phryes, Frisius, or Latinized as Laurentius Phryesen, was well travelled. Fries claims in the preface to his *Spiegel der Artzney* to have studied in Leipzig, Mainz, Paris, Prague, Siena, Vienna, and completed a doctor of medicine degree in Montpellier. Not uncommon of a travelling doctor, no written record has to date been found as to which university granted him the title of medical doctor.27 In 1515, he became the official doctor for his home town of Colmar (outside of Strassburg), moved briefly to become the town doctor of Freiburg for several months in 1517, eventually returning to the Augustinian cloister in Colmar, where he authored *Spiegel der Artzney*. Thereafter he renounced his Strassburg citizenship and travelled to Metz—presumably after Strassburg showed favorable treatment to the new Lutheran movement—writing, publishing, and treating patients in the Alsace region.28

Like the majority of academically trained physicians, Fries possessed an encyclopedic memory of older traditions. He wrote vigorously on a diverse range of topics and authored many texts that have survived through the years as well as held companion or corresponded with some of the most-well known 16th Century humanists, doctors, and medical reformers, though not always in the most favorable of

circumstances. His public career began when he published a fugitive sheet on a miracle birth in Rome (1513) and *Spiegel der Artzney* (1518) became the first complete vernacular medical text in German. He published in both German and Latin, most notably a description and treatment of Syphilis in Latin (1525, rpt. in German in 1532) and a memory tract (1523). His early book on Ptolemy (1523) used images from Martin Waldseemüller’s map of the discovery of the *terra incognita* beyond the ocean, becoming one of the first printed books to use the word “America.”

Between the first and last editions of *Spiegel der Artzney*, Fries had left Strassburg, becoming town doctor for the city of Metz, as well as broke his relationship with the Strassburg print shop of Johann Grünninger for reasons that will later become clear. He also wrote a defense of Astrology against Martin Luther (1520) and a defense of Avicenna for use by German doctors (1530). Bittel has shown that Fries met and corresponded with Paracelsus and Agrippa from Nettesheim, though the meaning of these relationships is not clear.

Such tracts and travelling companions put Fries in popular yet highly contentious debates for the future of medicine in the early 16th Century, such as whether one should continue to use texts with Arab origins in light of a growing Hellenism, if doctors should treat more than wealthy patients, and if astrology and other speculative sources of knowledge were as beneficial as empirical evidence. Fries’ outspoken defense of Arabic medicine opened his work to criticism as his style and ability came under pressure both from popular and academic sources. Leonhart Fuchs (1501-1566) eventually removed all Arabic medical instruction from the University of Tübingen curriculum.

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29 On Fries’ forays into cartography, see Meret Petrzilka, "Die Karten des Laurent Fries von 1530 und 1531 und ihre Vorlage, die 'Carta marina' aus dem Jahre 1516 von Martin Waldseemuller," (Ph.D. Dissertation, University of Zurich, 1970).
when he became dean in 1535 and Paracelsus publicly burned Avicenna’s *Canon*, bringing attention to the debate.\(^{32}\) Such a move had little impact on Fries’ text since his audience members were outside academic circles. More detrimental to the authority of his medical instruction came from popular and religious sources: Strassburg theologian Thomas Murner (1475-1537) sharply criticized Fries for the author’s poor command of academic languages (Greek and Hebrew) found in his book of medical synonyms (1519). A Basel printer/poet Pamphilius Gegenbach (1480-1525) even referenced Fries in his Carnival play, *Fool and Bumbler*, as a doctor enamored with his theories of astrology to the point of deceiving patients.\(^{33}\) Fries did not stand idly by; in the preface to his book on prognostication nonetheless, he defended his theories, practices, and astrological predictions. He proved himself correct, criticizing certain theologians for predicting the end of the world in 1524, which from his astrological observations, would still be many years away.

However sharp these critiques appeared to be, they do not seem to have affected the popularity of his *Spiegel der Artzney*, one of the most reprinted texts in the early 16\(^{th}\) Century.\(^{34}\) Constructed in two parts, theory and practice, Fries presents the entire rational medical system of regiments and pharmacological treatments based on the 13\(^{th}\) Century doctor, Arnold Villanova’s *Opera medica omnia*, translating his *Speculum medicinae* into his own “Mirror of Medicine.”\(^{35}\) In the preface to the 1532 edition, edited with the help of Strassburg doctor and botanist Otto Brunfels and printed by Balthasar Beck, Fries writes

\(^{34}\) Ölschlegel’s *Studien zu Lorenz Fries* provides a comprehensive bibliography of Fries’ printed works, where Ritter and Chrisman provide a bibliography of those works printed in Strassburg.
a critique of the Reformation movement and of his own impending death. Otto Brunfels mentions in a letter added to the 1532 edition that Fries had died, but that the author had corrected his book with his own hand. Thus Fries died sometime between August 1530 and March 1532.\textsuperscript{36} 

*Spiegel der Arzney* went through three additional post-humous printings (totaling eight), the last by the Marburg professor Johann Dryander, who in 1548 added a section on surgery to complete the medical triad of regiments, pharmacology, and surgery. The surgical section came from Gersdorff’s *Feldbuch der Wundartzney*, which further linked these two medical men.

Johann (Hans or Schylhans) von Gerdorff was a military surgeon and citizen of Strassburg whose *Feldbuch der Wundartzney* became one of the first printed surgical manuals in German. As a practicing surgeon, Gersdorff participated in the Burgundian wars to defend the imperial city of Strassburg and the League of Constance against the advances of Charles the Bold, specifically campaigns at Grandson, Murten, and Nancy.\textsuperscript{37} The success of the Imperial army led by Emperor Sigismund from Austria against Charles, Duke of Burgundy, helped cement Gersdorff’s popularity and reputation as a successful surgeon. Little is know about his life except through his own words found in *Feldbuch der Wundartzney*. He tells us he learned his skill from a ‘Meister Nicklaus, dentist to Sigismund,’ though the identity of this individual is not yet confirmed.\textsuperscript{38} He also writes in the preface that his knowledge comes from “more than 40 years of

\textsuperscript{36} Ölschlegel, *Studien zu Lorenz Fries*, 48-52.

\textsuperscript{37} Gersdorff, *Feldbuch* 44, “namlich in dreyen feldtschlachten/ Granß/Murten/ Nanße.”

experience,” a summary of which will be recorded in his *Feldtbuch der Wundartzney* to preserve his memory.39

*Feldtbuch der Wundartzney* is Gersdorff’s only known publication, going through at least seven printings in the first thirty years after 1517, attesting to its popularity. Further printings in Latin and Dutch appeared in the early years of the 17th Century.40 The book follows the 14th Century French surgeon Guy de Chauliac’s *Churgia Magna* (1363), often copying sections verbatim, leaving the reader to interpret the balance of how much knowledge came from Gersdorff’s forty years of experience and how much was copied directly from Chauliac’s approach to surgery.41 Structured in four parts, *Feldbuch der Wundartzney* begins with a section on anatomy (Tract I), moves to a lengthy section on the art of surgery and surgical treatments of the body (Tract II), concluding with a section on leprosy and German-Latin translations of anatomical, herbal, and illness/disease vocabulary (Tract III & IV). Like Fries’ book, Johann Dryander, professor at the University of Marburg, and Walther Hermann Ryff, a surgeon, apothecary and early master of using typography to communicate his or a plagiarized work, re-printed Gersdorff’s text posthumously.42 A much-revised 1576 Frankfurt edition titled the *Feldt und Stadt Buch der Wundartzney* (The Field and Town Book of Surgery), shows the changing uses of the text over time from a surgeon-specific teaching tool to one that addressed routine community health practices.

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39 Gersdorff, *Feldtbuch* 1v.
42 Wickersheimer “Gersdorff, Hans von” 322-323.
As with Fries’ allegorical thought style, by moving beyond the brain image, as well as contextualizing the brain image in relation other statements about the brain, I will show that Gersdorff’s knowledge and presentation of the brain can be considered to use an emblematic thought style that defined all human knowledge in relation to divine knowledge, but also in relation to other allegorical fragments. The result, as will be shown by a comparison of images and statements about the brain in Fries and Gersdorff’s texts, is the transition from the allegorical and emblematic brain. Such a transition marks a shift in readership and consumption of academic knowledge that will be approached in the next section.

1.4. Audiences for Spiegel der Artzney and Feldbuch der Wundartzney

As products of early print culture, Spiegel der Artzney and Feldbuch der Wundartzney were created for an audience of what Fries called in his preface/dedication, “educated laymen” as well as more practically trained doctors, apothecaries, surgeons, and barbers. Since there was no academic institution in Strassburg until the gymnasium founded in 1538, and no medical school until well in the 17th Century, the medical needs of the town’s citizens required that a surgeon be able to perform medical tasks and doctors to perform those traditionally assigned to surgeons. Fries and Gersdorff, along with other authors of diverse scientific, religious, mathematical, astrological, or technical texts, often wrote in German since the absence of a university made certain that Latin was not a prerequisite for learned discussions. Gersdorff and Fries participated in this expansion of common knowledge, filling in the gap between the

43 Freis, Spiegel 8 “Gestreifelte Leien.”
44 Wieger, Geschichte der Medizin 20-25.
educated and the common man by translating the three instruments of medicine—regiments, pharmaceuticals, and surgery—into German.\(^{45}\)

Following the first two German editions that appeared in 1518 and again in 1519, doctors, who had presumably lost clients after the publication of Fries’ *Spiegel der Artzney*, levied critiques against Fries’ translation.\(^{46}\) Such early critiques of Fries’ German edition were not philological, but based on the appearance of a German edition *in toto*. These critiques brought the doctor to argue in his 1529 edition that a German translation of the medical art is necessary: Hippocrates, Galen, Avicenna, Haly Abbas and other Arabs wrote in their tongue as well as Jews who wrote in Hebrew. As the Spanish and French, Germans should be able to have medicine in their own language.\(^{47}\)

Medicine should not belong only to the wealthy and educated, kept hostage by the Latin tongue, but should be written and used by and for the benefit of the “common man.”\(^{48}\)

The auto-didactic claims made by Fries, that the general reader could teach him or herself medicine and treat their own ailments, has been clearly disputed. The text follows a common structure of master teaching a student, where by the student asks a question and the master answers.\(^{49}\) Such a structure is abandoned by the second chapter of Book I, where the master has the student ask a single question and remainder of book becomes the answer. He only occasionally returns to a question answer format. Siraisi has shown


\(^{46}\) Ölschlegel, *Studien zu Lorenz Fries* 54.


\(^{48}\) Fries, *Spiegel* 8v.

\(^{49}\) For medieval precedents to the master/student dialogue, see Nancy Siraisi, "How to Write a Latin Book on Surgery” 88-110.
that trusting a doctor’s statements verbatim, statements that are often under social and
economic pressure to prove the doctor’s competency, would be historically imprudent.Ölschlegel argues that Fries was writing to the common man about illness, rather than
teaching how to treat illness. In this way, his text shored up the rational medical
profession by teaching patients how to exclude the quacks, old women, empirics and
priests who take your money and kill you. Robert Scribner’s influential text of
Reformation propaganda argues similarly that the hybrid media of early printed images
with explanatory text created a pretended discourse in that rather than speaking to the
audience, told the audience what to think. As such, Fries’ text may be a critique against
the humanist priest of the Strassburg cathedral, Johannes Geiler von Keysersperger
(1445-1510) and other theologians who decried medicine to be lesser than theology,
quoting Augustine as saying “There is no better medicine than confession and prayer.”

The diverse audience for vernacular medical books is also reflected in the
structure of the many medical manuals printed in the late 15th and early 16th Centuries
like Hans von Gersdorff’s Feldtbuch der Wundartzney. Where the vernacular German
language replaced the academic Latin of a university, one can assume a general lay
reader or specialized tradesmen. Gersdorff’s text is written especially as a teaching tool
for his fellow barbers, surgeons, and guildsman. Since university training was not a

50 Nancy Siraisi, Medieval preface.
51 Ölschlegel, Studien zu Lorenz Fries 60-61.
52 Fries, Spiegel, 13. “Hut dich vor dem bescheisser, neme dz Geld und tote dich.”
54 On Keysersperger’s sermons, see Gerta Calmann, „The Picture of Nobody: An Iconographical Study,“ Journal of the Warburg and Courtauld Institutes 23.1/2 (1960): 70. Kezseresperger distinguishes between three types of Christian lives, a trope he often repeats: “vita afflictiva, activa et contemplativa.” Like Lazarus, the first “suffering” Christian is the best. See Johannes Geiler von Keysersperger, Das Buch des Granatapfel, Bayerische Staatsbibliothek (Strassburg: Knoblauch, 1511) 15.
55 Gersdorff, Feldtbuch 1. “Für mein gutter gesellen/gonner, freund.”
prerequisite for apprentice trades, the text includes a minimal amount of Latin references outside of titles, vocabulary, and subheadings. The German is colloquial, though much more visual than Hieronymous Brunschweig who wrote two decades before him and less so that Walther Hermann Ryff who wrote two decades after. Today as 500 years ago, one understands much more if one reads it aloud rather than silently. Yet, by using the distributive powers of the printing press, these three men moved well beyond Heinrich von Pfolsprundt’s *Book of Surgery*, a hand written surgery manual from 1460. In it, Pfolsprundt argues for the secrecy of a guild’s knowledge that should not be transmitted outside of the guild. He provided a collection of aphorisms rather than a system applied to organize and expand the disciplines’ knowledge.

In addition to the vernacular and oral transmission of knowledge, authors and printers collaborated to include images to aid the educated, lay reader and illiterate alike. Gersdorff’s *Feldbuch der Wundartzney* and Lorenz Fries’ *Spiegel der Artzney* both include a bevy of images of general and specific medical and surgical scenes, proper use of instruments, amputation and dissection, as well as the first visually accurate images of the brain. Sebastian Brandt’s *Narrenschiff* presented two descriptions of the foolish patient and doctor along with wood cut images that could be used by the literate and illiterate alike,

He is a fool who does not heed  
What the doctor shows him for his need.

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We will see, however, that images included in vernacular texts were done so for conflicting reasons. Gersdorff’s images are accompanied by interpretative poems, helping the reader or listener to understand the visual scene, a technical skill, and the moral significance of the image. Fries’ text, however, barely mentions any of the images, leaving one to conclude that the printer Johann Grünninger included the images after the text had been written. Such an assumption would then require one to reevaluate the knowledge content of the images of the head and brain so often cited in the history of medicine.

1.5. State of the Field

The historiography of Fries and Gersdorff’s medical and surgical books span both German and English traditions, with points of overlap and omissions in each. The 18th Century doctor historian Johann Friedrich Blumenbach (1786) mentioned them in his *Introduction to the History of Medical Letters* (published in Latin) as well as Ludwig Choulant’s *History and Bibliography of Anatomic Illustrations* (1852) (published in German). Blumenbach and Choulant, and subsequently Clark and Dewhurst’s *An Illustrated History of Brain Function* use the images of the brain as a synecdoche for the entirety of what Fries had to say about the brain, omitting or briefly mentioning the image included in Gersdorff’s text because of its fugitive sheet form and explanatory poem.59 Frank’s translation of Choulant, and subsequent expanded English editions in 1920, 1945, and 1962 correct the mistake and attribute the image of the brain dissection to Wächtlin and Gersdorff, but an alternate history had already begun in the English speaking world.

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59 Johan Friedrich Blumenbach, *Introductio in Historiam Medicinae Litterarium* (Göttingen, 1786) 114. See also Choulant, *History and Bibliography* 130-135; 156-167; 415-416.
as Garrison praises Fries “leap forward in representation ability” and ignores Gersdorff’s presentation of poem and image.

In Choulant, we also see the first appearances and critique of an “emblematic” presentation in the 16th Century, whereby Choulant omitted medieval texts and images because they were “emblematic,” or not “natural.” As we will see, the emblem that appeared in the 16th Century had a history in medieval allegory and was more than just a rhetorical and visual device that cleverly combined words and images. In medical literature, emblems and the emblematic thought style can now be seen as more than just skeletons, skulls, hour glasses, and corpses that reminded doctors and patients of death in order to live a more moral life. Medical texts such as Gersdorff’s and Fries’ began to rely increasingly on images and verbal descriptions to communicate new knowledge that was not inherited through ancient texts. With the tools of applied emblematics, a study of the emblematic presentation of the knowledge content and healing power of the words, images, and gestures in Gersdorff’s and Fries’ texts can be analyzed within their own thought style that includes a theory of the interaction of signs from diverse structures.

In the history of medicine and surgery, Wieger and Gurlt describe Fries and Gersdorff’s general contribution to medicine and surgery at the end of the Middle Ages. By combining the history of medicine and surgery, we can see that, especially during the 12-15th Centuries, educated surgeons’ and practical doctors’ duties commonly overlapped though the difference between academic and apprentice education were still noticeable.

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Gersdorff is often praised for his contributions to surgical treatments, making him the German equivalent to the French surgeon Ambroise Paré (1510-1590) in that he recommends gunshot wounds not be treated as poisonous and generally contributes to the makeshift “Strassburg Surgical School” of Pfosprundt, Brunschweig and himself.

H. Grabert and Annette von Gersdorff’s dissertations provide general background to Gersdorff’s knowledge, vocabulary and a summary of the contribution of *Feldtbuch der Wundartzney* to the history of surgery, though little new information has been added.63 Similarly, Ölschlegel situates Fries’ knowledge within the medical community of his time, though his work is more of a summary than addition to the history of medicine.64 Each of these dissertations omits mention of medical use or possible epistemological value of images by either Fries or Gersdorff, following the trend that deemed the images of mere ethnological interest.

In addition to these general works on Fries and Gersdorff’s contribution to medicine and surgery, my dissertation would not be possibly without recent (since the late 1970’s) German and English histories of the brain and the late medieval cell theory. Harvey, Bruyn, Kemp, Hagner, and Martenson provide a more nuanced account of the creation of the cerebral object as well as how the inner senses were more than just a medieval theory to be discarded in favor of a better theory that included the early uses of typography, visually accurate images and dissection. Harvey has shown the diverse medical and philosophical definitions of the inner senses in Arabic and Christian sources from the 9th through the 12th Centuries in both medical and philosophical traditions.65

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64 Ölschlegel, *Studien* 1-20.
Kemp provides a detailed account of the medieval cell theory in relation to contemporary psychological theories. Bruyn argues (followed by Hagner), that contrary to historical accounts that equate the inner senses with the ventricles of the brain, the two constructs should be considered separately in early brain discussions and images. Though beyond the temporal scope of this dissertation, Hagner and Martenson’s recent histories of the brain in the 17th Century shows that, though anatomy was increasingly becoming the tool of choice to understand the brain, the inner senses were still the essential tool throughout the 16th Century and that the brain should be understood within its historical context.

Chrisman and Carlino’s social histories of the interaction of print and Strassburg intellectual milieu demonstrate that Fries and Gersdorff’s surgical and medical texts were part of a rise in vernacular literature. They include the images in Gersdorff’s text for their knowledge content and the images’ shifting position in practical medicine. Such a move allows for a close reading of the interaction of images and words rather than denigrate them for the ‘emblematic’ qualities. Carlino and Sawday’s social and cultural histories of dissection recorded in printed texts, Books on the Body and The Body Emblazoned, also show that the practice of dissection was neither new to the 16th Century nor the same as it was in the 14th and 15th Century. However, these texts do not

describe the detailed relationship of images, texts, and the gestures of dissection that defined the brain in the 16th Century.

Surprisingly, however, other than citing the accuracy of the brain images, little has been written about the various approaches Lorenz Fries, Hans von Gersdorff, and other medical practitioners of the pre-Vesalian period used to define, understand and perform the brain. By emphasizing the representation of brain matter, the well-known images appear to replace the theory of the inner senses that located the faculties of the intellectual soul in the ventricles of the brain, variously called common sense and imagination, reason and memory, thus marking the end a speculative medieval theory. However, a theory that lasted from the 4th through the 16th Century—through Saint Augustine (354-430), Arab doctors and philosophers Avicenna (ca. 980-1037), Averroes (1126-1198), the scholastic monks Saint Thomas Aquinas (1225-1274) and Albert the Great (ca. 1200-1280), doctors and surgeons Arnald Villanova (1235-1311) Mondino de Luzzi (1270-1326) and Guy de Chauliac (1300-1368)—had become a habit of mind that did not fade easily.

By approaching the allegorical and emblematic presentations of the brain in Fries and Gersdorff’s texts, I will be able to fill three lacunae that currently exist in histories of the brain in general, and Fries and Gersdorff in particular. First, the inner senses were dismissed as an incorrect medieval theory discharged by the practices of naturalistic representation and dissection. Second, these very same naturalistic images and the practice of dissection subsequently occlude other potential signs related to knowledge of the brain in Fries and Gersdorff. Finally, a lack of a method to understand the
simultaneous presentation of competing epistemologies begs for an alternate approach to the brain found in Fries and Gersdorff’s texts.

1.6. Dissertation Structure

Four main chapters explore the performativity and theatricality of the brain in the early 16th Century. After the introduction to the authors, texts, and milieu, *The Inner Senses: from Allegory to Emblem*, provides the theoretical foundation for the use of allegory and emblem to understand the performativity and theatricality of the brain found in Fries and Gersdorff’s texts. *Knowing the Brain in the Early 16th Century* explores the performative aspects of medical and surgical diagnosis, treatment, and proper performance of the inner senses whereby doctor, surgeon, and patient moved through common sense, imagination, reason, and memory. *The Theatricality of the Head and Brain in the Early 16th Century* argues that in the 16th Century, the brain did not yet exists as an isolated object but should be understood in a conceptual relationship to the allegory of the head. Finally, *The Brain as Emblem* provides an emblematic reading of the oft-ignored fugitive sheet in Gersdorff’s text and demonstrates an enigmatic and alternate future for the brain’s fragmentary construction that influenced the future of cerebral anatomy as well as Philip Melanchthon’s Protestant education reforms.

In chapter two, *The Inner Senses: from Allegory to Emblem* I provide the theoretical foundation for the remaining three chapters. After a brief history of the inner senses inherited by Fries and Gersdorff, I situate knowledge of the brain and head in relation to popular and academic semiology in the early 16th Century. I further define key terms of “allegory,” “emblem,” “performativity,” and “theatricality” in relation to the
16th Century medical and surgical milieu and approaches to the head and brain that included much more than dissection and accurate images.

In chapter three, *Knowing the Brain in the Early 16th Century* I show that the medical doctor Lorenz Fries and surgeon Hans von Gersdorff performed the inner senses of common sense, imagination, reason and memory as tools of the soul located in the ventricles of the brain. By using the concepts of allegory and emblem, I resituate Fries’ allegorical thought style that emphasizes meditative movement between reason and memory in relation to Gersdorff’s emblematic style of organizing the world in common sense, imagination, and in signs outside the body.

In chapter four, “The Theatricality of the Head and Brain in the Early 16th Century,” I use theories of theatricality and media studies to demonstrate that in the early 16th Century, doctors and surgeons defined the brain through a long-standing conceptual relationship with the head as a divine organ. By outlining the changes in media in which the brain was recorded, I show that the roles of the brain recorded in spoken, graphic, typographic, and gestural signs were very distinct in their dialogue with the ideal concept of the head. By presenting the brain in relation to the head, one can see the force of symbolic images and rituals as well as their importance in defining the brain that was not yet an object to be understood in isolation.

In chapter five, *The Brain as Emblem*, I provide an emblematic reading of the disregarded enigmatic brain images and poetic descriptions found in Gersdorff’s *Surgery Field Manual* as well as other 16th Century medical fugitive sheets. In addition, I trace the future of these brain images through medical, surgical, anatomical, and finally theological routes, ending in the pedagogical text of Philip Melanchthon, a commentary
of Aristotle’s Liber de anima. The Preceptor of Germany’s call for youth to properly perform brain rituals through a mixture of visible and imaginary anatomy calls for and receives an alternate approach to this hybrid object in the early 16\(^{th}\) Century.

1.7. Conclusion

By examining the presentation of the brain in Lorenz Fries and Hans von Gersdorff’s medical and surgical texts, we see that the inner senses, rather than becoming eclipsed by an epistemology that emphasized naturalistic images and the practice of dissection, guided these practices. As a hierarchically ordered set of tools, the inner senses allowed the intellectual soul to access the world through a hierarchy of signs. Within this hierarchy, bodily gestures and images were thought to be sensible and material and words were thought to be non-sensible and intellectual. The inner senses became increasingly important to knowledge performances in the 16\(^{th}\) Century as more and more doctors, surgeons, philosophers, theologians and artists cited the theory.

However, the simultaneous presentation of images, words, and gestures brought with it a problem for the allegorical thought style: signs became no-longer hierarchically ordered, but equivalent and translatable across their own structures. For example, Albrecht Dürer (1471-1528), who presented his own version of the inner senses (Fig. 4), wrote that one should present a topic visually and orally together in order to understand and remember it better, combining body gestures, images and speech to reinforce the faculty of memory.\(^{71}\) Whereas allegory provided sensible access to the divine truth through the intellect, the emblem provided a method of moving between human

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signifying structures within a social setting. Approaching the brain in transition from an allegory and emblem allows us to not only reintroduce signs that have been omitted or lost in the glare of the brain image, but also see a style of creating an object through the performativity and theatricality of knowledge.
1.8. Figures

Fig. 1. Anatomy in Situ from Lorenz Fries' *Spiegel der Artzney* (Strassburg, 1518) rpt. Bayerische Staatsbibliothek [2053].
Fig. 2. Fugitive Sheet of Anatomy in Situ from Hans von Gersdorff, *Feldtbuch der Wundartzney* (Strassburg, 1517) rpt. National Library of Medicine.
Fig. 3. Medical Diagnosis of a Leper in Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 4. The Inner Senses. Letters designate Entire Brain (A), Sensus communis & Imaginatio (B,C) in the first cell, Fantasia & Estimativa (D,E) in the second cell, and Memoria (F) in the third cell from Albrecht Dürer in Ludovicus Pruthenus Trilogium animae (1498). Rpt. The Complete Woodcuts of Albrecht Durer (W. Kurth, 1936).
CHAPTER TWO

The Inner Senses: from Allegory to Emblem

Theater is A depicting X while S looks on.\textsuperscript{72}

-Erika Fischer-Lichte

2.1 Introduction

This chapter will provide the theoretical foundation for the differences in allegorical and emblematic performances of the inner senses in Lorenz Fries’ *Spiegel der Artzney* (1518) and Hans von Gersdorff’s *Feldtbuch der Wundartzney* (1517). Written only one year apart, the allegorical thought style situates Lorenz Fries and his medical manual within a fading mental framework that emphasized interiority, shunning common sense and imagination in favor of conceits formed through the relationship between reason and memory. Fries argued that the proper use of the inner senses provided learned physicians access to the truth of the body and its possible imbalances. The emblematic thought style situates Hans Gersdorff and his book of surgery as an attempt to bridge the gap between the external senses (sight, hearing, touch, smell, taste) and the inner senses of common sense, imagination, reason, and memory and thereby know the world outside the mind.

By looking at the allegorical characteristics of the brain and the inner senses in Lorenz Fries’ *Spiegel der Artzney* (1518) and the emblematic characteristics of the same in Hans von Gersdorff’s *Feldtbuch der Wundartzney* (1517), I will show that, contrary to

\textsuperscript{72} Fischer-Lichte *Semiotics of Theatre* 15.
historical arguments, the references to the inner senses increased in the 16th Century as more and more learned doctors, surgeons, philosophers, poets, and theologians attempted to unify a human and socially oriented epistemology (horizontal) with the divine signature of the universal signified (vertical). Lorraine Daston has shown this shift to occur through a redefining of the terms invention and discovery in the 16th Century, which moved the site of investigation from the caverns of mind to sensible signs outside the body.73 The nexus of these axes, where human reason met divine revelation, was thought to be the center of the head, also known as the inner senses of common sense, imagination (fantasy), reason, and memory (Figure 5). Images like the one found in the Bologna surgery professor Berengario Da Carpi’s (1460-1530) tract on treating head injuries, copied from his predecessor Alessandro Achilini (1463-1512) became more and more common throughout the 16th Century.74 Such images contradict Sudhoff’s statement that knowledge of the brain changed when “When anatomical research brought the light of day.”75 Anatomical knowledge, like other new disciplines appearing in the 16th Century, was filtered through the instruments of the soul, or the inner senses.

2.2 History of the Inner Senses

I will briefly outline the history of the inner senses and define the performative aspects of the allegorical and emblematic thought styles in their relation to these mental instruments. Though no common source has been found, the consensus is that the localization of the inner senses combined three sources: Aristotle (384-322 B.C.E.), Plato

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74 Clark and Dewhurst, An Illustrated History 27.
(ca. 429-437 B.C.E.), and Galen of Pergamon (129-199 A.D.). Hagner has shown that books II and III of Aristotle’s *de Anima* provided a general outline the faculties of the soul. Though Aristotle relegated the brain to a mere cooling organ for the excess heat of the heart, his list of faculties of common sense, imagination, intellect, and memory became standard in later theories. Plato’s *Timeaus* provides the priority of the head as ‘spherical’ and because of the skull, the most protected and immortal part of the human body while the *Phaedo* offers a general theory of knowledge where by the brain presents sense data from which arise memory and knowledge. Galen summarized Greek, Roman, and Alexandrian medical and anatomical knowledge of body, outlining the ventricles of the brain and the “rete mirabile” or miracle net that converted natural and sensitive spirits into animal spirits or pneuma in the brain.

The first recorded attempt to localize mental faculties in the brain occurred by three diverse men in the fourth century A.D., namely, the Greek doctor Poseidonios (350-420 A.D.), the Syrian bishop Nemesius (b. 340) and the patristic father Augustine of Hippo (354-430). Though only appearing in partial form before the fourth Century, the inner senses became the theory of knowledge that unified theological, philosophical, and medical/anatomical knowledge. By the fourth Century, the Syrian Bishop Nemesius could write the following passage that unified anatomy, medicine, and natural

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80 Hagner, *Grundlagen* 12-17.
philosophy. Once one has sensed and object and common sense has assembled that
object into a representation in the first ventricle,

The faculty of imagination hands on things imagined to the faculty of
thought, while thought or reasoning, when it has received and judged
them, passes them on to the faculty of memory. The organ of memory
too, is in the posterior cavity of the brain, which they call the cerebellum
and the enkranis, and the psychic pneuma with in it.81

The metaphor of sense “handing and passing” objects in the mind was popular in later
theories. Aristotle’s metaphor of a seal in wax, where by a sense impression would leave
its ‘mark’ on the faculty of imagination and then an even stronger mark in memory, was
also common.82 Medically, doctors could diagnosis memory ailments or situate old age
and youth within this theory of impressions, so that one must be properly balanced—not
too hot or too cold, too wet or too dry, to fast or too slow—in order to have a good
memory. One could also train one’s inner senses to improve one’s faculties, where
Augustine writes in Book X of Confessions that memory is a chamber and the objects are
images as well as words, reducing the immeasurable world of sense into something
knowable, whereby science and reason drive these hidden things from their hiding places
so that they can be recognized.83

Before one could contemplate, however, one first needed sensible information.
The physiology of the inner external senses began with their opposites, the external
senses. The external senses engaged singular material objects through the bodily senses
of sight, touch, hearing, smell, and taste. The data from these external senses were

81 Nemesius, On the Nature of Man, trans. R. W. Sharples and P. J. Van Der Eijk (Liverpool: Liverpool
University Press, 2008) 121.
82 Douwe Draaisma, Metaphors of Memory: A History of Ideas about the Mind (Cambridge: Cambridge
brought into the faculty of “common sense.” Common sense aggregated all the ‘common sensibles’ from the external senses into form useable by imagination. Imagination (sometimes called fantasy) stored images of sense impressions that were no longer sensible. From these stored sense impressions, reason (in the center of the head) abstracted the divine ideas and compared them with those stored in memory. Immediate recognition of the signified meaning of an object’s signature allowed a trained observer to skip (or at least minimize) the physical process of sensing and hasten the movement from a sensible experience to internal contemplation. We can understand an essential common element of all the presentations of the 1,000 years of the inner senses: the inner senses allowed humans to move from the earthly to the divine realms, singular sensible experience to universal truth.

The theory of the inner senses was carried east from Greece and Italy, and depending on the translator, variously emphasized philosophical (Rhazes and Avicenna), theological (Thomas Aquinas and Roger Bacon), medical and anatomical elements (Mondino de Luzzi and Guy de Chauliac) of the inner senses located in the cerebral cells (Table 1). Table one shows the diversity of the theory in geographic, temporal, and disciplinary breadth, spanning from occident to orient, Ancient Greeks to Renaissance Europe, medical/surgical, philosophical, and theological disciplines. The common element of the theory can be seen in its hierarchical structure: its purpose was to provide man a way to move from sense to reason, material to form, from singular experience to universal truth.

84 For General historical outlines of the transmission of the inner senses, see Walther Sudhoff, ”Lehre von den Hirnventrikeln” 149-205; Christopher D. Green, ”Where did the Ventricular Localization of Mental Faculties Come From,” Journal of History of the Behavioral Sciences 39.Spring (2003) 131-142.
In medical and surgical terms, the patient’s performance of the inner senses provided doctors and surgeons with clues to diagnosis and treat ailments and wounds of the head. Galen’s theory of pneuma (spirit) emphasized the ventricles as containers through which the animal spirit passed into subtler form. This ‘container’ metaphor resonated with the term “cella” as a metaphor for memory, or tiny compartments for animals, scrolls, birds, or even used by monks for study.\(^8^5\) Though Galen did not describe the ventricles as the site of the inner senses, his anatomical descriptions of the ventricles, emphasis on *pneuma*, and humoral theory became the foundation for later theories that presented the ventricles as series of connected “containers.”\(^8^6\) Any potential blockage of the ventricles led to a number of disorders where the patient’s complexion became too hot or cold, wet, or dry, thus affecting the performance of the specific faculty housed in the front, middle, or rear of the head.

\(^8^5\) Draaisma, *Metaphors of Memory* 30.

Table 1. The *hegemonikon*, Modified from Sudhof (1913) and Hagner (1996)

<table>
<thead>
<tr>
<th>I. Cellula</th>
<th>II. Cellula</th>
<th>III. Cellula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poseidonios</td>
<td>Phantastikon</td>
<td>Logistikon</td>
</tr>
<tr>
<td>Nemesios</td>
<td>Aesthesis</td>
<td>Mnemoneutikon</td>
</tr>
<tr>
<td>Augustinus</td>
<td>Sensus communis, phantastica, imaginaria</td>
<td>Rationalis</td>
</tr>
<tr>
<td>Johannes Damaskenos</td>
<td>Phantastikon</td>
<td>Dianoetikon</td>
</tr>
<tr>
<td>Costa Ben Luca</td>
<td>Sensus, phantasia</td>
<td>Intellectus, cогитatio, providential, cognitio</td>
</tr>
<tr>
<td>Rhazes</td>
<td>Imaginatio</td>
<td>Cogitatio</td>
</tr>
<tr>
<td>Haly Abbas</td>
<td>Phantasia</td>
<td>Cogitatio memory</td>
</tr>
<tr>
<td>Die lauternern Brüder</td>
<td>Vorstellungskraft (phantasia)</td>
<td>Denkkraft (cогитatio) Gedächtnis (memoria)</td>
</tr>
<tr>
<td>Avicenna</td>
<td>Sensus communis, phantasia</td>
<td>Cogitative, imaginative, existimativa</td>
</tr>
<tr>
<td>Constantinus Africanus</td>
<td>Sensus, phantasia</td>
<td>Intellectus, ratio</td>
</tr>
<tr>
<td>Copho</td>
<td>phantasia</td>
<td>ratio</td>
</tr>
<tr>
<td>Adelard v. Bath</td>
<td>phantasia</td>
<td>ratio</td>
</tr>
<tr>
<td>Avenzoar</td>
<td>Imaginative</td>
<td>Cogitative</td>
</tr>
<tr>
<td>Averroes</td>
<td>Sensus communis, imaginativa</td>
<td>Cogitative, existimativa</td>
</tr>
<tr>
<td>Algazal</td>
<td>Sensus communis, imaginativa</td>
<td>Imaginative, cogitative</td>
</tr>
<tr>
<td>William of Conches</td>
<td>Cellula phantastica</td>
<td>Imaginative, cogitative, Aestimativa, memoria</td>
</tr>
<tr>
<td>Richardus Salernitus</td>
<td>Cellula phantastica, imaginatio</td>
<td>Cellula logistica sive rationalis</td>
</tr>
<tr>
<td>Albertus Magnus</td>
<td>Sensus communis, imaginativa</td>
<td>Eximistativa (imaginative), cogitative, formativa</td>
</tr>
<tr>
<td>Thomas Aquinas</td>
<td>Sensus communis, phantasia sive imaginatio</td>
<td>Eximistativa, cogitative</td>
</tr>
<tr>
<td>Ricardus Anglicus</td>
<td>Operations sensibles</td>
<td>Imaginatioes, cогитatioes</td>
</tr>
<tr>
<td>William of Saliceto</td>
<td>Sensus communis, phantasia, imaginatio</td>
<td>Cogitatio, existimatio</td>
</tr>
<tr>
<td>Lanfranc</td>
<td>Sensus communis, imaginativa</td>
<td>Aestimativa</td>
</tr>
<tr>
<td>Heinrich von Mondeville</td>
<td>Sensus communis, imaginative</td>
<td>Aestimativa</td>
</tr>
<tr>
<td>Mondino de Luzzi</td>
<td>Fantasia, sensus communis, imaginativa</td>
<td>Cogitative et rationalis, Motiva, memorativa</td>
</tr>
<tr>
<td>Guy de Chauliac</td>
<td>Sensus communis, imaginative</td>
<td>Cogitative et rationalis</td>
</tr>
<tr>
<td>Guido de Vigevano</td>
<td>Apresensiva fantastica</td>
<td>Raciocinvativa</td>
</tr>
<tr>
<td>Arnauld de Villanova</td>
<td>Sensus communis, imaginative</td>
<td>Ratio et aestimatio</td>
</tr>
<tr>
<td>Roger Bacon</td>
<td>Sensus communis, imaginatio, aestimatio</td>
<td>Cogitative, logistica, rationalis</td>
</tr>
<tr>
<td>Gregor Reisch</td>
<td>Sensus communis, phantasia, imaginativa</td>
<td>Cogitative, existimativa, memorativa</td>
</tr>
<tr>
<td>Leonardo da Vinci</td>
<td>Impressive</td>
<td>Sensus communis</td>
</tr>
<tr>
<td>Andrea Bacci</td>
<td>Sensus communis, imaginative</td>
<td>Phantasia, cognitative</td>
</tr>
</tbody>
</table>

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Avicenna, the poly-math from Baghdad whose philosophical and medical treaties influenced the Latin West, believed that hallucinations stemmed from damage to the front pair of ventricles (common senses, imagination/fantasy), witlessness came from damage to the central ventricle (intellect), and loss of memory arose from the third (memory).\(^87\)

Costa ben Luca (Qusta ibn Luqa, ca. 824-923) paid special attention to cerebral anatomy arguing (from Galen) that the pineal gland located between the second and third ventricles can be consciously opened or closed to regulate the passage of spirits through the vermis, or “little worms” between the chambers. This eventually led to other theories, whereby one’s intellectual vigor (or lack of) was shown through one’s ability to move the spirits between the ventricles. One could artificially increase one’s intellectual and memory abilities by practicing to move this little ‘pine cone’ in the brain! Ben Luca’s theory would eventually become the basis for Descartes to reject the ventricles as the site of the powers of the soul in favor of a more symmetrical understanding of the head and brain, where the pineal gland became the point of contact between body and mind at the ideal point in the center of the head.\(^88\)

2.3. **Presentation of the Inner Senses**

If we shift from the history of the inner sense to its presentation prior to the 16\(^{th}\) Century, we have written descriptions, images, as well as descriptions and images of body gestures by which one could use the inner senses. Though most of the information we have comes by way of written text, some handmade sketches from the 13-15\(^{th}\) Century are available. Medical histories from the late 19\(^{th}\) and early 20\(^{th}\) Century present

\(^87\) E. Ruth Harvey, *The Inward Wits* 28-29.

medieval anatomical representations of the inner senses as a *schema*, or the overlaying of a medieval theory of psychology directly onto the material of the brain. Choulant’s well-known text describes only two reasons for early schematic anatomical images: schematic images are created when a group has either not enough knowledge, as in the Middle Ages, where they or too much knowledge, as in his own 19th Century. In both cases, a schematic image is the result such as this hand drawn visualization of the inner senses (Figure 6), which Choulant defines as “an attempt only to present in outline the main characteristics of one or more parts.” For Choulant, the schematic drawing of the inner senses meant that doctors and surgeons did not know enough of the anatomy of the brain so drew its outline. This leads one to believe that the visual inaccuracy of medieval images of the brain were conceived without the proper information and 19th Century images were “more” correct. As Loraine Daston and Peter Galison have shown, this statement assumes that visual accuracy is and has always been the goal of science and medicine, which is not the case. It also presupposes that an accumulation of details equates to knowledge, which is also not the case.

The schema argument is based on a more contemporary thought style where a schema represents a conceptual model among many conceptual models that can be understood quickly and discarded for a better one: one can outline the visual fragment of an object that is already fragmented, say, a corpse. Sarah de Rijcke recent dissertation rejects the traditional belief in a shift from a medieval schema to more accurate

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89 Ludwig Choulant, *History and Bibliography* 22.
representation as flawed. However, she moves quickly beyond the 16th Century to subsequent generations without elaborating. If we remain fixed on this transitional period, and if one looks at medieval brain images and their descriptions as a *performance* of knowledge that deemphasized the sensible object and emphasized the intellectual knowledge, medieval brain images are an attempt to know (not sense) the brain. These images, as well as other allegorical images, are an attempt to *perceive wit*, or to externalize a conceit. Mario Praz argues that schematic images are a process of materialization rather than sublimation, such that the intellect externalizes itself. This knowing process moved *through* the material, from sense and imagination to reason and memory, in order to know the intellectual truth. Early representations of the head show its purpose or allegory, namely, removing everything but the inner senses (Figure 6). The result is an allegorical, rather than schematic image.

Knowing the brain allegorically implies a prior or sensible knowledge (*sensus literus*) of the object that is shed in favor of a ‘deeper’ meaning. One moves from sense to imagination, and then from imagination to reason, and reason to memory. In this way, as a performance of the inner senses, drawings and woodcuts of the cerebral cells from the 13th-16th Century can then be situated within the epistemological movement where brain material has been metaphorically removed in order to see the truth of the brain visualized internally. What is presented visually is a representation of the product, or that which the intellect knows. “Seeing” is also an internal activity of the intellect in that

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95 Bruyn separates the idea of the cerebral cells from the anatomy of the inner senses. See Bruyn, "The Seat of the Soul 14-16."
one can “see and know,” as Augustine writes in his Confessions that the Holy Spirit allows the mind to know truths even if one cannot sense it.⁹⁶ Words are just such a tool: one speaks or sees the material of the word and sees an image in the mind that is invisible to the eye.

If one then reads these early images allegorically, the images and words describing the head are synonymous, repetitions of the same idea. The three or five circles on the head represent the allegory of the head and the moral imperative to use the inner senses in the same way that the words “sensus communis” “ymaginatva” “fantasia” “memoria” represent the inner senses (Figure 7). In this image—which provides tips for doctors to cure illness—the four circles represent the allegory of the head in combination with the entire body to train a doctor to move through the material to access knowledge of the patient’s illness in his intellectual faculty. In looking at medieval drawings of the brain such as (Figure 7), one should not see only a schematic concept of the inner senses, but a performance of the inner senses in which a doctor, surgeon, theologian, or philosopher has rid the brain of its material, moved from the faculty of imagination to reason, in order to access the allegory, or the divine truth of the object.⁹⁷

In this way, knowledge is stored in the very gesture of thought rather than in an image on the page. The image is merely a reminder, a memory device of how to perform knowing properly. The mode of thought where images and actual dissections synonymously rid the brain of excess can be seen in the 17th Century where certain emblem books were called “Brain Grinders.” The combination of image, moral maxim, and interpretive poem were thought to rid the intellect of the sensible world to

⁹⁷ Dietrich Walter Jöns, Das “Sinnen-Bild” 35.
contemplate the truth internally. Aegidius Albertinus, a Jesuit priest enamored with the emblem as a means of accessing the divine truth hidden in the world, created several of these emblem books as “brain grinders.” The title page of Hirnschleiffer (1618) shows a workshop in which men are grinding heads on stone wheels while town’s people wait with their heads in their hands to be ground down.98 These physical brain grinders performed the same process of removing material as the inner senses, leaving one with truth to contemplate and a sharpened wit.

2.4. The Inner Senses and The Emblematic Trinity

If the instruments of the soul filtered or transformed sensible things into intellectual things, what exactly did they transform? Aristotle showed in his De anima that humans and animals have sensation in common, whereby the external senses of sight, touch, hearing, smell, and taste provide their own qualities to the soul by way of the activity of the inner senses. This data is called their ‘special sensibles’ that are particular to each organ. In this way, color is the special object of sight, sound of hearing, flavor of taste, odor of smell, etc. Touch can discriminate more than one set of different qualities.99 Initially, the data from these external senses are brought into the faculty of “common sense.” Common sense aggregated all the ‘common sensibles’ of movement, rest, figure, magnitude, number, unity, from the external senses into form useable by imagination.100 Already in Ancient Greece we have the first allegory, namely, a sensible vehicle for a non-sensible idea.

99 Aristotle Liber de anima, Book II, 418a7-418a16.
100 Aristotle Liber de anima, Book II, 418a7-424b19.
As a collection of diverse sensible experience, the “name” or phonetic or graphic symbol that designates such an experience has usually been equated with such an sensible experience. With a name, the entire referential experience can be purified and related to a system of names rather than the experiences from which they arise. Ludwig Fleck has shown, at least in the history of science, words purified of experience take on a magical and dogmatic character, whereby the name or word by which the diverse sensible experience can be related only within a system of language outside of experience. Kuhn in the 1960’s and Latour in the 1980’s attempted to reintroduce the social and situated into the naming process, Latour following the naming process to the smallest fundamental unit, the brain peptide. We can see that the name is defined “as a transfer of entire experience to material” (phonetic, graphic, kinetic). The meaning of such a name, image, or gesture can then only be understood as an ideogram, or as a sign in relation to an accepted pattern of articulating touch, sight, sound, taste, and smell. In order to sense and recognize the actor that appears on stage, one must already be expecting such an actor to appear in a certain way.

Early modern doctors and surgeons isolated touch, sight, and hearing from taste and smell as the primary senses that provided knowledge in a hierarchical order, whereby touch was defined as the most sensible and hearing the most intellectual. This difference divided the roles of doctor and surgeon, becoming translatable into a social hierarchy

where by a surgeon used his hands and the doctor did not.\textsuperscript{103} For our purposes, taste and smell are of lesser epistemological importance for defining the brain in medicine and surgery in the 16\textsuperscript{th} Century, though as Corbin and Scully have shown, they would need to be studied to complete the picture of sensing any object.\textsuperscript{104} Often, stinking breath, the unpleasant smell of feces, urine, or gangrenous body part signified specific illnesses. Taste could help a doctor define a specific plant in relation to other plants, where by a strong taste and biting scent distinguished certain herbals. Surgeons may also taste blood during coagulation to define a patient’s health after it had been taken through phlebotomy.\textsuperscript{105} As interesting as these anecdotes are, the more important senses for doctors and surgeons were touch, sight, and hearing, or the hands, eyes, and ears.

From the hands, eyes, and ears, the smallest signifying units of these organs are called the gesteme (kineme), grapheme, and the phoneme. The gesteme is the smallest unit of body expression—through movement, adornment, position—by which one becomes conscious of a gestural sign, either by personally making the gesture or by recognizing it in someone else.\textsuperscript{106} The grapheme is the smallest visual unit of writing—pictographic marks, alphabetic letters—by which one can visually recognize meaning.\textsuperscript{107} The phoneme is the smallest unit of sound—usually human speech, but also animal, or environmental—by which we recognize meaning.\textsuperscript{108} The difference between the articulation of deictic and lexical use and the meaning inherited from history is one of

\textsuperscript{103} Gersdorff, \textit{Feldtbuch} 23r-23v. “Das ist ein handtwürcker/oder wundartz. In dem entscheidet fon dem artz/dz der physicus oder leibartzt kein hand würküng thüt.”


\textsuperscript{105} Siraisi, \textit{Medieval} 124; 141.

\textsuperscript{106} Fischer-Lichte, \textit{Semiotics} 39-42.


\textsuperscript{108} David Crystal, \textit{How Language Works} 17.
speech and language, where the deictic sign is situated and the lexical sign is studied in isolation.\textsuperscript{109}

The above-mentioned signifying structures of gesteme, grapheme, and phoneme have been studied separately, the most common being the relationship between phoneme and grapheme in linguistics from the early 20\textsuperscript{th} Century.\textsuperscript{110} Yet, more and more theorists are using semiology in an attempt to elaborate on gestural and imagistic sign use whereby meaning can be found in the most diverse cultural endeavors, particularly in relation to the body.\textsuperscript{111} If we return to our distinction between allegory and emblem, we will see that the inner senses as a theory of knowledge created a form of sign articulation and recognition based on its proper performance. Further, if we look at the sign as divided into signifier and signified, we will see that allegory focused on the signified by creating elaborate rituals by which to ignore or transform the sensible signifier in favor of the intellectual signified. The emblem, on the other hand, focused the signifier, moving from signifier to signifier in patterns of articulation that manifested an often non-sensible signified.

Since bodies in the 16\textsuperscript{th} century were believed to be divided into sensible and knowable, material and soul, studying a doctor and surgeon in tandem helps us to put three conceptual units together—the gesture, the image, and the word—through a


\textsuperscript{110} Ferdinand de Saussure, Course in General Linguistics (London: Duckworth, 1983).

particular pattern or style of articulation, namely through the inner senses, that allowed access to both body and soul. Conceptual units—gestures—arise from combinations of signifying gestemes. Conceptual units—images—arise from combinations of graphemes. Conceptual units—words—arise from combinations of signifying phonemes. The examination of a cultural group’s gestural, imagistic, or verbal signs helps to define their style of meaning creation through instances of paradigmatic and syntagmatic articulation.

The sign is the combined *ideogram* by which an entire structure of gestemes, graphemes, and phonemes are articulated. The brain in the 16th Century, like the entire knowable world, was only accessible by the formal properties of the inner senses. The brain as a material object, like the knowable world, was less meaningful than the performance of articulating signs that allowed one to move from the sensible signifier to the intellectual signified.

By focusing on the inner senses when attempting to understand the presentation and knowledge of the brain in the early 16th Century, I am (attempting) to move the historical discourse away from the object to the performance of knowledge. Contemporary theories of performativity and theatricality can help us understand how the inner senses were performed in early 16th Century. Within the theoretical frame of performance studies, we can see how the allegory and the emblem existed side by side in their articulation of signs as a style of creating the world both theatrically and performatively.
2.5. The Performativity and Theatricality of the Inner Senses

Within the previous sentence, the previous paragraphs, and within larger trends in cultural studies, the terms theater, theatrical, and theatricality (along with performance, performative, and performativity) have become important words that designate often-unclear concepts as used in philosophy, sociology, anthropology, political, theater, gender, science, medicine and cultural studies. In this section, I will outline how performance and theater studies shifted from a very specific philosophical description of language properties to broader uses in cultural studies that can provide insight into the brain and the inner senses found in Fries, Gersdorff and other 16th Century medical texts.

Focusing specifically on speech, J.L. Austin argued in the 1960’s that certain performative utterances (I do, I swear) are the very meaning that they announce. The materiality of sounds within a specific context is the very meaning they signify through an identity of form and content. Whereas Austin limited the conditions of performative speech to certain speech acts that were the very meaning they claimed to be, Derrida (a la Nietzsche via Wittgenstein) argued that all speech is performative because it uses established linguistic structures to break those structures through individual instances of use. The original instance of its creation is not necessary to know its contextualized meaning. Every instance of speech is contextual and cannot refer to the entirety of all

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113 J.L. Austin, How to do Things with Words (Oxford: Oxford, 1962) 6. I would like to thank Richard Page and Dennis Schmidt for helping me clarify this point.
prior conditions. In this way, speech performs its own meaning and language is not a static movement between the linguistic structures of speech and language (Parole et Lange), but an action that is itself meaningful.\textsuperscript{115} The performativity of speech has since been related to the body in that the codes used to know the body are citations of a structure, enacting a style by which the material world is known. The most fundamental act of this performative citation is the name, which allows both a subject and object to exist.\textsuperscript{116}

In the remainder of this chapter and dissertation, I will define \textit{performative} in broader terms, namely, as ‘the simultaneity of action and meaning’ and \textit{performativity} as ‘a reflection on this active meaning creation.’\textsuperscript{117} In the early 16\textsuperscript{th} Century, the performative action of the body—or the body enhanced with technologies of the inner senses—was the meaning itself. In order to understand this thought style, we must shift our attention from the final product to the performativity of the signs in their relation to their structure and their content. Ludwig Fleck has shown that ‘code switching’ or ‘translation’ between speech, written or printed words, images and gestures is a difficult thing to observe from inside a social group because the observer becomes part of the thought style, accepting the harmony of illusions.\textsuperscript{118} As outside observers to medicine

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\textsuperscript{115} Post-structuralist theories attempt to break Ferdinand de Saussure’s (1857–1913) structural binary between speech/language (Parole/Lange), more recently updated by Roman Jakobson, \textit{Selected Writings} (Paris: Mouton, 1971).


\textsuperscript{117} This definition is a slightly modified version taken from Catherine Müller, "How to do Things with Mystical Language: Marguerite d'Oingt's Performative Writing," in \textit{Performance and Transformation: New Approaches to Late Medieval Spirituality} (New York: St. Martin's Press, 1999) 29-45.

\textsuperscript{118} Ludwig Fleck, \textit{Genesis and Development} 90-92. For a further discussion of observation from a specific perspective, see Niklas Luhmann, “The Paradox of Observing Systems.” Nicklas Luhman, "The Paradox
and surgery from the 16th Century, we can see the performative creation of the brain where codes switched between oral, visual, and gestural signs. In structuralist terms, these signs signified both the ideal head and body (paradigmatic axis) and the sign’s relationship to their own signifying system (syntagmatic axis). In this way, the brain and the inner senses were not just a definition of the ideal brain, they were performative tools, the organs or “instruments of the soul” creating a place for the brain to exist in a way particular to the 16th Century. To know the brain in the 16th Century is to understand the performativity of signs, not the object these signs construct. To know the character on stage is to know how the actor inscribes that character; otherwise one is assuming already the harmony of illusions.

If we look at the performativity of the inner senses in Gersdorff and Fries, we can begin to see the head and brain in a new way. The doctor Lorenz Fries, contrary to historical portrayals of him as the discoverer of the modern brain, remained in the allegorical thought style where each sign united signifier and signified, a sensible instance of that sign provided access to a universal form in the faculties of reason and memory. For Fries, to linger on the sensible instance and ignore the resemblance to the rest of the universe is the practice of fools. Foucault called this allegorical epistemology a condemnation of the signature, where pre-16th Century thinkers never knew anything but the same thing.119 The head and brain were no exception to the rule that all cultural performances were oriented around using allegory to access the intellectual truth.

The surgeon Hans von Gersdorff also believed he could move from the external senses to the inner senses or “powers of the soul” called common sense, imagination,

119 Michel Foucault, The Order of Things 30.
reason and memory. For Gersdorff and others who were practically oriented, words, images, and gestures began to have their own rules and were no longer synonymous as translated into the intellectual faculty. The hierarchy of signs slowly faded as words, images, and gestures became equally valid within their own domains outside the body. Gersdorff’s use of signs was emblematic because he could switch between signs of many different structures, beginning with an image, describing that image with words, and creating the body through gestures based on the relationship of images and words. In this way words became visual, images spoke, and gestures moved from inside to outside the body. The emblematic performance differed from an allegorical performance in that Gersdorff could move between these structures with more ease than Fries, who translated the entire world into a word knowable only to the intellect.

At the beginning of this chapter, I presented Fischer-Lichte’s formula for defining theater where theater is \textit{A depicting X while S looks on}. In the history of the brain until the 1950’s, the audience S has been considered contemporary as well as universally applicable. Since Gould’s work in the 1970’s and 1980’s, the audience has been differentiated to the point that we can say the brain contemporary researchers want to see is not the same as that which 16\textsuperscript{th} Century audiences may have created.\textsuperscript{120} By looking at the thought style of S through the inner senses, we will see that “the brain” in the 16\textsuperscript{th} Century becomes an actor (people as well as objects) that is theatrical in its depiction, transforming from an object to a prop, or the theatrical property of a specific thought collective.\textsuperscript{121}

\textsuperscript{121} For ANT, or Actor-Network-Theory, See Latour, \textit{Science in Action}, 179-215. For thought collectives, see Ludwig Fleck, \textit{Genesis and Development} 38-51.
Now I will briefly define the concept of *theatricality* as it relates to the early modern body, head, and brain found in books by Hans von Gersdorff and Lorenz Fries. Going beyond the western concept of theater as a mirror and a reflection of culture, a regularization practice that divides stage and audience, object and subject, ‘theater studies’ and ‘performance studies’ have attempted to find cultural performances in the particular way words, gestures, objects, and images, are both descriptive of something else (theatrical) and themselves meaningful (performative).\(^{122}\)

In the concept of theatricality we see a contemporary attempt to redefine the theatrical in a dialectical relationship to traditional theater. Schechner provides a useful analogy of performance to theater as one of non-transitive concentric circles: all that is theatrical is performative, but not all that is performative is theatrical.\(^{123}\) Michael Fried argued in the 1960’s that if theater is a reflection of the signs of culture, theatricality is concerned with how theater is theatrical. In this way, something that is theatrical is self-consciously so and not really about nature. Per Fried’s art historical approach, the theatrical cannot be performative because it does not bring anything into being, it is simply a reflection of a performance. Fried is highly critical of theatricality, where a work assumes and plays for the viewer; he says that by assuming theatricality, one is already assuming the insertion of a doubling of meaning—the self or consciousness on stage—rather than an experience of the object or event's natural state.\(^{124}\)

\(^{124}\) Michael Fried, *Absorption and Theatricality: Painting and Beholder in the Age of Diderot* (Berkeley: University of California Press, 1980) 40-48. Talking specifically of French painting in the late 18\textsuperscript{th} Century, Fried shows that theatricality means a painting is playing to the audience as something spectacular—it knows it is being seen. Fried argues that the opposite is *absorption*. The concept of absorption is one in which the subject represented in painting or image is totally engrossed in the scene, allowing the subject
Erika Fischer-Lichte looks not at the negative side to theater; rather, she attempts to see how theater and the theatrical can be a method to undo the ‘natural’ or the ‘norm.’ Fischer-Lichte provides a concise semiotic definition where theater is simply the deployment of ‘signs of signs,’ or A depicting X.\textsuperscript{125} This means that the otherness of theater always doubles the signs used in more ‘regular’ cultural systems. In this way, the realm of theater is no longer just an art form, confined to a stage. By appropriating signs, theater can resituate signs that have an established context and signifying pattern, restyling the real. Such an approach to theater also assumes that A as an actor or object is not natural but is already inscribed in a system of valuation to an audience trained in a particular style of meaning making.

In relation to the brain of the 16\textsuperscript{th} Century and contrary to Fried, Fischer-Lichte argues that there is no \textit{natural}; all human activity is theatrical and theatricality is the conscious use of those signs of signs. In this way, the brain of the early 16\textsuperscript{th} Century was theatrical in that it was a sign of the ideal head in relation to an ideal body. Fries cited this historical sign of the brain, making his statements about the head and brain theatrical instantiations of the norm, or accepted use of signs. Gersdorff, on the other hand, uses signs to cite other signs, whereby he could use a word to cite and image, and an image a gesture, and a gesture a word. From this description, if the definition of theater and the theatrical is the use of signs of signs, \textit{theatricality} is an awareness of how theater goes about organizing these meta-signs, or doing its business of being theatrical.

One can see the theatricality of signs of the faculties of the soul in Hans Sachs’ (1494-1576) carnival play \textit{Fool Surgery} (1557), where the themes of medicine and viewing the painting to forget they are viewing. He then praises the conquering of absorption over theatricality where art can become a thing or an object rather than a theatrical performance.\textsuperscript{125} Fischer-Lichte, \textit{Semiotics of Theatre} 139-141.
surgery are combined with morality, sin, and foolery, redefining each discourse in relation to the medicine and surgery in the mid-16th Century. Such a text would not have been possible without the popularization of medicine in the years leading up to the 1550’s, partially due to the surgical and medical texts by von Gersdorff and Fries. In this carnival play, a doctor and his apprentice humorously and surgically remove each of the seven deadly sins from the patient’s belly. At the close, the doctor/surgeon speaks to the patient and audience, providing an emblematic unity of words, images on stage, and moral meaning that brings everything together:

Let Reason each man’s sole master be
To bridle in all vanity.
       And let each one be circumspect
With rich or poor, of either sex;
If any seem by Folly tainted,
       With him one should be not acquainted,
But all one's thoughts, words, deeds devise
According to the counsel of the Wise.
       And on my faith and truth I'll swear
That after that he'll have no care;
       His belly Fools will wane, not wax.
With this, farewell, from our Hans Sachs.126

Hans Sachs, the popular Nuremberg Nightingale, in a comical and critiquing tone, situates medicine and surgery already within a popular context, justifying the shift that had already occurred: even if they don’t know everything, the well-trained surgeon and doctor will help even the poorest of poor, the common man. Traditional remedies for body ailments have been replaced with learned, medical remedies. The body is slowly becoming the same across socio-economic levels, which had not been the case in medieval times where saints, common folk, criminals, and the corpse had distinctly

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126 Sachs, "Fool Surgery" 25.
different bodies.\textsuperscript{127} That the common man even had a body was partially the work of Gersdorff and Fries who popularized ancient theories through the vernacular German and printed texts. Scholars have recently shown that the “body” has a history, as well as parts of the body such as the “brain,” whereby the 19\textsuperscript{th} Century marks the making of the “modern body.”\textsuperscript{128} To access the “body” and “brain” in the 16\textsuperscript{th} Century, one needs to understand how the signs of the “body” and “brain” are part of discursive networks that are as much theatrical citations of religious and folk knowledge as academic medical and surgical knowledge.

If we move beyond the theatrical stage, Helmar Schramm argues that theater does not have to be staged; it is everywhere. Theater shows the binary relationship between reality and theater, science and art, as a difference based on institutionalized concepts and patterns of signification, not on the absolute nature of one or the other.\textsuperscript{129} Hearkening back to Nietzsche and more recently Foucault, Schramm argues that once one moves from the natural to the theatrical, questions of authority come into the picture. That is, who (agency) or what (institution) is in control over the signs of the natural, what (content) is able or not able to be portrayed, and how (form) can this portrayal can occur? Schramm also borrows from Ludwig Fleck to show that theatrical elements are a part of science and the scientific process. Theatricality for science is a particular mode of using


signs of signs to justify a style of thinking; these signs that guide the use of signs create and reinforce a rigorous thought style and its ‘harmony of illusions.’

By equating an allegorical thought style with the inner senses located at the ideal center of the brain, we can see that the theatricality of knowing created an identical relationship between knowledge and the performance of knowledge. For Fries, this meant that knowledge was the same as the proper organization of signs; performing the inner senses in one’s brain would eventually lead to knowledge. The structure of the inner senses of common sense, imagination, reason, and memory meant that body gestures, images, and words were only a difference of degree, removed from the original sign by their purity, spatial and temporal distance. The inner senses ‘distilled’ the essence of the sensible experience. For Fries, there was only one correct way to know and one idea to be known, the divine Word. This gave his form of rational medicine a moral as well as epistemological imperative in relation to nature. His “mirror” of medicine reflected not the health of an individual human, but the ideal human as outlined by Laqueur, which is meaningful in relation to nature and nature in relation the divine. Rationally trained doctors needed to experience the individual body only in its relation to its nature, which is known through the word internally, in one’s rational faculty in the head.

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130 Fleck, Genesis 92-94.
133 On the three sects of ancient medicine-- Rational, Methodist, and Empirical-- see Siraisi, Medieval and Early Renaissance Medicine, 3-4;35.
2.6. The Allegorical and Emblematic Word, Image, and Gesture

I will next look at signs that are classified as allegorical or emblematic to provide new insights into the inner senses, or the site where a particular epistemology of allegory created the conditions for its own destruction. As mentioned in the introduction, emblems and emblematic forms are currently studied in three ways, that is, emblem studies pre-1950 looked to understand the ontologically distinct emblem that first appeared in 1531 as rhetorical device that combined allegorical images and poetic descriptions to convey a conceit or an enigma concealed by the material. Since then, the search for emblematic forms outside of the emblem genre has developed into applied emblems, which looks to see where and how certain emblematic qualities of fragmenting and reassembling began to appear outside of the traditional emblem book. The third approach to the emblem is that of a thought style (denkform), which has a longer tradition that can be found in Herder’s late 18th Century definition of emblems as “Denkbilder.” The emblematic thought style encompasses the printed emblem and emblem genre that mixes words with images, as well as the changing epistemological conditions that saw the end of medieval allegory. This thought style can be found in the particular use of words, images, and gestures in the late 15th and early 16th Century.

If allegory and the allegorical thought style allowed one to use the inner senses to access the divine language of the world, the emblematic thought style can be defined simply as the fragmentation of medieval allegory where Walther Benjamin argues that by

the 16th and 17th Century, medieval allegory had become “the ruin of thought.”\textsuperscript{136} Johann Huizinga also described this mentality as one that believes fragmented allegories took on a powerful material shape in the emblem.\textsuperscript{137} Collections of allegory fragments during the 16th Century have since been renamed “emblems” in order to distinguish them from medieval allegory.\textsuperscript{138} The emblematic style of thought is the attempt to find the whole paradigmatic history of meaning within a decaying fragment. For Benjamin, the corpse is the most emblematic object.\textsuperscript{139} As an allegorical fragment, it has an accumulated history that is absent in the presence of the material object. Yet, possible meanings are reactivated in combination with other allegorical fragments in a rearticulated whole. In the emblematic thought style, the sensible presence of absence, instead of directing a person inward through allegory, moves to other signifiers, other presenting absences in a movement that slowly limits the possibilities of meaning. In the 16th Century, the very performance of the inner senses led to the collapse of the theory that located these powers of the soul in the ventricles of the brain because, rather than meditating knowledge in the faculty of reason, doctors, surgeons and anatomists began to move from signifier to signifier outside the body.

The collected whole of fragments is the emblem, or a specific type of ideogram popular from the 16th through the 18th Century. Though he does not use the terminology of the ideogram, Christoph Hoffmann’s \textit{Slicing and Writing: Dissection Etiquette in Pathology around 1900}, shows that around the turn of the 20th Century, “the act of inscribing (cutting and writing) together became the central gestures of stabilizing

\textsuperscript{137} Johann Huizinga, \textit{The Waning} 187.
\textsuperscript{138} Peter Daly, \textit{Literature} 196.
\textsuperscript{139} Daly, \textit{Literature} 166.
observations.”140 Understanding a body becomes understanding the movement between
the inscription devices of word, image and gesture; the object appears as ideogram, a
theory at the end of the scientific process that naturalizes a culturally specific inscription
process.141 Within the inscription process, the allegorical body was one that could be
entirely translated into words and mental images that the doctor could know in his
rational faculty. The emblematic body was one that could only maintain a liminal status
between signifiers or inscription traces outside the body in image, word, and gesture.
The slow heaping of anatomical details in the 16th Century—through refined gestures of
cutting, images fragmented into eve-smaller parts, and words creating ever-more namable
members—still possessed a unity. This emblematic unity would eventually give way to
the extreme of the ornamental member towards the end of the 16th Century: the baroque.
The theater of the anatomical baroque described by Benjamin has recently been
visualized in Michael Sappol’s exhibition Dream Anatomy, which brings together
medical and popular images from the National Library of Medicine that emphasize the
visual performance of representations of anatomical bodies from the turn of the 16th
Century to the present.142

If allegory fragmented into parts elements that are unified in the emblem, what are
the emblematic word, image, and gesture? Per recent emblem theory, these signs fit
within the religious exegetical practice of finding meaning in all signs. Jöns has shown
that the emphasis on signs that both represent and signify can be traced to late medieval

140 Christoph Hoffman, “Schneiden und Schreiben: Das Sektionsprotokoll in der Pathologie um 1900,“ Christoph Hoffman, Daten sichern: Schreiben und Zeichnen als Verfahren der Aufzeichnung (Zürich-Berlin: Diaphanes, 2008) 156.
141 For more on ideograms in science and medicine, see Fleck Genesis and Development 137ff.
exegetical practices in which all signs are only meaningful because they signify. In this popular image by Johannes Peyligk, the Leipzig professor of law demonstrated the ideal body where the organs of the head, chest, and abdomen (natural, sensitive, and rational members) are visible (Fig. 8). The minimal presentation can be called the allegorical body, or that which remains once the material is stripped away.

Understanding the four-fold meaning of scripture—literal, tropological, allegorical, and anagogical—became ubiquitous within natural philosophy when applied through the seven liberal arts. The foundation of all knowledge, grammar, logic, and rhetoric, which helped shape the practical side of learning, arithmetic, geometry, music, and astronomy. Bestiaries, herbals, astrological and medical manuals show that objects were meaningful because of their divine signature.

Another example of an allegorical image can be found in the well-known Zodiac man where animals and their spirits have a distinct influence on the human body (Fig. 9). The combination of words and images creates a moral reading to this otherwise scientific image. Understanding an object meant recognizing the signature with the external senses, then internally connecting that signature to other signatures in the faculties of reason and memory. When looking at a body part, one did not see a discrete arm, leg, head, etc.; one saw that part’s power within the hierarchy of nature and was obliged to perform that power through use.

By the 16th Century, the hermeneutics of nature did not survive as a whole. Interpretation strategies had been reduced to a search for the tropological, or moral

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143 Jöns, Das Sinnen-Bild 33.
meaning. Doctors and surgeons, humanists and theologians no longer had direct access to moral meaning through the inner senses; enter the emblem. An emblematic sign differs from a medieval allegorical sign in that it [the emblematic sign] presents a fragment of an allegorical entirety. Daly provides a list of common allegorical meanings to objects such as wings/birds=soul, circle=always/eternity, tree=strength/knowledge. Yet, in an emblem, rather than an immediate recognition of the conceit of a medieval allegorical representation, emblematic meaning (the signified) only becomes available when multiple fragments are co-presented. The emblematic gesture, image and word acquire meaning not [only] from their signature, but from the context of co-presentation with other emblematic signs. In order to access truth internally, one must organize signs externally. The idea that had once been abstracted and internalized was now represented as situated with other signs. In an emblematic thought style, the meaning of the fragmented signs slowly limited each other in the reader or viewers’ movement between allegorical domains. This emblematic movement also implies a new reader: a common man with common understanding of sign systems and the ability to move between them.

In the 16th Century, emblematic signs took on specific forms, such as the word-emblem, picture-emblem, and gesture-emblem. The combination of two or more of these fragments provided signified meaning not sensible in the signs in isolation. Word-emblems were considered certain types of compound nouns and nouns with adjectival phrases, metaphors of thought. These were spoken words or written words with

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146 Jöns, *Das Sinnen-Bild* 11.
147 Daly, *Literature* 241-245.
148 Much has been written about “the common man.” I will return to the concept in Chapter 5. For a bibliography, see Michael Giesecke, *Der Buchdruck* 931.
intellectual and moral meaning that separated what was said from what was meant, denotation that was consumed by connotation. The noun represented while the adjective or secondary noun provided the domain of meaning, combining accurate visualization with historical traditions of signification. In 16th Century German medical literature, these word emblems are plentiful in anatomy, pharmacology, and pathology as can be seen in the following examples found in Gersdorff’s text: Haupt puder (pulvaris capitis, head powder), prosszlen schössz (porcelain womb, rete mirable, and miracle net), Schambein (pubis), edle Frucht (precious fruit, samen, semen), Franzosenkrankheit (French disease, maladie française, morbus gallicus), and Haupthafen (head pot, skull cap), to name but a few.

The figure-emblem is one in which an accurate image of an object leads one to a moral or religious meaning guided by other presenting fragments. Proto-emblematic medical images can be found throughout the 15th Century where allegorical meaning dominated representational accuracy. Linear perspective, or the ability to draw visually accurate images of three dimensions on a two dimensional surface, did not negate an object’s symbolic quality. Skeletons of memento mori and danse macabre figures reminded the viewer of death, not knowledge of skeletal articulation. Emblematic and proto-emblematic images can be seen in bestiaries and herbals where a visually accurate image of a plant and animal is superseded by a written or printed

149 Giesecke, Der Buchdruck 12.
150 Daly, Literature 54-94.
151 Gersdorff, Feldbuch, Tract IV; See also Jörg Riecke, Die Frühgeschichte der mittelalterlichen medizinischen Fachsprache im Deutschen. (Berlin: Walter De Gruyter, 2004).
interpretation of its ‘secret’ healing or moral qualities not visible to the eye. Still other images combined dissected body with sexual desire, religious iconography, idyllic scenes, and Greek sculpture in an attempt to produce a signified meaning in addition to body parts visible on the surface of the page.

The gesture-emblem is one in which a body movement, position of a body part or even position of an object or animal represents and signifies. Performative gestures bridge the divide between the interior and exterior of the body: extensions of the body continue the gesture in space and time. The inner senses extended the body internally, so that a particular style of organizing words, images, and body movements can be a sign of proper mental gestures, or movement between the inner senses. One can call this the rhetoric of the soul. An emblematic gesture is itself meaningful as it signifies, without reference to that which it produces. Anatomy of the 16th Century took full advantage of a rich gestural vocabulary: Vesalius’ gesturing skeleton figures and dissected corpses, Da Carpi’s anatomized crucifix, gesturing heads using the inner senses, as well as a myriad of other positioned bodies in medical and anatomical treatises, use gestures from everyday scenes to represent life as well as evoke death. 16th Century medical diagnosis rituals, patient behaviors, along with theaters of dissection were all highly scripted social dramas where meaning was stored in the gesture itself. Artists and doctors would pick up the emblematic gesture of fragmented body parts more rigorously at the end of the 16th Century, such as characters holding the skull as a stage prop in

156 Russell, Emblematic Structures 33-35.
vanitas motifs, as well as images and models of precisely positioned corpses, body parts through medical instruction of the 17th and 18th Centuries.  

In the emblematic thought style, each of these fragments—the word, image, and gesture—supplement the meaning of the other. The form of the comparison or metaphor, as well as the content of that comparison, communicate both representational and interpretative characteristics of the concept. Each of these fragmented emblematic signs—the word, gesture, and image—is both a representation of something as well as meaningful in and of itself. The metaphor variously translated and transposed meaning from one domain to another in a process of intellectual meaning formation. The combination of fragmented signs guides the reading of each other in producing an ever narrowing signified meaning.

In medical terms, the combination of a patient’s gestures, words, and body presented a specific complexion or illness while at the same time signifying the moral implications of such an illness that deviated from the ideal body of perfect balance. Within this context, illnesses of each of the inner senses could be read through body performances of temperature, speech, movement, consumption, or evacuation, all of which represented a gesture of the body that was both physically and morally important.

The popularity of such an emblematic thought style can be seen in Conrad Gesner’s pictorial and written commentary on Aristotle’s de Anima. In it, Gesner becomes one of the first to represent visibly what had historically been internalized, namely, the tri-part relationship of the soul (vegetative, sensitive, rational) with the

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159 Daly, Literature 167. See also Deanna Petherbridge, L. J. Jordanova. The Quick and the dead: artists and anatomy. (London: Hayward Gallery, 1997).
160 Daly, Literature 135-136.
powers of the soul (sensus communis, fantasy, and reason), as well as death, starry heaven and skeletal hell, and the external senses. The title above the image reads “If anyone would like a more exacting illustration, that at the same time provides contemplation of death and a definition of the powers of the soul, one can follow like I have done and create a pictorial representation” (Fig. 10). Gesner interprets the image as such,

Reading from the bottom, the three circles represent the anima vegetative, anima sensitive and anima rationalis that are reciprocally tethered by their “abilities.” A: sensus communis-phantasia, B: phantasia-ratio, C-D: ratio-mens. A horizontal line at the border of the upmost circle represents the eternal soul. The five external senses (1-5) leave from the Anima sensitiva. From the starry heaven, an Angel and Devil are symbolized as tethered more or less in a fight for the salvation of the soul. Death (L) with the hourglass in his one hand and a tether to the anima sensitiva (K) in the other portrays the border of the mortal parts. The wings point to the differentiated knowledge abilities of the parts of the soul. While the anima vegetative (P) (which is the same in all living beings) does not strive upward after knowledge and the anima sensitive (O) (that also animals possess) is given only a limited knowledge ability, the animal rationalis (M) can know and strive after the higher and the highest things while at the same time be separated after death from the two lower corporeal parts of the soul and rise to heaven.162

We can see in Gesner’s example that use of printed images combined with written text became part of the shift from allegory to emblem, reorganizing knowledge performances in the 16th Century: where as allegory connected man with God internally through meditation, the supplementary relationship of emblematic signs connected humans with each other outside the body. The words explained the image, and the image gave the words a sensible form. The co-presentation of fragmented signs had the effect

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162 The author’s English translation from Kutzer’s German translation of the original Latin in Kutzer, *Anatomie des Wahnsinns* 222.
of moving thought within the realm of human languages rather than shifting between
human and divine languages.\footnote{Schöne Emblematik 18-33; Jöns Das Sinnen-Bild 39.}

The emblem, and the particular thought style that created it also became that
which separated individual thinkers from each other as subjects and investigators. At the
same time, investigators of nature were reunited through proper communication and
ordering of signs. Johnathan Sawday, writing about the practice of dissection in the 16th
and 17th Centuries, argued that the blazon (a form of emblem) united male thinkers
through the poem and dissected female body. In addition to isolating the subject in
relation to the object, the emblem also united these investigator scientists through their
communication about emblem. In showing the increasing power of the fragmented body
in relation to the poetic description, Sawday demonstrated the social effects of an
epistemological change.\footnote{Sawday, The Body Emblazoned 191f.}

However diverse the signs are—image, word, and body gesture—the increased
knowledge of the inner sense in the 16th Century meant that “data flow” had to more and
more pass through the bottleneck of the inner senses in order to be made intelligible.\footnote{Friedrich Kittler in Gramophone, Film, Typewriter (Stanford: Stanford University,1999) 5, describes the 19th Century epistemological bottleneck where vocal sounds, alphabetic graphemes, and figural images are unified in the signifier.}

We will see very clearly that Gersdorff, by presenting the movement from multiple
singular experiences to universal form, uses an emblematic thought process to go from
sense, to common sense, imagination, externalizing reason and memory on the printed
page. Lorenz Fries, on the other hand, by only comparing universal thoughts that will
lead to divine truth, faithfully emphasizes only the faculties of reason and memory,
remaining adherent to medieval allegorical thought forms.

\footnote{Schöne Emblematik 18-33; Jöns Das Sinnen-Bild 39.}
\footnote{Sawday, The Body Emblazoned 191f.}
\footnote{Friedrich Kittler in Gramophone, Film, Typewriter (Stanford: Stanford University,1999) 5, describes the 19th Century epistemological bottleneck where vocal sounds, alphabetic graphemes, and figural images are unified in the signifier.}
Their performance of the inner senses will position Fries and Gersdorff on either side of the precarious divide between what scholars have called the medieval and modern brain. The emblematic thought style, used by Gersdorff, situates him within the same shifting epistemological hierarchy that, through diverse forms of representation, allowed him to communicate, through images, words and gestures, an invisible idea. In addition, he was able to move from singular case of a particular illness or body injury to knowledge of a patient’s deviation from the universal form of the head. Fries, however, believed singular cases could never fit within a larger mental framework that utilized only universals; moving from singular to universal was a mistake in logic made by the untrained and sufferers of complexion imbalance of the inner senses.166

In their definition of the brain, both doctor and surgeon understood their attempt to translate the best of medieval surgery and medicine into a language available for the common man as one based on proper performance of the inner senses. One could argue that the difference between Gersdorff and Fries was one of practice and theory; Gersdorff made a ‘practical turn’ leaving Fries’ within the scholastic mental framework that encompassed everything and nothing. Such a move, however, would be too simple. Both practitioners performed many of the same everyday duties to maintain the health of the community such as visiting patients, prescribing regiments and pharmaceuticals, and bloodletting.167 The inner senses, which allowed a doctor and surgeon to move from singular to universal and universal to singular, unified their surgical and medical approaches to treating the ideal body described by Thomas Laqueur.168

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166 Fries, *Spiegel 87r*. Fries follows a mental path in a hierarchy from the sick, normal, surgeon and apothecary, to doctor in their reasoning abilities.
167 Vivian Nutton, "Humanist Surgery" 85.
bodies, illnesses and injuries were seen as variations of the ideal human created by God, written in Galenic humoral terms.

Gersdorff and Fries, by translating their respective disciplines into the medium of print, were not only teaching their surgical and medical arts. They were teaching students how to know. Gersdorff, by translating an apprentice craft that was traditionally passed orally from master to student, clearly wants his students to become more ‘theoretical,’ to become Wundärzte or “Wound-Doctors” rather than just surgeons or barbers. Most of his knowledge of anatomy comes from the 14th Century surgeon Guy de Chauliac, whom he translates from Latin directly into German. Fries, by translating the Latin university medical curriculum into German, also wanted to raise the level of the common man to be able to ‘heal himself.’ In this respect, the two men were not too different. Fries began with an internally constructed body and applied that pattern onto individual experiences so that the presenting body was always an allegorical body. Gersdorff also began with an internally constructed body, made perfect through he inner senses. However, that body changed as he externalized it through the supplementary signs of words, images, and gestures.

In the next chapter, I will show how Fries and Gersdorff used the allegorical and the emblematic thought styles to create the body and brain in relation to the whole of nature through their own interpretation of the proper performance of the inner senses. This performance was theatrical for Fries, citing the ideal body and the social structure that supported it. For Gersdorff, the performance of the inner senses was creative, fragmenting the traditional boundaries between surgeon and doctor as well as the unified movement between word, image, and gesture.
2.7. Figures

Fig. 5. Title page Berengario da Carpi’s *Tractatus de fractura calve sive crani a Carpo editus*, (Bologna: H. de Benedictus 1518). rpt. Wellcome Image Library, London.
Fig. 7. Male figure showing (from left to right) common sense, imagination, reason, memory in Johannes de Kethem, *fasciculus medicinae* (15th Century). Rpt. Wellcome Image Library, London.
Fig. 9. Zodiac Man from Gregor Reisch, *Margarita philosophica*. Printed by Johann Schott (Strassburg, 1503) rpt. Wellcome Image Library, London.
CHAPTER THREE

The Inner Senses

For who—O immortal God—can fail to be astonished at the host of contemporary philosophers and even theologians who detract ridiculously from the divine and most wonderful contrivance of man’s brain. For they fabricate, like a Prometheus, out of their own dreams—dreams blaspheming the Founder of the human fabric—some image of the brain, while they refuse to see that structure which the Maker of Nature has wrought, with incredible foresight, to accommodate it to the actions of the body. Putting before themselves the image which they themselves have formed which abounds in so many incongruent monstrosities, little do they heed—oh shame! The impiety into which they may lure the tender minds which they instruct, when these, no longer mere students, yearn to search out Nature’s craftsmanship, and may with their own hands pry into [the parts of] man and of other creatures which are handed into their power.

—Andreas Vesalius Book VII, Chapter I

De humani corporis fabrica libri septem (1543)\textsuperscript{169}

3.1. Introduction

In the previous chapter we looked at allegory as the precursor to the 16\textsuperscript{th} Century emblematic thought style as well as their differing performances of the inner senses. In this chapter I will show these two thought styles side by side through the citation of the inner senses found in Lorenz Fries’\textit{Spiegel der Artzney} and Hans von Gersdorff’s\textit{Feldtbuch der Wundartzney}. The doctor Lorenz Fries, contrary to historical portrayals of him as the discoverer of the modern brain, remained in the allegorical thought style, constantly moving between universal forms in the faculties of reason and memory. The surgeon Hans von Gersdorff utilized the printed images, words, and the gestures of

\textsuperscript{169} Singer,\textit{Vesalius on the Brain} 4.
dissection in order to move from the external senses to the inner senses or “powers of the soul” called common sense, imagination, reason and memory.

By looking at the allegorical and emblematic signs presenting the brain and inner senses in Hans von Gersdorff and Fries medical books, I hope to reverse the trend in the history of this object that has led to a prioritizing of Lorenz Fries over Hans von Gersdorff. This hyper-valuation of Fries’ brain image has occurred partly because one finds new brain images in Lorenz Fries’ *Spiegel der Artzney* whereas the same images in Hans von Gersdorff’s *Feldtbuch der Wundartzney* are co-presented with distracting poems and images and gestures that would have made sense to a 16th Century audience but seem odd to modern readers. Therefore, the visually accurate images in isolation are favored over the emblematic images. Contrary to this emphasis on visuality in the history of medicine, the emblematic presentation of the brain in Hans von Gersdorff was essential to the transition from the medieval to modern thought style. By emphasizing Fries’ brain images, one misses the point of Fries’ theoretical medicine, which was to move through and beyond the sensible (including images!).

Chapter three is structured around the inner senses, the organs of the soul by which I will guide the reader step by step through common sense, imagination, reason and memory presented in these two early 16th Century medical texts. First, I will outline Gersdorff and Fries’ presentation of common sense and fantasy in the front of the head as the site where the sensible world was first internalized: this initial step became the site of beautiful and monstrous creations, depending on the person’s complexion and internal image making ability. There after I will outline reason in the center of the head,

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170 Choulant, *History and Bibliography* 415. Choulant calls images ‘emblematic’ in a negative way and proceeds to interpret the ‘emblematic’ out of the images. See for example, his and Mortimer Franks’ reading of poems in von Gersdorff’s image.
concluding with memory in the rear. In each of these sections I will focus on the allegorical or emblematic word, image, and gesture as a performance of meaning creation. The use of emblematic signs that both represent and signify was much easier for Gersdorff than for Fries, allowing the surgeon to move horizontally between the inner senses and communicate that emblematic movement with his peers while at the same time vertically accessing the divine signature of the object. The doctor, though content with is meditations, was left isolated in the back of his head.

3.2. There Was Once a Lord from Strassburg

Before we look at common sense and imagination, let us turn to two metaphors to see the performativity of the allegorical and emblematic thought styles in Fries and Gersdorff’s books. I will return to these metaphors throughout this chapter to highlight the difference in their uses of the inner senses. Fries’ *Spiegel der Artzney* followed standard medieval medical protocol and was divided into two parts, theory and practice. In the theoretical section, Fries describes how a doctor rigorously orders his memory. A doctor is one who, through academic training in the seven liberal arts, can successfully discipline many diverse thoughts in his head. This is in contrast to less educated quacks—apothecaries, barbers, surgeons, as well as Empirics and Methodists—who cannot. He compares the relationship of a Lord and his cook to a doctor and apothecary (or surgeon), the difference residing in their use of signs. In the following metaphor, we see the allegorical thought style that limited the possibility of the inner senses to an interior activity and observation of the mind at work as well as the social hierarchy that allowed some to perform their inner senses more successfully. Fries wrote:

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171 Nancy Siraisi, *Medieval* 54;120.
There was once a Lord from Strassburg who purchased as many little birds as there were birds to sell at the fish market. He gave these birds to his cook that he should prepare them. The cook, however, went and bought a special rabbit, and cooked it instead. He brought the Lord and the Lord said, “Dear cook, why did you not cook the birds in a pot?” The cook replied, “Dear Lord, there are many types of birds, the one a finch, the other chickadee, etc. I was scared they would become hard to be cooked in the same pot.” The Lord said, “Dear Cook, when you have a careful observer, they will cook side by side in the same pot.” Thus it is like a doctor, who has so many different observations in a single head. He cannot be complacent, but be a diligent observer and not an idle man.172

In this extended metaphor, we see a social divide couched in epistemological terms: the doctor knows the truth of the body from its many parts while the cook only knows a little. “The Pot” is the head, or the “haupthafen” (cranium or head bowl); one “cooks” by way of the internal senses to strip away the material to access the truth. As an academically trained doctor, Fries meditates only on his own thoughts, using the inner senses to observe the intellectual truth. The surgeon or apothecary only has limited access to such knowledge. The doctor can also use the manual labor provided by the surgeon and apothecary to allow such reflective medicine.

The second metaphor can be found in Hans von Gersdorff’s Feldbuch der Wundartzney that contradicts the social distinction between doctor and surgeon Fries would have us believe existed in the early 16th Century. In the short preface to the first tract on anatomy, Gersdorff defines his method for knowing the body and brain. Like Fries, he argues that surgeons should follow a doctor’s method of starting with the first 172 Fries, Spiegel 20v-21r. “Item es begab sich auff ein zeit das zu Straßburg ein herr vil cleiner vogel kaufft hett/ als man dan an dem fischmarckt feil hat/ unnd gab die selbigen vögel seine koch er solt sie ym bereiten. Der koch dergieng und kaufft yedem ein besunderem hasen/vnd kocht sie also. Trüg sie dem herren zü tisch. Der herr sprach/ lieber koch warumb hast du die vogel nicht in einem hafen gekocht? Der koch sprach /Lieber Herr es seind mangerlei vogel/ der ein finck/ der ander ein miß etc. Besorgt sie würden hart in einem hafen bliben sein. Sprach der herr Lieber koch wann du sorg unnd uffsehen hette/ gehabt/ so weren sie in eine hafen bliben beieinander. Also ist de artzt/ will er so mancherlei betrachtung behalten inn einem einigen koff/ müß er fürvar nicht faul sein/ ein fleissiger wachter unnd nicht müßsig gon.”
principles of each organ, then move inward from the external, visible parts to the internal, invisible parts. He contrasts this wise method with those ignorant of invisible principles of the body, such as uneducated barbers. He sees the education of the surgeon as a way to know the truth of the body, which in turn helps the patient and raises the status of the surgeon to an art. We see that this practice is distinctly emblematic, as the term would have been used in the 16th Century. He wrote:

First, a surgeon [Wundartz] should know the origins and hidden ways of man’s members, so the wise surgeon [Chirurgicus] does not error in his actions, but learns each of man’s body parts in order to assuredly avoid all accidental injuries. The head, which is this most precious and honorable member of the person, a likeness [ebenbild] of God the almighty against all non-rational animals, should be recognized and described first. But I will follow rational opinions, and describe the other parts that are like out-springing roots of the head, if man is compared to an upside down tree. Thus, I will begin with the external parts, bark, leaves, branches and trunk of the tree, which is a rational way to know the subtle and inner divisions of the head, the roots and foundation of the entire man. Then the surest way of all art to be justified is to move from the external, visible, to the invisible and inner as through the sensible object to the rational understanding.\textsuperscript{173}

If we look closer at Gersdorff’s metaphor, we see that the emblematic thought style described the head with multiple images: “likeness of God,” “roots of a tree,” “hierarchy of creation,” and “rational method moving from external to internal.”

Together, these diverse descriptions allowed varied groups of readers to find meaning in

\textsuperscript{173} Von Gersdorff, Feldtbuch 5’. “Der Wundartzney/ am ersten zü erkenen die anfäng un verborgen gewerben der glider des mensche. Domit die wyß chirurgicus mit seiner handtwürckug nit verfar/ sonder ein yegklich glid des menschen ersttechn wol erlern / und als dann dest sicherer im züfellligen schaden hinnen. Unnd wievol das haubt/ als das edles tun hoch würdigst glid des mensche / ein eben bild gotts des allmechtigen / wider all ander vnuernünfftiger thyerer art obsich gericht / billich am erstenn solt beschreiben werden / will doch nottrufft erforderen geschichlicher meinen und fürnem / zuuor andere glider zuerklere / als ußsprossend vo der wurzel des haubts. Wan der mensch eim umbgestürtzte baum verglicht ist. Un so dan vo erst wol ergründt werden die rind /bletter /öst / un stamen deßes baums /dest ein geschickterer ingang auch wird eygentlicher zürckkunden die subtileren un inerliche abteilunge des haubts / der wurzel un gredtsest des gantzen menschen. Dann der gewisser weg aller künst sye züegründen / ist von erkanntnüß der vszzeren unsichtliche zu den unsichtliche un inneren. Als durch die sinlich gegewürff zu der vernünfftlich verstännüß.”
the head. All of these images describe the head, yet none describe it fully. Only together can one access the emblematic truth that is not presented in the description, namely, a surgeon has a moral obligation to know the body correctly. In the 16th Century, from the highly trained academic doctor to the illiterate peasant, emblematic combination of words, images, and gestures provided various levels of meaning for a new public reading printed books, pamphlets, and fugitive sheets.174 Robert Scribner outlined the semiotic relationship between printed moral tracts and woodcut images in the development of a reading culture during the Protestant Reformation and others are still attempting to uncover the diverse use of signs of the hybridized media in the 16th century.175

I do not use the dichotomy between doctor and surgeon to say that Gersdorff only used an emblematic thought form and Fries only used an allegorical. What makes signs in the 16th Century ‘emblematic’ is that they [signs] begin to take their meaning from two sources in addition to the divine signature: representational accuracy and context. This shift, from a medieval theory of signs that were important because they provided access to a divine signature, emphasized the supplementarity of signs outside the body rather than their divine qualities that were internalized through the inner senses. An emblematic word, image or gesture only represents incompletely, as a fragment. However, the metonymic force of a collection of fragments creates a signified idea. In the early 16th Century, the performativity of an emblematic sign was one that the emblem scholar Albrecht Schöne called a quality that “represents and signifies” [darstellen und

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deuten]. Rather than recognition of the signature connecting humans to God, the emblematic thought form requires a collection of fragments that connect the mind of the author and the mind of the reader through representation and signification.

In epistemological terms, both Gersdorff and Fries believed in the same hierarchy of knowledge from human to divine. The inner senses were the point in the brain where knowledge could allow one to access the divine. The quote from Andreas Vesalius’ Fabrica that opens this chapter assumes that only philosophers and theologians believed and represented the inner senses as the definition of the brain. Rather, doctors and surgeons were also recipients of the belief in the inner senses. Surgeons were thought to engage the sensible and particular and the doctor engaged the universal and intellectual. Since Strassburg had no university or medical school—humanist and Stadtmeister Jacob Sturm began the first gymnasium in 1538 and the university followed almost a century later in 1621—the surgeon and doctor performed the same function.177 Both the town doctor and surgeon used the same epistemological tools to move step by step through the inner senses of common sense, imagination, reason and memory in order to access the truth of an medical object or situation.

As mental performers, however, their particular uses of the inner senses created a mental divide that mirrored their social positions and the future of their and the history of our brain. The differences in their approaches to knowledge and the brain are outlined in the metaphors above: Gersdorff thought that a proper performance of the inner senses could be taught through craft and learned as an art and thus allow one to move from a

176 Albrecht Schöne, Emblematik 30.
177 For medicine in Strassburg, see Christoph Wieger, Geschichte der Medizin 1-20 and “The Old Medical Faculty Of Strasbourg.” The British Medical Journal, Vol. 1, No. 3038 (Mar. 22, 1919) 352.
collection of particulars to the universal. By moving from external to internal, from singular object sensed by the five external senses in time to a timeless universal cooked and stripped of its material qualities, one could know. Fries delegated the handwork to the ‘cook’ because a person’s temperament pre-ordained each person to their mental abilities. Proper use the inner senses was limited to those with the correct complexion, namely doctors. If one had the correct complexion—usually hot and dry, educated males— one could move between reason and memory, or from universal to universal. In his definition of the art of medicine at the beginning of Tract I, Fries argues that rational doctors can access universal truth; cooks (empirics, surgeons, apothecaries, and other quacks) could not.

If this emblematic structure is applied to the above metaphor found in Gersdorff’s *Feldtbuch der Wundartzney*, the disembodied ‘Head’ in Gersdorff’s word-emblem takes on specific meaning when the human head is situated with the hierarchy of ‘non-rational’ animals. Gersdorff uses a metaphor that situates the head in a specific place within the vertical hierarchy of creation and a horizontal plane of human epistemic capabilities: “The head, which is this most precious and honorable member of the person, a likeness of God the almighty against all non-rational animals.” The ‘head’ is the transitional member between the divine and material worlds where plants, animals, humans are separated from the angels and God. The proper use of the head (i.e. the inner senses) bridges that gap between earth and heaven, allows humans to be upwardly mobile as well as situates the

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179 Fries *Spiegel* 10′-15′.
collection of signs within a community of knowers who can recognize and value of the ‘preciousness’ of the head.

If one can accept that fragmented 16th Century emblematic thought form was born out of a medieval allegorical thought form, one can see the brain in the 16th Century in an entirely new way. In the history of the body, 16th Century literature and poetry, woodcuts, etchings and paintings are full of eyes, ears, hands, tongues, hearts, and heads represented as visually accurate but signifying invisible, moral or religious meaning. These fragmented organs retained their allegorical meaning within the body and the represented signature demonstrated how a particular object related to the divine. The heart was known through its ‘heat’ and as the ‘original’ organ; the eye was known through its ‘sight’ and that for which the head was made, the liver through ‘blood’ and the spleen through ‘melancholy.’ In this way, the brain was known for its location in the head (in Greek, encephalon means ‘in the head’), which was important because of its circularity, height (located on top of the body), and the signature of ventricles of the brain located in the center of the circle, containing the inner senses.

3.3. Common Sense and Fantasy: Front of the Head

The shift from allegorical to emblematic thought styles can be seen in Fries and Gersdorff’s diverse emphasis and performance of each power of the soul or ‘inner sense.’ Understanding the brain as the result of meaning accumulated through the repetition of words, images and gestures is a modern practicing of knowing. The object to be known is always at end of these highly choreographed actions. This contemporary scientific

180 David Hillman and Carla Mazzio’s collection of essays shows the fragmented body in the early modern period, see The Body in Parts: Fantasies of Corporeality in Early Modern Europe (New York: Routledge, 1997).

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epistemology is one where knowledge of the brain is cumulative; one ‘gains’ [knowledge] after the repetition of a style of knowing.\textsuperscript{181} In the 16th Century, knowledge was not the product but the correct performance, in the performative arrangement of the epistemic words, images, and gestures to be scrutinized by a new audience: peers rather than God. This performance occurred through a strange style that coordinated the inner senses with the sensible world. The process of externalizing the performance of inner senses is known as the emblematic thought style, which lasted from the late 14\textsuperscript{th} to the early 18\textsuperscript{th} Centuries.\textsuperscript{182}

Prior to this emblematic thought form, we have the allegorical thought form in which God was both the origin and the audience of human endeavors. The difference can be seen in Fries’ and Gersdorff’s definition and use of ‘common sense’ ‘fantasy’ or ‘imagination,’ which dealt with images coming to the mind from singular experiences. As mentioned, a medieval allegorical thought form was one focused on the soul’s relationship to timeless entities. Lorenz Fries believed these could only be accessed by the intellect. By emphasizing words over images, Fries prioritized a relationship with the ideal through the word. Images are deceptive and part of the imagination. Gersdorff, on the other hand, combined images and words outside the body. In doing so, he prioritized the community over divine knowledge.

Both doctor and surgeon base most of their knowledge of these inner senses on medieval sources. Arnauld Villanova (1235–1311), the popular mystic doctor at Montpellier from the end the 13\textsuperscript{th} Century who taught at the Sorbonne in Paris and was court physician at Avignon, is Fries’ primary source. His works became popular

\textsuperscript{182} Russell, \textit{Emblematic Structure} 9.
throughout the late Middle Ages since he translated Arabic medical treatises into an abridged Latin version, particularly those of Avicenna and Qusta ibn Luqa (Costa ben Luca: c. 820–912). Following Villanova, Fries wrote that the first power of the soul is fantasy [in the first cell] that gives order and division to all things. For Fries, visually accurate cerebral anatomy was not as important as logical consistency: the ‘cell’ for fantasy was simply located in the front of the head. Fantasy, per Aristotle, gains this power through images of objects in common sense. Fries uses two German terms ‘powers’ [Kreffte] or ‘virtues’ [Tugendt] of the soul, not choosing a particular German term fit the Latin virtus in the three spirits: virtus naturalis, virtus vitalis, and virtus animalis’ from Villanova’s Opera medica omnia. From the more general spirits, Fries then describes the intellectual powers of the soul as fantasy, reason, and memory as ‘virtues’ [Tugendt]. Both of these terms will become less popular at the end of the 16th Century in favor of ‘organ’ or ‘instrument’ of the soul that allowed for Cartesian dualism and the imagined separation of the mind and the body connected only by the “animal spirits.”

Gersdorff, translates the definition of the powers of the soul directly from Guy de Chauliac’s (c. 1300 – 1368) Chiurgia Magna, which also uses the term ‘virtue’ to

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183 On Avicenna and ben Luca’s theories of the inner senses, see E. Ruth Harvey, The Inward Wits 8-31.
184 Fries, Spiegel 22r. “Die fantasy oder bedunckung hat ir cell und wonung in die stirnen/ dz ist ym fordern teil des hauptes.”
186 Fries, Spiegel, 21’-22’. He often repeats the phrase, ‘Tugent oder Krafft.’ He uses the terms inconsistently when discussing the three more general nutritive, vital, and animal spirits, which he variously calls virtus naturalis the “naturaliche kraft,” virtus vitalis “seelen kraft” and virtus animalis the “zodiaca virtus” and the “tierisch krafft.”
187 Rene Descartes, Treatise on Man, trans. Thomas S. Hall (New York: Prometheus, 1633) 19; See also Hagner, Geniale Gehirne 23-25.
describe the ‘powers’ of the soul.\textsuperscript{188} He translates ‘virtue’ simply as ‘krafft.’\textsuperscript{189} Chauliac was also at Montpellier and Avignon, acting as surgeon rather than doctor, in part helping to raising the surgeon to a higher status than mere handworker. Gersdorff translates Chauliac as saying that common sense resides in the first part, and imagination in the second part of the first cell.\textsuperscript{190} Here, ‘sense’ from ‘common sense’ is translated as ‘reason’ or ‘common reason,’ which linguistically combines the powers of the first cell with those typically reserved for the middle cell. Harvey and Wolfson have shown how terms changed from the 4\textsuperscript{th} Century to the 12\textsuperscript{th} Century, making it difficult to provide an exact history of all the inner senses. One example is of ‘fantasy’ and ‘imagination,’ which were separate powers from Aristotle through Avicenna that seemed to be combined in later medical and philosophical treatises on the soul.\textsuperscript{191}

Injuries to the front of the head were common and an image of a wound man included in Gersdorff’s \textit{Feldtbuch der Wundartzney} shows at least three injuries to the front of the head a soldier could accrue during battle: a dagger to the face, a sword to the forehead, or club to the temple (Fig. 11). Yet, the image is not complete without the explanatory text at the top of the page. Of the twenty-two injuries represented as possible in one image, a well-trained surgeon will recognize the correct one. The poem above the image reads:

\begin{quote}
Look how I’ve been cut and slashed
Horribly wounded and bashed
I hope in God and the medicinal art
Schyllhans (Gersdorff) will freely do for me his part\textsuperscript{192}.
\end{quote}

\textsuperscript{188} Sudhoff, \textit{Lehre} 178. “Virtue imaginative.”
\textsuperscript{189} Gersdorff, \textit{Feldbuch} 8r. “In eim jeglichen teyl übt sich un würt ein krafft.”
\textsuperscript{190} Gersdorff, \textit{Feldbuch} 8r. “In dem erste teyl des vordersten bächlins oder cellen würt verzeichnet die gemeine vernünfft. In der anderen die imaginierung.”.
\textsuperscript{191} See Harvey, \textit{The Inward Wits} 23; Wolfson, \textit{The Internal Senses}, 69-80.
\textsuperscript{192} Gersdorff, \textit{Feldbuch} 22r. “Wiewol ich bein voll streich un stich/Zermorscht/verundet iammerlich/ Doch hof ich gott/künstlich artzney/Schylhans der werd mir helfe frey.”
From this poem, we are urged to trust “Schyllhans” to make the right diagnosis of injury. Recognizing illness of the front of the head, common sense and imagination, was an important part of a doctor and surgeon’s duty. In order to drive off illness of the front of the head, the German doctor Gaspar Ofhuy prescribes *specula recreativa* [theatrical performances] to stimulate the senses so the patient is not caught in his own hallucinations. Ofhuy further writes that illness to the “little vein” or vermis in the front of the head that goes untreated could lead to its rupture and then the patient falls into phrenitis and madness.”

By looking at the statements about these faculties in the front of the head, we can see these inner senses as they were defined and performed. From Aristotle, *common sense* was believed to bring together the diverse impressions of sense, the special sensibles of touch, sight, hearing, smell, and taste as well as the common sensibles of figure, magnitude, motion, and number. Since these qualities are of objects, they were considered singular, not universal, and thus of a lesser value. In order to make these qualities intelligible, they must be combined in imagination to produce a sensible image of the object in question. If we return briefly to Fries’ metaphor that separated the untrained from the trained knower (nobleman and cook, doctor and tradesman), we see that an untrained lay person or handworker usually settles for a single thought (the rabbit) because he cannot control the many thoughts in his head (birds). A medical doctor, however, is on constant alert to be sure he orders all thoughts correctly and is therefore

not deceived. Fries continues this idea at the end of his theory section, where he justifies the detailed order by which a doctor must classify all the signs needed to know the complexion of sick patient. ‘There are two ways to recognize [complexions]: one is supported through experience, and the other is supported by reason.’\textsuperscript{196} The untrained person uses the faculty of common sense, which like imagination and fantasy, is less subtle and can be deceived by experience. Though Aristotle says that “sense cannot be deceived,” if one remains in the imaginative faculty, one will never move beyond the construction of a sensible experience.\textsuperscript{197} The doctor is not deceived because, through his training, he has the ability to understand subtle things and properly order all those subtleties. Instead of perceiving the various sensible objects, the common sensibles, or special sensibles particular to each sense organ, a doctor directly perceives “the grade” [grad], which he defines as ‘the proportionality between a complexioned quality over the average.’\textsuperscript{198}

A detailed analysis of the ‘grade’ is beyond this section on common sense and fantasy, but we will return to it in the next section as the common unit of medical analysis that Fries carries over from medieval medicine.\textsuperscript{199} What is important for the discussion of the faculties of common sense and fantasy is that Fries’ believes he can bypass them and primarily use the faculty of reason. For him, the material world at the end of the external senses is not to be trusted. He was not alone; distrust of the external senses was a


\textsuperscript{197} Aristotle, \textit{De Anima} 418a12.

\textsuperscript{198} Fries, \textit{Spiegel} 45v “Der grad ist ein ussererhebung der gecomplexionierte qualitet uber die mittelmessigkeit.”

common trope in the 16th Century, the possible errors of the external senses led to their distrust. This distrust of the external senses often included the faculties of common sense and imagination, which were traditionally defined as part of the material body common with beasts and not the intellectual soul.\textsuperscript{200} He writes that these powers of the soul may cause problems, deceive, and even harm the knower.\textsuperscript{201}

Fries provides a brief list of how this deception of common sense and imagination may occur. First, if one’s complexion is too hot, cold, moist, or dry, one will sense one’s own heat rather than that of the object. Or, the taste, color, smell, or touch of substance deceives because it is too strong or too weak.\textsuperscript{202} Another reason common sense or imagination may deceive or may not be trustworthy is that one may not know the various complexions of plants and animals provided by ancient authors, or they only exist in certain regions and not others: one must then imagine a complexion from the written description on the page. For Fries, there is no unity of signs outside the body that provided a trustworthy experience, a key difference between the allegorical and emblematic thought style. Fries states this is the reason many ancients contradict each other on the experience of the complexion of things: they were deceived by experience without guidance of reason.\textsuperscript{203}

Interestingly, Fries then suggests a rational method of knowing that bypasses common sense. Following Villanova (which he also translate into Neuen dorf), Fries


\textsuperscript{201} \textit{Spiegel} 44v.

\textsuperscript{202} Aristotle. \textit{de Anima} Book III 435b4-435b19; On the extremes of the senses in the Middle Ages, see Ruth Harvey, \textit{The Inward Wits}, 33-34.

\textsuperscript{203} \textit{Spiegel} 44r. “Es ist betrügenlich glaube der erfarung on bewerung der vernunfft.”
wrote that illnesses of the forehead should be recognized as illness of fantasy. This is the location in the head where moisture and warmth tend to collect and can clog this cell. Even though the standards of measurement changed over time, these two complexions (hot & moist) were part of an idealized hierarchy from hot, dry, moist, and cold, based on Hippocratic medicine systematized by Galen. From the qualities hot, dry, moist and cold, a doctor could discover excess of the four humors of choler, blood, red, yellow, or black bile. These humors corresponded to the hierarchically ordered four primary members: brain, heart, liver, and testes. These members corresponded to the elements of air, fire, water, and earth. Fries argues that an untrained layman or quack will always be deceived as to the proper diagnosis, but a suitably trained doctor is able to create and treat the correct constellation of signs of the illness in the intellect. Improperly trained doctors are a detriment to the profession since they only treat the sensible qualities and not the ‘true’ illness.

By true illness, Fries means intellectual knowledge of the universal rather than sense of any particular. For one to sense an object, fantasy has the ability to represent the object or the purpose of the object through a symbol. By using a sensible object to represent the purpose, one moves from the individual to the universal. By moving from individual to universal, Fries has moved beyond common sense and imagination to the

204 Fries, Spiegel 94'-118'. See also, Nancy Siraisi, Medieval 100-105; Michael Kutzer, Anatomie des Wahnsinns: Geisteskrankheit im medizinischen Denken der frühen Neuzeit (Hürtgenwald: Guid Pressler, 1998) 64.
206 Fries Spiegel 16'-23'. He describes each major member, their complexion and humoral balance. See also Siraisi, Medieval 107.
207 Kemp, Cognitive Psychology 57. An example from Peter Abelard shows the difference between seeing and knowing in the middle ages: one must have Christ before one’s eyes in the sacrament in order to know his love. Thus, in ‘seeing’ the sacrament one ‘knows’ Christ’s suffering and love. Abelard, Dialectica, ed. L.M. de Rijk, (Assen: van Gorcum, 1956) cited in Heinrich Lagerund, “Mental Representation in Medieval Philosophy” Stanford Encyclopedia of Philosophy. (Online Edition, 2004).
faculty of reason. This is a movement from sensible species (the individual patient in front of the doctor with specific sensible symptoms) to genus in reason and memory (the universal object that is formed, within which a particular illness is situated by the doctor). As a doctor, his goal is to collect disparate signs, trusting that his training will allow him not to make an intellectual jump from the faculty of common sense and imagination to reason, but to *directly perceive* the nature of the complexion imbalance as well as have the solution for proper rebalancing. As such, a doctor can sense the form of the imbalance in a patient directly.208

For Fries, the sensible signs will always lead one to knowledge of the universal if one is properly trained to recognize the grade of the sign. Below is a list of diverse ‘brain signs’ I have compiled from Fries’ *Spiegel der Artzney*. These signs can be initially sensed with the hand or sight that a doctor should immediately translate to a grade [grad]: i.e. a body that has a complexion of hot, cold, moist or dry will produce certain visible or tactile signs. In each case, the framing of the sensible signs produces a signified unity that is not sensible in the original signs. Several sensible qualities are combined to fit the established system. The combination of colors, fluids, speech, and general aesthetic features of the head create the complexion of the divine member. If one looks at the third example, ‘moist’, a bit closer, Fries combines the visible signs of a baldhead in men, bad hair in women, dull senses, and overflow of facial fluids to diagnose a moist complexion of the head and brain. Moist is the second from the bottom in terms of the complexion hierarchy, and was not too favorable. Too much moisture could lead to catarrh, disease of

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the head in which vapors from the lower body rise to the head, cool in the brain into fluids that flow down and clog the neck.209

Table 2: Brain Complexion from Lorenz Fries’ Spiegel der Artzney (1518)210

<table>
<thead>
<tr>
<th>Complexion</th>
<th>Sensible Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm</td>
<td>Hair falling out of the head, little sleep, and red face with visible arteries.</td>
</tr>
<tr>
<td>Dry</td>
<td>Unmovable fantasy, slow growing hair, deep sleep, much fluid from brain into body, little facial color, invisible arteries around eyes.</td>
</tr>
<tr>
<td>Moist</td>
<td>Bald head, bad hair, dull senses, much overflow of facial fluid, often called Catarrhs.</td>
</tr>
<tr>
<td>Cold</td>
<td>Little overflow of fluids (ear, eye, nose, mouth). Perfect vision/hearing, awake often, late hair growing, early falling out.</td>
</tr>
<tr>
<td>Warm &amp; Dry</td>
<td>Little fluid, perfect sense, little sleep, red face, red hair, fast talking</td>
</tr>
<tr>
<td>Warm &amp; Moist</td>
<td>Pretty color of the face, big eyes, bad hair often reddish. They do not like afternoon breezes, but likes midnight breezes, strong sleep, see strange fantasy when awake.</td>
</tr>
<tr>
<td>Cold &amp; Dry</td>
<td>Cold to touch, white color, little fluids, slow growing hair and quickly grey, eat little.</td>
</tr>
<tr>
<td>Cold &amp; Moist</td>
<td>Strong sleep, large/shrill voice, piercing eyes, much mucus up and down from neck, swollen gums, never grey hair.</td>
</tr>
</tbody>
</table>

This caused the serious medical condition of ‘the falling sickness’ or ‘Hand of God’ [epilepsy] as well as a general unattractive “fluid face.” In folk literature popular at the time, this Grobian character was satirized in Friedrich Dedekind’s Grobianus of Wittenberg and throughout Germany. These ‘fools’ could not think right because of excess mucus running down their face.211 One knew their disordered thoughts from the unattractive visible signs as well as from their disordered speech. This style of table

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210 The visual form of this chart was not provided in Fries’ Spiegel der Artzney, 16r-23r. Fries describes the various complexions of the head in Book I, Section four On Complexions. Table is compiled by myself.
211 Dedekind, Grobianus: von groben Sitten und unhöflichen Gebärden. (Latin 1549; German 1567) Chapter 2, 38.
manner and socialization book became popular in the Strassburg region as well as around Europe.²¹² The rhetorical tropes emphasized behavior as a process of corporal discipline, or bringing the odd interior mixtures under control of reason. If one did not, or the body controlled reason, the person could become sick in the head.

To foreshadow chapter five, we will see that Dedekind’s emphasis on the nose and face has its roots in the changing anatomical discourse that arose in Gersdorff’s *Feldtbuch*, was assimilated by Vesalius and incorporated into his *Fabrica*, and finally included in the standard curriculum by Philip Melanchthon at the University of Wittenberg. The emphasis on controlling one’s outward appearance had a mirror on the interior of one’s own body, namely, the pituitary gland, or the “gland of phlegm.” As anatomy and dissection became a standard means of knowing the material body, Philip Melanchthon included anatomy into his interpretation of Aristotle’s *Liber de anima*, a text that became the standard medical text in Protestant universities around Europe.²¹³ We will see in Chapter five that the brain and the organs of the soul, as a fragmented and hybrid object, was seen as the site of the soul’s contact to the material world and thus essential to disciplining the Christian body.

Like common sense, fantasy was often affected by an imbalance in one’s complexion, influencing the state of the images when they arrive at reason. Wild humors meant an uncontrollable imagination and horrific presentations to the mind as well as to the world. A runny nose was a sign of cerebral expulsion, or the brain expelling excess

fluids from the head. 214 Individuals with these symptoms were not thoughtful since no one can think with a congested brain. Per Norbert Elias’s sociological approach to the late Medieval and Renaissance periods, excess fluid pouring from the head became not only a diagnostic tool of a sick fantasy, but an aesthetic concern as a part of increasingly refined social interactions. 215 Duden has shown that fluids were the ‘uncontrollable’ part of the early modern human body that were increasingly brought under control by the higher rational Early Modern parents and communities because they were often seen as a punishment for the disruption of some social norm. 216 Illness of fantasy should be treated by prescribing fluids, or their purgation, namely from the forehead.

Fantasy was also believed to be extremely powerful in women because of the above-mentioned cold/wet complexion, and through the power of attraction, connected the brain directly to the moist organ, the uterus. This member, the uterus, like all members, had one of three physiological functions from Galenic humoral medicine: attraction, retention, or expulsion. 217 These powers, however, had meaning and action that extended far beyond that of the lower body cavity. Fries also argues that ‘misconception’ can occur from an illness to the man’s as well as the woman’s head. 218 For Gersdorff, ordering the various signs of the female body was important not only for treatment of illnesses to the female body, but to the health of a locality and the discipline

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214 Galen, *On the Usefulness of Parts* 419. Galen called the structure below the central ventricle buttocks (Gloutia). This served as a drainage port surrounding the vermiform process to rid the brain of excess once the spirits had been concocted from blood through the pituitary gland.


218 Fries, *Spiegel* 161 ff.
of a man’s mind. Fries calls promiscuity a child of the brain that drives one to insanity.\textsuperscript{219} If a man does not control his fantasy and wandering lusts, he becomes sick. If a woman’s fantasy was too powerful, she not only affected herself, but the unborn child and possibly brought the wrath of God onto the community.\textsuperscript{220}

Foreshadowing chapter three, dissection became part of the town’s duty to rid fantastic transgressors for the survival of the local population.\textsuperscript{221} Trials and executions for witchcraft and other social deviations were often clouded in terms of the power of feminine imagination to project their diseased creations into the world. Total annihilation of the physical body of the offender—either though banishment or execution—became a ritual of purification of a wild imagination. Various transgressions received tortuous punishments in order to balance the imbalance brought about by the evil fantasy. The gestures of execution were extremely symbolic: each performative act needed to match the gestures of the crime in order to undo its binding effect. This gesture rid the community of its physical memory.\textsuperscript{222} In Strassburg and around Europe, to be hanged publically, often remaining on the gallows for weeks, was the worst disgrace for the offender. We will see that early dissections performed the same punishment function in a dialectic fashion: torture and execution were supposed to rid the community of the memory of the crime through obliteration of the offending member in ever more subtle

\textsuperscript{219} Fries, \textit{Ein kurzer Bericht}, 1523 Unpaginated. “Wan die artzet sagen, das unmessige unküscheit sei ein kind des hirns. […] Das überige unküscheit mach giffliche kemppf/ welche das gemüt betrieben und den seelichen geist/ infüren vergessenheit/ schlaffsücht und narheit.”

\textsuperscript{220} Crowther-Heyck, “Be Fruitful” 904-905; 925.

\textsuperscript{221} Richard von Düleman, \textit{Theatre of Horror: Crime and Punishment in Early Modern Germany} (Cambridge: Basil Blackwell, 1990) 80. The connection between fantasy, uterus connection is even stronger in that the majority of women were exeucted for either witchcraft or infanticide. See also, G. Schindler, \textit{Verbrechen und Strafen im Recht der Stadt Freiburg im Breisgau} (Freiburg, 1937).

discipline of criminal and social body. The gesture of execution (not the offending body), however, was supposed to be remembered and through the viewer’s fantasy as a *memento mori*, death related to all possible sins to be avoided. Mothers were often exempt from witnessing for the effects the torture may have on the unborn child. Often the mutilating gestures were performed on an already dead criminal, blurring the future lines between dissection and torture.

In this materialist definition of thought, a mother’s imagination could literally impress visual and verbal forms on the child. Gersdorff provides the anatomical support for the fantastic account of *Melusine*, a medieval proto-novel published at least four times from 1480-1515 in Strassburg alone, becoming one of the popular vernacular texts of the town (Fig. 12). This story follows a woman whose transgressions against the patriarchal order imprinted physiognomic signs on her children, as well as her own cursed body as she is forced to take a sea monster [meerwunder] or demonic form for one day of the week. Each of her ten offspring carries a physical mark of their complexion as well as a sign of their mother’s guilt. Once her secret was known, she flees the town to be outside social functions forever.

The *Melusine* story is not just a fictional tale: Gersdorff follows the anatomical path from fantasy to uterus by stating that arteries connect the front and rear of the head, move past the ears, toward the main organs and then the genitals. Impotency and lack of sexual desire in men can be treated through letting blood at the back of the neck, since

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227 Gersdorff, *Feldtbuch* 154-155.
this pathway connected the brain with the sexual organs. The annunciation of Mary was often represented as occurring through the ear, which is a sign of oral cultural, penetration by the Word, as well as a belief in the intimate connection of the sensible world’s effect on one’s interior physiology. In this way, words and images in the brain directly affected one’s fecundity. This potent power of words and image was also an instrument for healing as well as reinforcing social order, punishing those who transgressed, or did not control their ‘fantasy.’ Fantasy and sexuality should not be overlooked in Fries’ metaphor of the cook and nobleman: the cook can only focus on a rabbit, a traditional sign of fecundity. Rabbits also signify disordered thoughts, as the medieval poet Wolfram von Eschenbach (1170-1220) writes in a self-effacing fashion that his thoughts, with all its analogies and ‘winged metaphors,’ zig-zag like a running rabbit.

Fries imbibes the Melusine sea monster metaphor with life as he reflected on the first printed edition of his own book, Spiegel der Artzney. He was so upset at the numerous mistakes made by the printer and typesetters that he wrote in the preface to the 1532 edition that he thought his child [book] was almost unrecognizable. It looked like a “sea monster” [Meerwunder]: “When I first ordered it from the printer, it (my book) was so ugly at birth, that I thought as I first beheld it, that I had given birth to a sea monster, because so much was a miss and broken through the unlearned [type] setter. But that wasn’t all! It was full of foolish evil things that I had never personally possessed in my own thoughts.” This externalization of thought through print brought with it knowledge as well as distrust.

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The monstrous imagination also was strongly associated with printing early in its use. In the following image we can see the various duties of a print shop (Fig. 13): setting, inking, pressing, as well as selling: death had a hand in each. In the end, Fries was relieved that the errors were not of his imagination, but still upset at the lack of discipline on the part of the printer and his typesetters. He would need to exercise more control over his book in future editions.

A second imaginative transgression can be seen in Tract three on leprosy and syphilis in Gersdorff’s Feldtbuch der Wundartzney, where one can find another full-page image (Fig. 14). Syphilis first arrived in Europe at the end of the 15th century and was immediately classified as a moral sin. In this image, a woman speaks to what appears to be a plague-struck victim. An image of her words visually connects her body to that of the victim: Benedict deo, et morere or, Blessing from God, to die. Above the image and words, the plague-as-devil touches the victim with a stick. A halo encompasses the man’s head, sending rays of light to cover the entire background, isolating each object from the others. In order to make sense of the various objects in the image—the words, the woman, the sick body, and the gestures of the devil—a poem is written above the frame that guide the reading of the entire image. The rhymed verse informs the reader that the victim, like Job who withstood many tests from God, is suffering the devil’s punishment with dignity. He is outside the community having lost everything, sitting on a rock, suffering bodily pain as punishment and salvation. The poem reads,

verkeret unnd durch ein ungelerten setyer also zerbroken was/ noch darmit nit genuog/ sunder auch vil nerrishcer bossen hinyuo gethon/ deren ich nye keinen in meinen sin nam yuomachen."

231 Giesecke, Der Buchdruck 450.
232 For alternate approaches to early modern experience, treatment, and definition of syphilis, see the collection of essays edited by Kevin Sienna, Sins of the Flesh: Responding to Sexual Disease in Early Modern Europe (Toronto: Centre for Reformation and Renaissance Studies, 2005). For a sociological/historical approach to the concept ‘syphilis’, see Ludwig Fleck, Genesis and Development.
God gave then took house, court, child, wealth
And now the devil took my health
My wife and bladder are tormenting me
But I endure it all, patiently

Here we see that not only is he suffering from the plague, but also from a genital ailment. As a supplement to the image and the spoken words, the poem resituates the signified idea of this image outside of the traditional *ars moriendi* of the Middle Ages that could be inferred from an initial glance at the image alone. His wife is sarcastically offering the plague-stricken man a good death because of his sexual sins. In order to purify the community from future punishment by their sexual curse, this visibly diseased man like the cursed Melusine, quit town once the truth of their imaginative transgressions became visible on their bodies. That neither doctor nor surgeon could help this patient was not the point: God’s will allowed the suffering patient to make his punishment meaningful for his own salvation and the health of the community. Through torment, his soul will eventually be absolved of the diseased body: his soul will go to heaven and the community will be purified of sin.

In addition to these mortal analogies, non-life-threatening illness and injury to fantasy could be caused by injury to the head, excess or depletion of humors, misalignment of the stars, moist foods, or other natural imbalances. Doctors and surgeons recognized an overly or minimally fanciful individual though a number of means, the most frequent being an inappropriate association of images and words, which was a sign of a problem either of imagination (images) or reason (words), or a

233 Von Gersdorff, *Feldtbuch* 74r. “Gott gab/got na huß/ hoff/ kind/ gut Und satzt mich unders teüfels rüt. Mein weyb/ un blotre peingten mich/ Noch lydt ichs alles guldiglich.”
disassociation of body and soul. Kutzer describes such a symptomatic diagnosis in that an afflicted patient will have confused speech, utter strange sounds and have uncontrollable gestures. Galen recounted a similar anecdote, whereby he was afflicted by a fever and thought he saw fungus growing on his clothing. He tried to remove them but found nothing but his fingers moving feverishly. At the same time, he heard the voice of two friends that were commenting on his behavior. Galen remembered that they said his perceptual ability was disrupted, but his rational ability was still intact. Then he said to the his companions, “You are correct, now help me that I don’t acquire phrenitis!”

These diagnostic strategies led one to prescribe certain treatments for a fantasy illness to restore proper health to the organ and whole body. Treatments for surgeons and doctors would diverge as well as overlap the imaginary line separating the front from the back of one’s head: surgeons would treat with their hands and senses while doctors would treat with the intellect. Gersdorff suggests at least thirteen places on the head to let blood, the goal being to restore balance of the humors in order to restore balance of thought.

In addition to bloodletting, a surgeon’s role was to treat the physical wounds if possible, and restore common sense and fantasy to their proper function. The ‘wound man’ in Gersdorff’s text (Fig. 11) provides an image of the possible types of real and symbolic wounds to be treated. In addition to the three injuries to the front of the head, one can see the symbolic ‘thorn in the foot.’ This injury was a popular sign of folly, lust,

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234 The union of words and images was defined as the union of body and soul in Giovio’s emblem book, *Dialogo dell Imprese Militari et Amorose*, Vinegia 1556 (Quoted in Daly, *Literature* 26). This analogical union of body and soul, image and word, imagination and reason and in semiotics through signified and signified can be seen through the 18th Century. See Schöne, *Emblematik*, 23/44-46; Daly, *Literature* 21-26.
236 Kutzer, *Anatomie des Wahnsinns* 89.
and sin. Like Melusine’s transgressions, images of St. Jerome removing the thorn from the lions paw, or the passion of Christ suffering a crown of thorns for humanity’s sin were popular religious images at the time. This ‘folly thorn’ was often considered an illness of fantasy. Other fantasy ailments are described in the process of bloodletting, for which Gersdorff provides a “Lassmann” (Blood “Letting man”) image and lengthy description of the points on the body to be cut (Fig. 15). Surgeons and barbers were encouraged to cut the forehead artery (Stirn) for suspected fantasy illnesses, but only after a qualified doctor had evaluated the age of patient, time of day, season, location, complexion, and temperature. To use phlebotomy or trepanation on an elderly person, at the wrong time of day, or a Parisian rather than Strassburg native, who may be too warm and born in the wrong season, was fatal. The surgeon must treat the physical manifestations of illness of fantasy only after proper academic consultation.

Even though they each address the illness, for Gersdorff and Fries, the complicated details of the medieval theory of common senses and imagination were negligible to help their audience. The first cell’s purpose was to translate external objects into a language the soul could use. The soul, in turn, must be diligent in disciplining the combination of words and images created by these bodily powers. As part of the inner senses, the imaginative power could move toward either the body or the power of reason. For Fries, to remain focused on the sensible object or image in imagination would have been to miss the signified idea in the intellect. Fries attempted to bypass these two organs all together in his effort to rid error from medical practice. This knowledge, per definition, could not be sensible, but must be intellectual (or else it would not be

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knowledge). For Gersdorff, proper training allowed surgeons to move through the first
to the second cell. As we will see in the next section on reason and intellectual
knowledge, to remain focused on a sensible image or word would have been counter
productive since the goal as doctor was to move from common sense, fantasy, and then to
the intellect. The location of this movement occurred between signs in the world or signs
in the mind and became the liminal site of the shift from allegory to emblem.

3.4. Reason: Middle of the Head

If we return to Gersdorff’s comparison of the head to a tree and thought to
moving from outside to the inside, the visible to the invisible, we see a definition of
reason that is guided by metaphor. The metaphoric movement, rather than between one
allegorical sign and one signified, is between words, gestures and images. This
movement is emblematic. As a word emblem, Gersdorff provides a title, image and
interpretation for the readers to access the enigma that is the human head.241 The title or
motto of this emblem can be called, The Head. From this title, a mental image is created
for his readers that situates the head within ‘the hierarchy of creation.’ Non-rational
animals, when understood within the frame of animals created by God, are part of the
Aristotelian hierarchy of nutritive, vegetative, and rationally souled creations that places
man at the top of the hierarchy. However, one knows that the head is ‘the highest of all
members’ because it sits on man’s shoulders and is thus close to the heavens. However,
in another sense, the ‘highest’ becomes the most subtle because of the power that
converts blood into rational spirits or pneuma. In anatomical terms, the middle term was
the psychic pneuma that was ‘cooked’ in the ventricles of the brain.

241 Printed emblems in form of inscrptio, pictura, subscriptio, present an enigma that resolution of the
three elements solved. See Daly, Literature 6.
In the physiology of the inner senses, Harvey argues that as late as the 12th
Century the rational spirit was thought to be the convenient ‘middle term’ between
extremes of soul and body, the soul’s first instrument, the body’s subtest part.242
Nemesius called the middle term the “subtle knot” that held the body and soul together.
As blood moved from front to rear of the head, through the faculties of common sense,
imagination, reason and memory, the sensible singular into an intellectual universal also
occurred materially as if the two [thoughts of the mind and physiology of the brain] were
part of the same ontological hierarchy.243 Thus the different faculties translated a
difference of degree into a difference in kind, which allowed for distinct domains as well
as a translation between domains. Ryan has shown that in Thomas Aquinas’ writings,
this analogy mirrors the form of the Aristotelian syllogism: singular objects are an
argument’s premise. An argument’s conclusion is the universal, or that which follows
always and the most part from the premises.244 Huizinga presents the middle term as the
metaphor that, for late 15th Century thinkers, connected the premises to the conclusion.245

Once the conclusion had been reached, or an object’s essence had been
determined, the metonymic sign provided an ellipsis of perception, whereby a doctor or
surgeon could access the essence directly with limited mediation of the sensible material.
The artistic emphasis on form provided the viewer with direct access to the universal. As
examples, the following practices attempted to raise man’s rational faculty to its upmost
ability in surgical and medicinal practices in the 12th to the 16th Century in order to
circumvent the potential errors of sense and imagination: Medieval drawings and

242 Harvey, Inward Wits 36
243 Kemp, Cognitive Psychology 45-47.
244 Edmund Joseph Ryan, The Role of the "Sensus Communis" in the Psychology of St. Thomas Aquinas,
Dissertation (Carthagen: Messenger Press, 1951) 92-93.
245 Huizinga, The Waning 185.
paintings emphasized a face’s geometric figure as a guide to their complexion and ultimately their soul, which we saw also has geometric proportions (Fig. 16).\textsuperscript{246} Yet, by the early 16\textsuperscript{th} Century the theory of physiognomy was being questioned, where King Duncan says in Shakespeare’s \textit{Macbeth} (Act I, scene iv) “There's no art to find the mind's construction in the face.” However, imagining the unseen remained a common practice in both science and art.\textsuperscript{247}

In addition to Geometry, bestiaries also listed the meanings of known animals to allow individuals to use metaphors between the everyday and the sacred.\textsuperscript{248} Herbariums equated a plant’s shape, color, texture and taste with its ‘complexion.’ Gersdorff and Fries utilize these qualities by providing a list of herbs that are relevant for all body ailments, head and brain problems, even going so far as suggesting a specific ‘head powder’ that cures head ailments. ‘Pulvurus capitis’ combines multiple ingredients whose common properties are ‘head-like.’ The ‘Haubt tranck’ und ‘haubt plaster’ were to be used if the ubiquitous remedy for all that ails a head did not cure.\textsuperscript{249}

For Fries, the doctor’s method to directly perceive the essence was the ‘grade.’ The ‘grade’ was a sensible yet absolute unit of comparison that Fries acquires, through Arnold Villanova, from Avicenna and Galen.\textsuperscript{250} The only image Fries mentions specifically in his \textit{Spiegel der Arztney}, a rarified version of a patient’s complexion in geometric form (Fig. 17). Though the application of grades to create proper

\textsuperscript{246} Villard de Honnencourt’s 13\textsuperscript{th} Century sketchbook offers a clear analogy between geometry, art, architecture and physiognomy. See Rudolf Wittkower, \textit{Idea and Image: Studies in the Italian Renaissance} (Thames and Hudson, 1978) 108.

\textsuperscript{247} Physiognomy continued throughout the 18\textsuperscript{th} and 19\textsuperscript{th} Century, See Hagner, \textit{Geniale Gehirne} 35-46; Barbara Stafford, \textit{Body Criticism} (Cambridge: MIT, 1991) 84-103.


\textsuperscript{249} Gersdorff \textit{Feldibuch} 24-29; Fries, \textit{Spiegel} 118-128.

\textsuperscript{250} On the Grade in Fries, see Olschlegel, \textit{Studien} 81.
combinations of regiments and medicines was fading in the early 16th Century, Fries applies it with gusto to a new audience. With this unit, the primary sensible complexions of Hot, Cold, Moist, and Dry are translatable into a proportionality found in all of creation, from humans, plants, and animals, as well as times and locations. In order to diagnose the true illness rather than the sensible symptoms, the grade allowed a doctor to move exactly with the mental framework of the seven naturals, six non-naturals, and three against nature. The seven naturals were those substances that composed the health of human body: elements, complexions, humours, members, powers, spirits, and operations. The six non-naturals were those substances that affected the human body: air, food, drink, filling, discharging, movement, stillness, and randomness of mind. The three against nature were those effects that caused imbalance of the human body: illness, cause of illness, and randomness of illness.

Whereas the untrained layman, surgeon and pharmacist ‘estimates’ the individual sensible properties based on sense from individual resemblances of plants, humans and animals, doctors who have correctly order all knowledge in memory—here we return to the Fries’ lord/cook/bird metaphor—can correctly ‘know’ the grade and thus prescribe the true treatment for a sick patient.\(^{251}\) In Fries’ text, the entire first section on medical theory provides the language by which the second part of ‘practice’ is structured, which allowed practical medicine to be an art rather than a craft. An example of this rational medicine should suffice to demonstrate Fries’ desire to translate all things sensible as quickly as possible into that which is rational.

In the second half of his book, which prescribes practical treatments following the ‘head to foot’ model common in his predecessors, Fries provides the treatment for an

illness to a patient’s memory, which is one of the three powers of the member ‘head’ situated in the rear of the head. A doctor must recognize the whole patient and the individual member’s complexion, because they can conflict. The back of the head has a cold and moist complexion that can be variously affected by the other major members (head, heart, liver, testes) and humors. The grade of illness to memory will depend on the proportionality of that which the power currently is over that which is normal. The first grade is ‘not obvious’ or secret. The second grade is ‘little obvious over normal’ the third grade is ‘noticeable over normal’ and the fourth grade is ‘very noticeable over normal.’ Fries translates these proportions into a series of fractions and geometrical figures of an acute angel, triangle, square, and hexagon (Fig. 17). By the time he is finished, we see the performance of the inner senses that removes all traces of sensible data in favor of that which is organized in memory.

For Fries, the flaw was not in the medico-scholastic system, but in how it was applied. The criticism of Avicenna and other medieval writers was unsound, particularly that of Paracelsus’ (1493-1541) and Leonhard Fuchs (1501-1556). Letters between the Fries and the others in the 1520’s show the growing debate over graded compounds or natural simples. Fries would eventually write a tract defending Avicenna against attackers. Whereas Paracelsus criticized the formalism of medieval medicine as not conducive to studying nature, Fries argued that the system of grades fails only if one mixes the sensible with the universal, the individual with the universal. For Fries, true

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252 Fries, Spiegel 46v.
254 Leohnart Fuchs’ Errata recentiorum medicorum (1530) cites Fries’ complicated formulas supported by Avicenna as a practice medical doctors should avoid. Just before his death, Fries responded with “A defense of Avicenna for use by German Doctors” (1530).
255 Fries and Paracelsus travelled together for a time in the late 1520’s: see Pagel, Paracelsus 23-25, 56-60.
knowledge can only occur of the essence in memory since reason’s objects are those in memory. The worst illness of reason is forgetfulness, which he equates with madness. 256

Within this context, studying nature or illness would be fruitless if one does not know the meaning of that which one experienced. Physiologically, one can only remember once the thing is no longer placed before the senses, or else one would be sensing or imagining its sensible qualities rather than remembering its intellectual form. For Fries, a doctor who constantly orders that which is in memory is less likely to make a mistake in the sensible world and more likely to know the truth. Thus it is like the Lord from Strassburg from the beginning of this chapter: a man who has so many different observations in a single head cannot be complacent, but be a diligent observer of his memories. In this way, the rational use of memory is to remember, or to perform one’s memory faculty by constantly moving away from the sensible.

This rational treatment of memory does come to practical terms. Fries offers the following suggestions to restore proper faculty functioning: have a balance of food and drink, not too many spices that smell, walk and don’t sleep after eating (which means to wear shoes), don’t go in the cold with a bear head and neck, protect oneself from unnecessary fantasy, purge all the humors that could hurt one’s memory (mainly phlegm and melancholy), have an electuary every morning, and finally, in order to trust what the doctor says, know that his knowledge is coming from masters and not what old women and students have artificially invented. 257 This rational medicine and the use of rationally graded herbal compounds from Medieval Arab medicine became a major point of contention for 16th Century doctors such as Fuchs and Otto Brunfels (1488-1534), both of

257 Fries, *Spiegel* 12v-14v.
which would produce two of the first illustrated manuals of medical simples, or plants isolated from a compound by word and image.\textsuperscript{258}

Gersdorff demonstrates the thought style that moved through the material as well as the performative ritual of moving between words, images and gestures to access a signified meaning. For example, when a limb needed amputation, or a leper needed healing, the letter ‘T’ (tau) of the Greek alphabet was considered an ideal focal point of healing powers.\textsuperscript{259} Readers of Feldtbuch der Wundartzney can see this symbol in two places. First, the end of the second tract of surgical procedures, the Tau appears in an image with a description of an amputation or ‘serratura.’ Gersdorff boldly claims he has performed more than 200 amputations without anesthesia in the courtyard outside Saint Anthony’s hospital (Fig. 18). In the picture, a man’s leg is being amputated below the knee: one figure dutifully holds the patient’s leg while the other figure cuts. A basin sits below the point of contact to catch the blood. In the background, a survivor of a lower arm amputation wears an amulet of the Tau around his neck for further protection.

Then as today, surgery is a dangerous practice. As one of the three parts to medieval practical medicine—regiments, pharmacology, and surgery—it [surgery] was to be used as a last resort. Gersdorff writes that if a surgical procedure like amputation must be preformed (after all else is done to forestall it), one should pray to God with clergy and give the patient the sacraments before one attempts to cut. The surgeon himself should

go to mass so that God will give him grace in his work.\textsuperscript{260} These suggestions were part of the art of dying well or \textit{ars moriendi}. A surgeon who did not perform them would not be a good surgeon.

Performing the amputation with St. Anthony church near by was also more than a coincidental geographical location: the church yard was a holy spot with healing powers that helped guide his hands in the medical procedure. If one looks again at the image, however, the procedure is represented as taking place in an enclosed structure rather than in the open courtyard. A short poem above the image reads,

\begin{quote}
Amputating arm and leg is an art
Performed against Saint Anthony’s fire
It’s not for everyone to try,
But should be done like I do it.\textsuperscript{261}
\end{quote}

In this image, the languages of image, word, and gesture support each other to produce a signified idea of “the rational surgeon.” The magical symbol of the Tau, whereby the gesture of touch produced healing effects, as well as the words “Saint Anthony” (who had similar healing powers), as well as the healing touch of the surgeon (we see in the background a patient has survived!), and the serene patient, reclining peacefully with a cloth over his head as a surgeon saws off his leg with skill [geschklickeit]. The combination of these fragments guides the reading of this emblematic image that was used to teach treatment for ergotism, or Saint Anthony’s fire. Rather than the amputated leg, the reader is to focus on the motto \textit{serratura} or ‘minor surgery,’ which provides an alternate reading to the represented image.

\textsuperscript{260} Gersdorff, \textit{Feldtbuch} 23\textsuperscript{r}; 41\textsuperscript{r}; 72\textsuperscript{r}ff. “Von der Abschneidung So sollst du den Kranken heyssen vor allenn digen beychten/un das heylig sacrament entpfahen am andere tagee du in schneydest. Un soll der chirurgicus vor messz höre/so gibt im got glück zü seiner würckug.”

\textsuperscript{261} Gersdorff, \textit{Feldtbuch} 73\textsuperscript{r}.
The ‘Tau’ and Saint Anthony also appears in a second image (Fig. 19). In this image, St. Anthony is shown reading a book and holding a staff topped with the Tau adorned with bells. His cloak also has the symbol of the Tau embroidered over the heart. To Saint Anthony’s right and below (the readers left), an injured child touches St. Anthony’s cloak. To St. Anthony’s left and behind him, a pig’s snout is visible with another bell tied to its ear. A halo radiates behind St. Anthony’s head. The diverse elements in this image created the emblematic meaning, whereby the combination of the material figures (cloak, Anthony’s body, staff, pig) come from the domain of health. The injured boy, just by touching the cloak embroidered with the ‘T,’ hearing the relaxing, meditative sound of the bells, seeing the healing powers of the sacrificial pig, as well as a ritual reading from Saint Anthony himself, together provide the reader access to the essence of health directly through the emblematic combination of signs. Even more, the poem over the image directs the reader to the emblematic idea,

O Holy Shepherd great Anthony,  
Grant us mercy without end.  
Forgive our sins, through God’s Favor and Grace  
Protect us from your heavy heart.\(^{262}\)

If one interprets these combinations of emblematic signs through the ventricular doctrine, the frame that unifies these signs are individual attempts to present the essence that has been found in the intellect, into the world. However, this is a non-sensible essence, which is why emblematic forms became so important in the early 16th Century. The combination of fragments allowed individuals to access the non-sensible idea through the material. The emblem performed its role as a metaphor, mediating between the worldly signs and heavenly domains. The rational method no longer followed the

\(^{262}\) Von Gersdorff, *Feldtucb* 69v.
unbroken allegorical chain of being, but moved among sings to access a signified truth. In the process, the emblematic thought style has the unintended effect of directing the viewer’s attention to the presenting material. A. Hayum has shown how alter pieces in the Alsace area, particularly the altarpiece at the Antonite cloister in Isenheim (Cloister for Saint Anthony), became the model for some of these images in Gersdorff’s text (particularly the leper and Saint Anthony, Figs. 14 & 19).\textsuperscript{263} The altarpiece, commissioned between 1506 and 1516, acquires even more importance when one takes into account one witness’ testimony that limbs from successful amputations were kept in a drawer as relics with healing powers.\textsuperscript{264} Whether these were from Gersdorff’s patients is not known, though the cloister at Isenheim was also used as a hospital. The artist, Matthius Grünewald, presented thirteen separate images on the alterpiece that deal with scenes of healing and salvation. The formal and iconographic handling of the altarpiece mediate between this loftier, doctrinal level of communication and one that relates more directly to the immediate perceptions and experiences of the patients.\textsuperscript{265}

This unintended consequence of combining image, words, and gestures can be seen in the image of the amputated leg in Gersdorff’s Feldbuch der Wundartzney and applied to the emblematic approach to the brain. By moving back and forth between the image fragments, the guiding words, the imagined gestures of amputation, as well as the possible gestures of cutting a real amputation, the viewer/reader begins to isolate body fragments that had never existed. In this image, a gangrenous leg at the vanishing point of the image suddenly appears. By cutting below the knee, the surgeon creates a fragmented body part from what had previously been the whole of the ‘grosse Fuss’ or

\textsuperscript{263} Hayum, "The Meaning and Function of the Isenheim Altarpiece" 504.
\textsuperscript{264} Hayum, "The Meaning and Function of the Isenheim Altarpiece" 509.
\textsuperscript{265} Hayum, "The Meaning and Function of the Isenheim Altarpiece" 512.
‘large foot.’ The organization of the image, the gesture of cutting, and the guiding poem has the effect of stabilizing the body by removing the chaotic element. This chaotic element was the “non-rational” element, or that which unbalanced the whole.

3.5. Memory: Back of the Head

In this section, I will outline two types of memory powers found in Fries’ and Gersdorff’s texts, image memory in the front of the head word memory in the rear. In addition to these memory powers, there are two types of memory enhancements, those of the body and those external to the body, both of which improve memory functioning. Since imaginative power and image memory has already been discussed, I will only briefly describe it as a memory power that is different from memory in the rear of the head. As mentioned, imagination was the process of remembering an object once sensed that was no longer present to the external senses, which humans had in common with animals. Fries describes this as the faculty of the common man, or the cook who could not properly use reason to store the many different birds in his head. This anthropological definition of the mind foreshadows social demarcations in the writings by the Spanish doctor Jean Miguel Huarte (1530-1592) and English polymath Francis Bacon (1561-1626) who each outlined social hierarchies based on a person’s mental propensity within the categories of the inner senses. Huarte argued that training of an empire’s youth should be based on the ability each displays towards one of the three mental faculties. Francis Bacon argued that knowledge should be reclassified into three categories of Poesy, Philosophy, and History.266 Both of these social programs were

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266 Jean Miguel Huarte, Prüfung der Köpfe zu den Wissenschaften, trans. G.E. Lessing (1752) 75-82. Francis Bacon, The Proficiency and Advancement of Learning (1605) Bk II.
based on an anthropological definition of the inner senses of imagination, reason, and memory!

An even more relevant case is that of Philip Melanchthon, who used anatomy learned from Vesalius’ *Fabrica* to guide his reading of Aristotle’s *De anima* and implore students to discipline their bodies through the inner senses. We will see in chapter five that the emblematic creation of the brain as a set of fragments allowed students to organize their bodies based on the *trivium* of grammar, logic, and rhetoric. The practice of associating the body parts with a visual location had previously been associated with the memory arts from the *Ad Herennium*, which was the main source for the classical arts of memory.267 Where as the *Ad Herennium* was based on an architectural structure, within which clever combinations of images and objects were used to associate the thing remembered more clearly, Melanchthon uses the human body as such a memory device where by the proper anatomical ordering of the body becomes the proper means for a student to organize his thoughts.268

The site of this memory power resided in the back of the head, in the third ventricle, which leads to the second memory power. Fries and Gersdorff treat this memory power in different ways, with Fries adding a neo-platonic element absent in Gersdorff. For Fries, ailments of the memory are either of the body or of the soul, and treatments of this power are either medical or philosophical. Fries describe ailments of the memory are of three types: lessening, destruction, and total absence.269 The last two ailments are to be treated medically, but in a healthy person, the first ailment of an inferior memory can be treated philosophically by natural and artificial means. By

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268 See Chapter 5.4-5.5.
269 Fries, *Ein kurzer Bericht* unpaginated.
natural, Fries means medical treatments he provides in Spiegel der Artzney; these deal
with the regiments and pharmacological adjustments such as foods, material medica,
regiments, and blood letting that rebalance one’s memory faculty. By artificial, Fries
means healthy patients who have otherwise allowed their memories to weaken. He wrote
a separate philosophical tract for healthy readers to improve their memory, which is
based clearly on language.270 In this memory tract he suggests the allegorical relationship
between reason and memory, which is one where training improves one’s memory, which
helps one’s rational faculty contemplate first principles and ultimately God. This
contemplation of God is understood as the desire of all rational abilities.271 Moving from
a sensible object to contemplating God is the medieval allegorical thought form, which
we can see in his treatments of medical and philosophical ailments of memory.
Medical treatment of memory begins with a proper knowledge of the brain’s
physiology and complexion, followed by diagnosis of the ailment, then prescription of a
treatment that corresponded to the ailment. The head was often described as a ship or a
boat in medical literature.272 The first part of the head is the ‘prora’ (prow) because the
front of the head is like the first part of the ship (which is called prora in Latin). The rear
part is called ‘puppis,’ or the back part of the ship. The front part is larger and divided
into two parts. Here Fries mixes the anatomy of the head with that of the ventricles of the
brain.273 Fries continues by writing that the two parts are connected by a net (called by

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Fries, Ein kurtzer Bericht unpaginated.
Fries, Ein kurtzer Bericht unpaginated. “Deßhalb dieser sac in ein andern weg zü begegnen ist/ daru
erstmals angeriefft den ersten beweger/das best ding/ den all er grösten got (welchs ynsprechung alle
vernünfftigen gemüt begeren).“
272
O’Neill takes reads the boat metaphor and others to mean that medieval doctors located the psychic
functioning in brain matter and the meninges. See O’Neill, Ynez. “Meningeal Localization: A New Key to
Some Medical Texts, Diagrams and Practices of the Middle Ages.” Mediavistik 6, 1993 211-238.
273
The anterior ventricles are two, though this distinction was not often noted in ancient or medieval
medical literature. See Clark and Dewhurst An Illustrated History, 33 image 44.
271

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the anatomists ‘the fourth net’ or ‘miracle net’) and is common to both parts. After dismissing imagination, Fries describes the physiology of the inner senses in harmony with that movement of thought from sensible singular to intellectual universal.\footnote{Fries, Spiegel 103*-104*. “Der erst teil der ist prora genant/ ursach das es der vorder theil ist des hirnes/ gleich als der vordertheil an einem Schiff/ welcher zü latin prora genant ist. Der ander teil heißt puppies hinder teil des schiffs/ ist so vil gesagt als das hinder teil des hirns ußgespitzt. Nun würt der vorder teil prora in zwen teil geteilt deren yeder für sich sels gröser ist dan der hinder teil puppies. Doch so füget sich der förder theil zü de hindern on ein mittel durch ein netzelein welches da genant würt von den anathomisten / das fierd netzlin unnd diß netzlin ist gemein beider theilen / Des hirns / darnach seind zwei netzlin welche verordnet den luft des vordern teil des hirns/kochend und gebend da von dem him tierischen geist. Zu machen die fünff sin oder entpfintlicheit /sehen/hören/riechen/versüchen/unnd greiffen/und noch mee die fantasy. Darnach gangent disse geist/so ietzund gereinigt unnd gelütert seint unnd gantz subtil/ in mittel des hirnes/ uff das sie machend vernunft/ und verstand. Und dis bischicht in detheil des hirns zwischen beiden obgenanten theilen/des hirns in eine ding ist gleich den nerven in der substanz/ und heissen die Anathomiste disen teil pinea ascendente et descendente et descendent und durch dieses netzlin uff stigen er offnet sich ein löchlin/unnd durch sein nider fallen beschließt es sich. Unnd so sich nun solliches löchlin uff thüdt so god der tierisch oder selisten geist von dem vorder theil des hirns in das hinder theil. Unnd diß beschchwannes not ist ein ding zu behalten/ das sunst vergessen würt.”} He then uses this to support his version of an ideal memory faculty containing the subtlest part of the spirit in memory in the back of the head. Rational spirits are concocted and made subtle for reason. Then a small ‘pineal’ body raises and lowers like a net or gate, covering a little hole to the rear of the first ventricle. The anatomical accuracy of such a theory is not the most relevant to understanding the allegorical thought style. What is important is the ideal definition of the brain and its function. If one remembers correctly, the passage in the brain opens and allows the subtle animals spirits to move to memory. If one forgets or does not remember, it closes, forcing the animal spirits to remain in the center ventricle causing ailments of reason.\footnote{Fries, Spiegel 104*. This is a misreading of Galen’s \textit{On the Usefulness of Parts}, Book 8 (p. 419). There, Galen discusses the ventricular anatomy and rules out the volitional control of the pineal gland, which had been suggested by previous anatomists. The pineal gland would eventually return in Descartes’ theory of the brain. See Rene Descartes. \textit{Passions of the Soul}. Trans. Stephen Voss. Indianapolis: Hackett, 1989) 36-37.} If the ‘gland’ does not open, then one has a bad memory. If the gland moves quickly, the person has a good memory. Controlling one’s memory becomes a physiological function with strong moral implications.
For Fries, this physiology of memory was one where the soul could activity control the movement of rational spirits between the front and rear of the head. Through conscious control, proper use of reason became a moral obligation since that which was in memory should be the pure focus of contemplation for reason. From Fries’ union of anatomy and physiology, we also can see a distinction between images of individual objects stored in imagination and the form or organization of language, which are words stored in memory. By the time the animal spirits have moved to the back of the head, the image has been purified to only the word and the idea the word represents. He gives an example of this by writing, “the gland will move quickly in a person with good memory, who will be able to give a good answer to the asked question. In a person with a bad memory, the gland will move slowly and they will not be able to speak properly if a question is posed to them.”

For Fries, images and words are points along the same hierarchy of knowledge, the same path from sense to intellectual knowledge, from impure to subtle animal spirits as they flow from the front to the back of the head. A person’s duty was to guard their memory as gatekeepers, following a long tradition of inward, meditative knowledge. Mary Caruthers describes the practical use of this “craft of thought” in High Middle Ages, whereby monastic rituals emphasized the making of mental images and these images’ realization in medieval literature, architecture, and art. Contemporary readers should not underestimate the importance of such a view on memory as a skill with high

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276 Fries, *Spiegel* 104r. “Ist es aber sach das sich dises hütlin zü dem hindern theil nit uff thüt/ so hatt der mensch kein gedechtniß/ und gibt nit leichtlich antwurt den fragen so man zü im thüt.Aber so sich diese hütlin bald uff thüt/ so hat der mensch ein güte gedechtniß. Ist auch bald gescht antwurt zü geben/ uff för gelegte fragen, etc."

regard. This inward orientation had important consequences for medical and scientific activity, as well as the construction of Fries’ book, which we see he called a ‘seasmonster’ because the publisher Johann Grünninger put in elements that he never had in his own head. The publisher included images of common medical scenes, dissections, and skeletons, none of which were relevant to an ideal medical knowledge. Only after Fries had the chance to edit his own book in 1530 with a new publisher, a book that was posthumously published by Otto Brunfels two years later, we can see the ideal, purified version of Fries’ externalized memory: of the twenty one images in the first edition, except for a new title page, none remain.

For Fries, if a doctor was sensing an object, an illness, or attempting to deduce a patient’s complexion, a doctor should force close the pineal gland in order to not remember and corrupt the contents of memory by individual experiences. Blocking the passage from the second to third ventricles meant that nothing from sense is allowed to enter the realm of memory. The reverse was even more important: a doctor should sense as little as possible so that the majority of his mental energy is used to situate the ‘subtlety’ of the sensible knowledge within the highly structured network of associations. The medical glance was enough to judge immediate qualities that are perceived by the external senses and then made meaningful internally through placement within the categories of seven naturals, six non-naturals, and three contra-naturals. True, allegorical knowledge was contemplative rather than experiential.

This contemplative memory that rejects images is intimately connected reason and the contents of memory in the back of the head, as can be seen if we revisit the

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metaphor of the Lord and the cook from the opening of this chapter. The mental birds to which Fries refers are the forms in memory. It is no coincidence that the doctor manipulates mental birds and the cook manipulates rabbits. Birds have a long bestiary and mnemnotechnical history because of their various symbolic qualities, as well as use as metaphors of the mind or soul. Rabbits do as well, though of a different kind. They are clearly ‘earthly creatures’ that often symbolized lust and passions because of their fecundity in addition to the disorderly thoughts mentioned by Eschenbach.

For Fries, only a simpleton must translate all signs into one language, where as a learned doctor can contemplate many different mental objects in order to arrive at the truth of the matter. He later equates a bad memory with bad reason, calling forgetfulness foolery or “madness.” The cook (surgeon) only knows how to deal with one thing, the rabbit, or objects from external senses in a disordered and sensible image store of particulars in imagination. These contradictory things are signs from different languages and the cook, also popular figure of the ‘fool’ in early 16th Century German popular literature, cannot keep them together.

The metaphor of ‘cooking’ may also seem odd, but it was believed that the body cooked (concocted) the blood into animal spirits at several levels in the physiological process, the last and most pure level occurring in the brain. Fries follows Villanova’s Galenic versions of anatomy in that the brain has a miracle net of centrally located

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279 Hall, *Dictionary of Subjects* 48. Birds were often symbols of the element air, human or divine spirit, creation, hearth, and especially the soul. See also, Simona Cohen’s recent *Animals as Disguised Symbols in Renaissance Art* (Leiden: Brill, 2008). For Birds and Cages as metaphors of the mind and memory, see Draaisma, *Metaphors of Memory: A History of Ideas about the Mind* (Cambridge: Cambridge University Press, 2000) 27.

280 Hall, *Dictionary of Subjects* 196.

281 Fries, *Ein kurtzer Bericht* unpaginated “die vergessenheit/narrheit.”

282 Calmann, "The Picture of Nobody” 73-75

vessels. Here, blood is concocted into animal spirits. This appears to be a reference to the *rete mirable*, what Gersdorff also calls the ‘porcelain womb’ in the poem printed beneath the fugitive sheet depicting the dissected cadaver.\(^{284}\) With further anatomical investigation, this imaginary member would be found only in ungulates and not in the human body, rather than analogically transferred to humans as had been done for centuries.

Fries’ reference to the fish to market in this metaphor is also an oddity for purchasing birds and a description of the brain. Nancy Siraisi describes the ‘medical market place’ as part of most medieval and Renaissance commercial centers. This professional quarter was located in fish market in Strassburg. Fries even dedicated his text to Johann Dingler, leader of the Fisher’s guild, to obtain favor for his book among the guildsmen in Strassburg.\(^ {285}\) Fries’ description of the Lord’s interaction with the cook is also a powerful metaphor of giving the manual labor to the surgeon or apothecary, whose job it was to touch the patient, thus delegating his imaginative powers to someone outside his own body. The performance of this social hierarchy usually had a local place for each class to demonstrate their place, and Strassburg was no exception. Doctors, surgeons, barbers and apothecaries collected on a narrow road to peddle their healing wares, colloquially called “the Fishmarket” that Gersdorff calls “Regenbogengasse” (rainbow street), which was the same narrow alley where Gutenberg first set up his printing press.\(^ {286}\)

The doctor’s scorn for the cook can be understood through its potential third meaning: the word ‘cook’ was a derogatory metaphor for non-medical distillers and

\(^{284}\) Figure 2. See Chapter 5.
\(^{285}\) Fries, *Spiegel* 1v.
\(^{286}\) Chrisman, *Lay Culture, Learned Culture*, 150.
apothecaries. \(^{287}\) Proper healing methods, especially those too complicated to be understood by the average layperson, were a form of self-advertising in the face of stiff competition for patients between doctors, surgeons, and apothecaries. \(^{288}\) Ölschlegel argues that this analogy is directed at Hieronymus Brunschweig (1450-1512?), the surgeon apothecary Fries calls an *empiric* in a derogatory way. Brunschweig was predecessor to Hans von Gersdorff in the so-called Strassburg surgical school, though it seems unlikely that the reference was directed at Brunschweig since he had passed away years before the book was published. \(^{289}\) We will see in chapter four, in an ironical twist, the majority of images included in Fries’ texts were first cut for Brunschweig’s anatomy and distillery books published by the same Johann Grünninger in the first decade of the 16th Century. Grabert argues that the images have no medical value and are of more use for an ethnographic study of fashion of the surgeon and patient. \(^{290}\)

After his medical description of memory, Fries’ philosophical approach to memory shows an excellent example of the performance of the allegorical thought form. In order to artificially improve one’s memory faculty, Fries suggest that one try approved memory techniques, though specifically not those bad methods of the Lullian Arts, founded by Raymond Lull (1232-1315). \(^{291}\) The main example for improving one’s memory, besides the regiments described in the previous section, utilizes the Strassburg Cathedral as an architectural memory device. Fries suggests that individuals who wish to

\(^{287}\) Fries, *Spiegel* 87f. Fries calls apothecaries ‘koch’ or ‘cooks’ as well as ‘wagons with three wheels.’ They are not as good as doctor, but better than nothing.

\(^{288}\) Pagel, *Paracelsus* 23.


\(^{290}\) Grabert *Nomina Anatomica* 40.

improve their memory form mental *loci communes* that are familiar to them, such as their church or other town buildings.\(^{292}\)

Though we do not need to go into detail, one can see that the Gothic Strassburg Cathedral begun in 1176 and completed in 1439, with its several altarpieces, commissioned works of art, as well as detailed facades and portals, becomes a collection of spaces and architectural signs for an individual to make associations in their memories. By utilizing the cathedral as a memory device, Fries demonstrates how to use the allegorical thought form to make the stone and mortar material of cathedral disappear from sight as he recreates it in his memory. As he moves from alter to fountain, between the north and south portals, he suggests that the reader count ten places, 1-10, for the mind to remember ten things. Each of those ten locations is given a name (i.e. alter, pew, painting, etc). To keep these numbers in order, Fries suggests one use a sound such as ordered vowels. Thus as the mind counts to ten, the feet walk from place to place, the tongue speaks ‘AEIOU’, while associating an important memory with a sculpture of ‘a monk with a beard’ or ‘a fox.’ This practice of combining gestures of the body, familiar and strange sights and sounds, trains the person to use only minimal perception in favor of that which was stored in the halls of memory. While physically walking, the rememberer also walks within his own mind, restoring that which is to be remembered from a collection of symbols of some more important conceit.\(^{293}\)

In this way, like the Strassburg cathedral, the entire community became a storehouse for allegorical memory that allowed the subject to mediate while going about their daily routines. Symbols are created, combined and separated in order to move

\(^{292}\) Jean Michel Massing, "Laurent Fries et son Ars memorativa."

\(^{293}\) Yates, *The Art of Memory* 150-170.
directly from sense to memory, the content of reason. This practice allowed preachers to remember important sayings, aphorisms, or Bible verses and doctors to know the categories of good health. If an object, word, gesture, or image is viewed as an allegorical memory device, it is only important for its metaphoric capability, to propel the observer into their memories. Fries suggest that the doctor can really access the truth in memory and was accused of heresy for his claims that the common man will confuse the profound skill of the doctor for that of an angel. The Faustian implications are clear from the accusation by the printer Gegenbach from Basel, who in 1519 wrote a carnival “Fools play” [Gauchmatte] casting Fries as the magician:

The Doctor: I am master of astrology
An honored doctor of medicine
Though one says I’m uneducated
I know the ways of the heavens
Since I practice this art hourly.

If we turn to Gersdorff, we will see that he followed the same anatomical definition of memory as the “faculty in the back of the head,” though his surgical training left him little use of the allegorical mode of thought that moved primarily between reason and memory. Gersdorff implores readers that a surgeon must know the location of the various faculties and recognize signs of their ailments in order to properly treat head wounds. Much of the second section on surgical treatment of illness, injury and wounds deals with head injuries that can be treated with bloodletting, trepanation, and other manual means. If surgeon does not know the location of the injury (front, middle, or rear

294 Ölschlegel, Studien 73. „Dise grosse arbeit vnd musame die ein arzt haben muß, biß er so vil widerwertiger ding in ein wonung der gedechniß zu samen bringt. Der Doktor sey ein engel, das er so vil mancherley betrachtung verfassen möchte.“
of the head) or the signs of a bad imagination, reason, or memory, his action or inaction could possibly hurt the patient.

Gersdorff’s emphasis on surgical technique also provides readers with a type of memory similar to Fries’ external memory device of the Strassburg cathedral: memory is stored in the book and in his body. Gersdorff, as a handworker, locates his memory throughout his body through habit and external to his body in the printed book. That is, all that he has accumulated over the years through experience, that through use of his hands and the ‘secrets’ contained there in, will perish when he is deceased. Prior to the 16th Century, much of surgical knowledge was passed down from one generation to the next through apprenticeships, a transmission of knowledge that is now lost. The pride of this secret yet hidden knowledge can be seen in Heinrich von Pfolsprundt’s *Bündth-Ertznei* (1460), where many of his secrets are only told if the reader promises to keep them secret.296

With the development of print that could store and spread memory more quickly, memory stored in the gesture of the surgeon’s body could now be translated into words and images. Gersdorff uses the metaphors typically reserved for the memory power in the brain: his body and experience is a ‘valuable treasure’ [hoch gechte schatz] that ‘retains’ [behalten] for the ‘common good’ [gemein gütt].297 The memory in his body can be translated into the words and images of his book, a storage device to enhance the memories ‘inside’ the body. The form of this memory changed the approach to knowledge, shifting from an internally recognized allegory to an externally projected

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296 Pfolsprundt, *Bündth-Ertznei* unpaginated.
297 Gersdorff, *Feldtbuch* 1v.
emblem. The co-ordination of the various languages used to present ideas and objects outside the body assumed a human rather than divine audience.

By looking at the various places Gersdorff stores memory—the memory faculty in the back of his head, his body and gestures with instruments, and external memory in the printed book—we see the distinctly emblematic thought style that brought together allegorical fragments to produce signified meaning. We also see a surgeon who is finding that translating the gestures of surgery into words and images is difficult. He is not a doctor or a poet (buchdichter) and therefore will not narrate using eloquent but useless words. He will use short expressions to ‘show’ the way to do certain things.\(^\text{298}\)

For Gersdorff, these fragments of words, images and gestures were extremely real and required the use of the inner senses to bring them to life in a way specific to a surgeon. In presenting these medical fragments, we come full circle to the Benjaminian ruin. Instead of Fries’ well-ordered medical masterpiece, Gersdorff states he will present ‘a collection of the ruins of medicine.’\(^\text{299}\) By performing the difficult work of moving between memory boulders outside the body so that a peer can understand and repeat the same process—rather than moving from sense to reason inside the body—Gersdorff is beginning the process of externalizing knowledge that would be one part of the medical project of the 16\(^{\text{th}}\) Century.

I have described several images in this chapter that emphasized the supplementary relationship between image, word and gesture in Gersdorff’s *Feldbuch der Wundartzney*: The Woundman, The Plague, Saint Anthony, and Serratura. In all, Gersdorff provides 32 images, complete with a title to situate the context and many of which have


\(^{299}\) Gersdorff, *Feldbuch* 1v. “Mer ein züsamen läßer der abryßeden bröcklin der artzney.”
supplementary poems that describe how the image is to be read. In each case, Gersdorff is communicating directly with a reader, presumably a surgeon or surgeon in training, in order to describe how a surgical gesture is to be performed. From the proper use of surgical instruments, to reading the signs of a joint break or sprain, removing arrows on the battle field, or diagnosing leprosy, Gersdorff has translated the powers of the inner senses onto the surface of the printed page. In this way, the surgeon becomes an artist rather than a barber or an unlearned handworker.

In this chapter, I followed the activity of the inner senses outlined by Hans von Gersdorff and Lorenz Fries in order to show how patients, doctors and surgeons performed the inner senses. A patient, surgeon, and doctor’s performative use or disuse of common sense, fantasy, reason and memory situated them within an epistemological hierarchy that reflected social hierarchies as well. Fries believed that doctors, with the key to reason, also had the key to divine knowledge. The academically trained doctor approached the faculty of reason from the perspective of memory, which he saw as less prone to error than the external senses and imagination in their chaotic relation to reason. I have emphasized that this thought form, which moved between reason and memory, was a remnant of medieval allegory.

Von Gersdorf, on the other hand, approached the faculty of reason through imagination and the senses. By moving between a representation of gestures, tools, poems, and images, Gersdorff’s performative reassembling of the diverse fragments the medical arts was distinctly emblematic. In addition, the fragmented meaning of one sign supplemented others in performative gestures that moved knowledge outside the body. This externalizing movement, however, did not rid Gersdorff of the inner senses. On the
contrary, the close relationship between images, words and gestures allowed the
fragments of allegorical meaning to continue to produce moral meaning. The head was
still ‘the highest’, the heart was still ‘the first’, the uterus still ‘the field of man’s seed,’
metaphors that allowed reason to access the truth of the material object.

By establishing the conditions of the allegorical and emblematic divide that began
in the late 15\textsuperscript{th} and early 16\textsuperscript{th} Century, the next chapter will revisit what I call the ‘brain
event’ of 1517 Strassburg created through dissection and print. The words, images, and
gestures of dissection and print, if viewed emblematically through the inner senses, take
on a whole new meaning for the study of the early16\textsuperscript{th} Century brain. We will see that the
historical tendency to favor Fries for his accurate brain images is unwarranted, since the
images in his \textit{Spiegel der Artzney} were acquired from Gersdorff \textit{Feldbuch der
Wundartzney} through a deal between printers.
3.6. Figures

Fig. 11. Woundman from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 12. Melusine leaving a window, woodcut from *Histoire de Méluçine* (Genève, A. Steinschaber, 1478) rpt. Bibliothèque Nationale, Paris.
Fig. 13. Death at the Print Shop in Matthias Huss’ *La Grant Dance Macabre* (Lyons, 1499). © The British Library Board, 065110.
Fig 14. Plague and Leprosy from Hans von Gersdorff, Feldbuch der Wundartzney (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 15. Letter ‘a’ shows the site for fantasy. Lettingman, Laßman or Visible Anatomy from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 16. Geometry in Villard de Honnecourt’s sketchbook (13\textsuperscript{th} Century). rpt. Bibliothèque Nationale Paris – Manuscript No. 19093.
Fig. 17. Grades of medicine Lorenz Fries *Spiegel der Artzney* (Strassburg, 1518) rpt. Bayerische Staatsbibliothek [2053].
Fig. 18. Serratura from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 19. Saint Anthony from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
CHAPTER FOUR

The Allegory of the Head and Brain in the Early 16th Century

“As I said, the inner senses define thought in the front and memory in the rear [neck] of the head. We could say more beautiful things about this, but it would be too long here. As a short introduction, you should know that the head is made of ten things, as is said in the first chapter. These parts are called the locks of hair, the skin, the flesh, the smaller skin [pericranium], the cranium, the inner skins [dura and pia mater], the brain, the central membrane, the brain net, and the lower bone [basilar] that leads to the brain. I will leave that be, since an anatomy [dissection] in Strassburg was newly described in German by the honorable Wendlin Hock, who, in my opinion, should be the one to describe it to you. But, since it has already taken place, you’ll have to find out on your own [brackets are the present author’s addition].”

Lorenz Fries, *Spiegel der Artzney* (1518)

4.1. Introduction

Before we look at this quote in depth, let us review our journey thus far. In the previous chapter, I showed that the shift from allegorical to emblematic thought styles can be seen in Fries and Gersdorff’s dissimilar emphasis and performance of each power of the soul, or ‘inner senses’ of common sense, imagination, reason and memory. Fries’ medicinal art was meditative, moving through a hierarchy of signs between reason and memory, relegating manual or hand labor to lesser-trained workers. Both Fries and Gersdorff used illnesses of the inner senses to diagnosis patient’s head problems as well as justify a social hierarchy that mirrored the hierarchy of creation. Gersdorff’s surgical

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300 Fries, *Spiegel* 94v. “Deßgleich der inwendigen sinn/ als dan in der stirnen di bedenckung hinden im nack die gedechnis, etc. Davon dan vil schoner red zu thun wer /ist aber hier zu lang. Kurzlichen zu einer inleitung soltu wissen das houpt uß zehen dingen gemacht ist. Als da durch prima tercy capitulo.i. sagt/ un diese teil also genant/ die harlock/ die hut/das fleisch/das ceser hütiñ/die Hirnschal/ die inwendigen hütiñ/das hirn/ die undern hütiñ/dz netzlin des hirns/und das underbein da dz hirn inleit/das laß ich auch sei/wa ietz nüwlich die anathomy zu gütem tütsch beschreiben ist zu Strußbueg von dem loblichen doctor Wendlino hock/ wer sunst wol meins gemüts gewesen/ dir solichs zu erckleren/ die weil es aber vor beschehen ist magst du selbs darnach werben.”
art, however, was one that broke with the allegorical chain of being allowing him to move among words, images and body gestures to access a signified truth.

The quote at the opening of this chapter from Lorenz Fries provides us with an example of the problem late medieval and renaissance doctors and surgeons encountered when translating the head and brain into the diverse media of speech, images, and gestures. The quote appears in the beginning of part two, “On the practice of medicine.” Fries begins with a reference to the “inner senses,” then briefly describes the anatomy of the head in ten parts, finally mentioning the dissection that occurred the previous year in Strassburg.  Though such a description of the head provides little, visible anatomical accuracy—the ‘ten things’ [zehen dingen] that define the head can be found in Mondino’s *Anathomia*—it provides us with an example of his allegorical thought style. Gersdorff lists the same ‘ten things,’ though he provides slightly more anatomical detail. From Gersdorff we read,

"The number of the parts of the head after Galen's (Book V and VI) are five that contain and five that are contained. The skin, flesh, the thick skin, and thereafter the cranium. The internal parts are dura mater, pia mater, which are two skins. Thereafter the substance of the brain. Thereafter, under the brain the pia and dura mater continue. At the lowest point is the wonderful net. Thereafter is the brain's foundation. And then the arteries that exit from here, which will be described one after another.”

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301 “The head has ten parts” comes from Mondino, Book V on the head, which is a paraphrase of Avicenna. See Charles Singer, *The Fascilio de Medicina, Written in 1495* (Florence: Lier, Lungarno, & Torrigiani, 1925) 59-112; 90/108.
302 Singer, *The Fascilio de Medicina* 59-112.
Gersdorff goes on to describe the anatomy of the arteries as well as the rest of the head in detail, whereas Fries emphasizes the Bologna physician Wendlin Hock’s translation of the corpse into a verbal description [beschreiben/erklären], hinting toward the redundancy of the practice of dissection since he already knew and numbered the parts of the head and brain. For Fries, the details of the theory of the inner senses as well as the details of a dissected body, though they may be beautiful, are not as necessary to understand the body. For Gersdorff, the visible details begin to play a role in describing the head, though Galen (through Mondino and Chauliac) mediates these particulars.304

As we have seen, Fries—the rationally trained medical doctor—translated the entire world into words so that he could know it (the world) internally. For thought to move in the other direction, to translate an object known through spoken words into images and gestures was against the approach proper to a rational doctor. Fries’ statement, “You’ll have to find out on your own” becomes both a mark of the failure of the allegorical thought style to utilize the visible medium of print through verbal and figural representations and the tactile gestures of dissection to communicate the proximity and practicality of the spoken word. However, rather than a deterrent to dissection, this phrase became the motto of 16th Century surgeons and anatomists such as Gersdorff, who put down their books and took up their knives as they outgrew the social hierarchy forbidding touch to the educated. Such a hierarchy emphasized the word, which created established phrases, aphorisms such as “the head is made of ten things” that condensed the truth of the body into a spoken fragment. Undoing these fragments, or

resituating them among other fragments, would be part of the work that created the emblematic thought style.

In this chapter, I will look at how the brain was recorded in phonetic, graphic, and gestural signs as they related to their allegorical and ideal signified content. Through examples from Fries’ *Spiegel der Artzney* and Gersdorff’s *Feldbuch der Wundartzney*, I will argue that the brain as an isolated object did not yet exist except as a part of the allegory of the head knowable in the intellect. The shift to an emblematic thought style required one to fragment this object, as well as all of nature, and then reassemble these fragments in a coherent, sensible order. The emblem scholar Peter Daly argues that the proper way to study an allegorical or emblematic form is to investigate the structure(s) separately from the content.³⁰⁵ That is, applied emblematics investigates the spoken and printed word, image, and gesture as part of separate signifying structures with their own articulation patterns, meaning, and history. This methodology is similarly espoused by Roland Barthes, where he argues in his *The Fashion System* that in order to study a basic unit of a system—in his case the *garment* and in my case the *brain*—one must study the structures “separately and exhaustively, for a structure cannot be defined apart from the substantial identity of the units which constitute it: we must study either the acts, or images, or words, but not all these substances at once.”³⁰⁶

Only with an analysis of these structures available can one then attempt to understand the content produced through the interaction and translatability of meaning across the structures. The movement across these structures will be the focus of chapter five, namely, how do words, images, and gestures translate reciprocally across and

³⁰⁵ Daly, *Literature* 8-10.
outside their respective domains? Before we address that point, this chapter will provide a history of the spoken brain, the graphic brain, and the dissected brain in the late 15th and early 16th Centuries so that we can know the translatability of signs across their respective domains as an emblem in the early 16th Century.

The future of such a history in the 19th Century has been shown by Friedich Kittler, who argues that the technological differentiation of optics (graphemes), acoustics (phonemes), and writing (gestemes/kinemes) exploded Gutenberg’s inscription monopoly around 1880.307 Prior to such a breakthrough, the separation of the three inscription processes and their re-union as extensions of man in the Gutenberg galaxy post-1460’s created the world as emblems at the end of the 15th Century. At the point of externalizing these signification structures, the emblem created a redundancy in the allegorical thought style that stored filtered knowledge in a chamber in the back of the head. Kittler’s “electrical trinity” of the gramophone, film, and typewriter shows a similar process occurring in the 19th Century.308 Through the concept of electrical excitability of the brain that arose in the second half of the 19th Century, Hagner has shown that the brain became a transitional object that moved between otherwise closed epistemological systems of the laboratory and clinic.309 Similarly, in the early 16th Century, where the allegory directed one away from sensible experience to a divine language in the faculty of reason, the emblem became the transitional object that allowed learned men to translate signs between divine and human discourses.

307 Friedrich Kittler, Gramophone, Film, Typewriter 12.
308 Friedrich Kittler, Gramophone, Film, Typewriter xxvii. The term “electrical trinity” was coined by Winthrop-Young and Michael Wutz.
If we turn briefly to a few examples, we will see that the word “brain” received its metaphoric meaning from the conceptual domain of the word “head,” and reciprocally, the word “head” received its meaning from the function of the brain. Theories of metaphor can help us here, whereby a conceptual metaphor is one that transfers meaning between two domains, or what Black calls the interaction of domains of meaning.\footnote{M. Black. \textit{Models and Metaphors: Studies in Language and Philosophy.} (Ithaca: Cornell University Press, 1962) 38.} Earlier theories held that metaphors have two distinct domains, whereby one is the source or topic and the other is the target. The metaphor is the vehicle that moves between these domains.\footnote{Draaisma, \textit{Metaphors} 10-12.} This is similar to Aristotle’s definition of a metaphor as a “a name by which one transfers from genus to species or species to genus.”\footnote{Aristotle, “Poetics.” \textit{Collected Works.} Trans. J.A. Smith. Oxford: Oxford Press, 1908-1954. Vol. 1 of 2 vols. 1457b1-1458a8.} Such a model assumes that one term is the natural or real sign and the other is the strange or theatrical sign. The interaction model allows one to see that both domains are influenced by the use of two signs.\footnote{George and Mark Johnson Lakoff, \textit{Philosophy in the Flesh: the Embodied Mind and its Challenge to Western Thought} (New York: Basic, 1999) 50-54.}

In relation to the brain, until the mid-16\textsuperscript{th} Century the brain was understood to be both a part of the head that helped explain what the head was, or the nature of the head, as well as the most important chamber of the three chambers of the body after the abdomen and thorax. The head also gained meaning by helping to define the brain. Through the Roman (Latin) term brain or \textit{cerebrum}, Galen wrote that the Greek term \textit{encephalon} changed its meaning. Where as the term \textit{encephalon} was based on an accidental characteristic of the brain (contents of the head), the Roman name \textit{cerebrum} is
based on its “essence” or the seat of the soul.\textsuperscript{314} By the 16\textsuperscript{th} Century, the brain was both: it had no independent existence outside of its \textit{headiness} and the head had little meaning outside of its position as the seat of the “intellectual soul.”\textsuperscript{315}

To make the relationship between the head and brain clear, the following list provides the metaphoric models by which the brain was understood as part of the head in the 16\textsuperscript{th} Century, specifically in Gersdorff and Fries, though these descriptions were expressed across European medical and surgical texts creating the ideal allegory of the head:

- The head contains
- The head sits above
- The head is the face
- The head is cold & moist
- The head is divine
- The head is the site of reason\textsuperscript{316}

The concept of the head that “contains, sits above, and is the face” provides a source of meaning for the brain as more than a material object. The concept of the head that is “cold and moist, divine, and the site of reason” also participates in meaning from transference from the domain of the brain, which makes defining an original meaning difficult.

\textsuperscript{314} Galen, \textit{On the Usefulness of Parts}, Book I, 456-457.
\textsuperscript{315} See Galen, \textit{On the Usefulness of Parts}, Book VIII (1968). Here, Galen debates the purpose of the head and encephalon in their relation: is the brain made for the head? Is the head made for the brain? What is the ‘for which’ or purpose of both organs? Are they both made for each other or some other organ (to cool the heart?). He concludes that the encephalon is in the head because of the eyes, and the other sense organs are in the head because of the encephalon; it’s \textit{softness}, vertical position, and proximity make it the ideal location.
\textsuperscript{316} These conceptual definitions of the head were standard and could be found in most medical philosophical and surgical text through out the Middle Ages. These conceptual definitions can be found in medical, religious, and philosophical sources. On the head as cold, moist, container and its verticality see Galen, \textit{On Anatomical Procedures}. Book IX, 226-236. On the head as face or mask in medieval and cultures, see John Emgih. \textit{Masked Performance: The Play of Self and Other in Ritual and Theater}. Philadelphia: University of Pennsylvania Press 1996; on the head as divine and site of reason, see Plato. \textit{Timaeus} 69-72 and Bruyn (1982) future debates about the “seat of the soul.”
In addition to this interaction model of a metaphor, one must also approach the meaning of medium in which the content is communicated. The brain can be recorded in phonetic, graphic, or gestural signs. Semiology has shown that signs of differing structures have difficulty interacting, or transferring meaning across domains. We will see that a difficulty arises in this translation process: not only does the brain have a source of meaning that is based on an oral definition of the head, but it also gains meaning from its articulation with other signs (graphic, or gestural). In the coming sections, I will show how the conceptual designations that defined the “head and brain” translated into a printed word, image and the gestures of isolating the head and brain from the rest of the body, namely, through dissection.

At this point, we can see nexus of the syntagmatic and paradigmatic axes from structural linguistics and semiology, a nexus that appears alternately in unlike structures. The syntagm and paradigm of the spoken word and the graphic word are of different kinds; the visual precision of a graphic word “brain” printed with moveable type can denote very precisely, though the connotation of the presence of the author and the hand of the writer are removed. The graphic word’s visual purity does not as readily invoke the proximity of the author or the practicality of speech, nor does it have the trustworthiness of the speaker. The paradigm from which the graphic syntagm draws meaning is different from that of the phonetic word. The mechanically produced, visually accurate word performs its accuracy with more precision than a hand written or

317 In linguistic terminology, the concept of the ‘head’ is the paradigm for the brain. The syntagm will be the articulated instance of meaning. For example, the statement “The head contains the brain” relates the linear syntax of the sentence with the paradigm of the possible words to describe the brain as the contents of the head. A shift occurs in the late 15th and early 16th Century where the paradigm of the brain will be other brains, i.e. comparative anatomy. Roman Jakobson, Selected Writings (Paris: Mouton, 1971) 130-132; Jakobson, Essais de linguistique generale (Paris, 1966). For a general description of the relationship between paradigmatic and syntagmatic axes, see Rebecca Green, “Syntagmatic relationship in Index Languages.” The Library Quarterly. 1995, 365-371.
spoken word, omitting any reference to the author. The mechanical symmetry of lines and the regularity of spaces invoke a disembodied thought process that began in the 15th Century, culminating with Agricola, Bacon, Ramus, and Descartes’ externalized thought style that required a method judged by peers rather than God.318

Fries and Gersdorff’s writings are not yet disembodied. In speech, each of the ten parts of the head became a synecdoche of the head because one needs no visual articulation: the image in the mind is clearly of the head. Gersdorff had no trouble verbally describing the imaginary organ *rete mirable* as parts of the head rather than the brain. The *rete mirable* was an imaginary part that one must properly perform in speech, not in dissection or images.319 Yet, as we will see in chapter five, the *rete mirable* will disappear twenty years after Gersdorff’s *Feldbuch der Wundartzney* where spoken and written words had to translate into printed images. The *rete mirable* had to be found at the center of the “brain” in image and in gestures of dissection rather than the brain in speech. This translation of the medium of presentation lead to the discovery of its non-existence and another visible organ, the pituitary gland, has given the place of honor in the symbolic hierarchy.320

In speech, the words “brain” and “head” were interchangeable, along with “divine member” “container” “rational member” “face” etc. By translating the spoken word “brain” into a printed word and image, however, the requirements for the concept “head and brain” are redefined. Translated into a graphic word, the written or printed word “brain” becomes related as a signifier of the spoken word “brain.” The Greeks noted such

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320 See Chapter 5.3-5.6.
a movement that was repeated in Saussure, namely, that if writing is a sign of speech, speech is a sign of the real thing.\textsuperscript{321} Yet, possibly prior to speech is the gesture, by which a hidden organ is uncovered. The final signifier in the emblematic trinity, the gesture of fragmentation or difference, appears in early 16\textsuperscript{th} Century knowledge of the body and is already codified by the time Descartes can argue that “everyone has seen animals opened up, and gazed upon the shape and arrangement of the their interior parts, which are very much like our own.”\textsuperscript{322} As such, the brain translated into the gestures of dissection is not the same as the spoken, written, or image of the brain.

By observing the idealized “brain and head” translated separately into spoken and printed words, mental and visual images, and mental and physical gestures—three modes of translation that led up to and include Fries and Gersdorff’s knowledge of the brain in the early 16\textsuperscript{th} Century—I will present my thesis that the brain as an isolated object did not yet exist in an early 16\textsuperscript{th} Century Western European context. In printed medical texts of the early 16\textsuperscript{th} Century, the brain is consistently described in relationship with the paradigm of the head. In the visually accurate images provided by early 16\textsuperscript{th} Century doctors and surgeons such as Da Carpi, Da vinci, Estienne, Paré and even Vesalius’ ground breaking Book V of his \textit{Fabrica}, which first appeared 1543, the brain is presented in a visual relationship to the head and often times the whole body. Finally, in the gestures of dissection, one always dissected the “head” and only along the way to the inner senses did one slice through the “brain.”

\footnotesize
\textsuperscript{321} Derrida, \textit{Of Grammatology} 7-9.
\textsuperscript{322} Rene Descartes, "Preface to “Description of the Human Body” \textit{Descartes: The World and Other Writings} (Cambridge: Cambridge Univeristy Press, 1998) 171-172 quoted in Martenson, \textit{The Brain Takes Shape} 54. Martenson argues that Descartes is “down grading” anatomical knowledge. Yet, one could say that Descartes is emphasizing precisely the opposite: anatomical knowledge becomes a prerequisite for all philosophical inquires.
In the next three sections, I show that the words, images, and gestures Gersdorff and Fries employed in their texts constantly shifted the reader between denotation and connotation, emphasizing the word, image, or gesture’s deictic and performative articulation in context as well as a theatrical citation of the brain’s ideal ‘headiness,’ causing a conflict between the signifier and the signified. By which I refer to performative as the simultaneity of action and meaning and theatrical as a sign of a sign.323 In section two of this chapter, I will present the translation of spoken to graphic word in defining the body and brain in Fries and Gersdorff. In section three, I will outline the translation of oral and visual words into images that defined the body and brain, a movement from medieval illustration to woodcut image constructed with linear perspective. These early anatomical images played with the movement between domains of meaning through denotation and connotation with masterful effects. In section four, I will present spoken words and printed images in their conceptual relationship to the gestures of dissection. By noting the changes in translation of the brain between spoken media and the gestures of dissection, we will see that the early printed brain is historicized by its ties to the rules of speech and the concept of the head, the body, and entire universe. Severing these ties to both “Heaven and Earth” that Gessner visualized in his image of the soul (Fig. 10), both conceptually and physically, helped create the brain as an isolated object that we know today.

4.2. Translating the Spoken Head and Brain to Graphic Marks

The use of images and dissection did not negate the power of the spoken word in the 16th Century. Rather, they were assimilated into the established allegorical thought

323 See Chapter 2, section 2.5.
style. Fries argues that surgeons and anatomists could do the physical act of dissection and images could be used by the uneducated. Such a distribution mirrored the divide between science, arts, and the handworker trades. Fries, a rational doctor in the medical arts, held a position of higher standing, trustworthiness, and immediacy to his patients than the empirics whose technical craft allowed them to only cut or draw. The spoken word created a social hierarchy through proper training: one speaks and another listens, which is the union of sender and receiver in contemporary communication studies. In medicine in the 16th Century, ancient authorities were the speakers while academically trained doctors became the listeners and, inevitably, speakers to their own students.

Fries’ rational mental ordering and dividing the world occurred as a division of thoughts through training learned by the seven liberal arts (Fig. 20). The primary arts of grammar, dialectic, and rhetoric composed the *trivium*. These then supported the technical arts of the *quadrivium*, which were arithmetic, geometry, music, and astronomy. These seven liberal arts became the basis of encyclopedias, or universal books of knowledge from the late Middle Ages. The highest of these arts, medicine, theology, and jurisprudence, rested on the mental techniques learned through university training, which can be seen in the image in *Margarita Philosophica*, or the *Pearl of Philosophy*, written by Gregor Reisch (1467-1526) and published in 1503 by Johann Schott and by Johann Grünninger in 1508.

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The title page image allegorically represents the relationship between language and knowledge. Reisch’s image places the allegory Grammar as the foundation of all learning. She appears as Nicostrata, foresser of the future and diviner of poetry, the daughter of Ionius, King of Arcadia.\textsuperscript{326} She holds a tablet with the printed letters of the alphabet. This linguistic foundation introduces a child into a tower of learning with six levels. On the two bottom levels of the tower, the viewer can see grammarians. The upper levels are taken up with various portraits of historical figures representing the subjects of the trivium, the quadrivium and natural and moral philosophy. On the uppermost the level of the tower, one sees Peter Lombard representing Reisch’s own profession, Theology. If we briefly foreshadow the end of this dissertation, namely chapter five, I will outline the similarly developing relationship between theology, medicine, and the growing emphasis on the human body, particularly through anatomy found in Philip Melanchthon’s university curriculum.

If we return to the image, the visual metaphor of the tower that connects the rationally trained doctor to God through seven liberal arts is one based on the value of language. The rational doctor, like the theologian, could know nature as the language of God, or that, which was the purpose of all material objects. These seven liberal arts taught one the proper divisions of reason in order to know nature. Here however, rather than the ethereal sounds of the spoken word, the letters are printed. The accuracy of these letters allowed one to know the truth of God through a visual as well as an auditory language. One can learn from a book rather than from a teacher, or the book as teacher.

\textsuperscript{326} See also Hugh Cahill, \textit{Book of the Month exhibition on 'Margarita Philosophica'}, 2006, University College of London, accessed 02/03/2011 <http://www.kcl.ac.uk/depsta/iss/library/speccoll/bomarch/bomapril06.html>.
This emphasis on the seven liberal arts, as well as certain textual artifacts found in his *Spiegel der Artzney*, connects Fries directly to Gregor Reisch’s *Margarita Philosophica*. The physical breadth of reach of Reisch’s text can be seen in Louvain where Andreas Vesalius studied the end of the 1520’s. Vesalius provides a derogatory mention of Reisch’s *Margarita Philosophica* as the primary medical text he used as a young student when studying the brain.\(^{327}\) The image of the ‘cell man,’ in which the inner senses are drawn on the head of a male figure, was part of medical education throughout Europe in the early 16\(^{th}\) Century (Fig. 21). In the ‘cell man’ image, the linearity of speech that defined the inner senses is translated into the visual medium of the printed word and image, where the cells appear like an alembic, distilling thoughts from the front to the rear of the head. Hieronymous Brunschweig’s *Distillation Art* includes many such alembics that appear similar to the cerebral cell arrangement.

Building on Elisabeth Eisenstein’s work on the social effects of the printing press and Marshall McLuhan’s work in media studies, Walter Ong has shown that the shift from an oral to visual culture in the 16\(^{th}\) Century was not an easy shift, nor was it all encompassing.\(^{328}\) There are no rules (or code) for translating a spoken word into a written word or a graphic (printed) word of movable type, or a sensible object into a word or an image. Huizinga and Ong have shown that late medieval inner life was symbolic prior to the 16\(^{th}\) Century where idiom, allegory, metaphor and other “figures or images of speech” dominated thought styles.\(^{329}\) The poetic rhyme and rhythm of the doggerel poems in Gersdorff’s text shown in previous chapters demonstrates the orality of early print culture: the text was often meant to be read aloud, the reader becoming both the

\(^{327}\) Singer, *Vesalius on the Human Brain* 75;139.
audience and the performer of the text. Such emphasis on speech prioritizes the presence of the voice and body of the speaker.

Yet, with a printed text, the speaker or the visualized author of the spoken word becomes replaced with a unit of letters arranged in moveable type; the new image of the text feigns or simulates the presence of that which is absent. Typed poetry, with the use of formal structures such as a syllable count, rhythm, rhyme and visual metaphor, helped to evoke the author through the medium of the reader, as well as facilitate memorization of short but important phrases. In addition to memory, poetry was also used for healing purposes in both popular and academic texts. Dating at least from Hippocrates’ Aphorisms (ca. 400 B.C.E) or Sentences of Celsus (ca. 50B.C.E.), concise thoughts on medicine allowed one to easily teach and memorize the substantial content of any subject. In addition to their content, the form of the medical poem or aphorism was important. Brevity, rhyme and rhythm, along with the presence of the medical healer who spoke, transformed the poem into an incantation (Latin, incantatio, art of enchanting, literally “a formula of words that when chanted, produce a magical effect”). When combined with an insightful idea, the short phrase possessed a performative power all its own.

Avicenna’s medical knowledge, presented in full form through his Al-Qanun or Canon, was summarized in a medical poem, popular in both Latin and vernacular (German, English, French and Spanish) throughout the 13th-16th Centuries. The poem became a collection of popular aphorisms used and cited throughout the 16th Century such as, “the art of speech distinguishes man from animals,” “poets are the princes of

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330 The aphorisms of Hippocrates and the sentences of Celsus; with explanations and references to the most considerable writers in physick and philosophy, both ancient and modern. (London: R. Bonwick, 1708).
words,” “physicians rule over the body,” and “The eloquence of the poet rejoices the
soul; the devotion of the doctor cures illnesses.”332

Later examples of medical poetry include the Die Merzeüürger Zaubersprüche or
Strassburg Tumbosprüche, which provide some of the earliest known German medical
incantations from the 10th-15th Centuries, the power of which were supposed to heal, stop
bleeding (in women after birth or men after injury), or cure animals.333 Johann Tollat
wrote in 1502 that for protection against the devil’s urges (specifically for chastity), one
should inscribe a paternoster on paper and carry it everywhere.334 The power of speech
remained in the written words, specifically through their citation by nervous and randy
youth citing the Lord’s prayer in the grips of sexual urges.

The most popular medical poem in the late Middle Ages came from Solerno in the
10th Century. Here, poetry was used as a didactic device in medical education. Where
paper and manuscripts were scarce and costly, poems helped young doctors (and in
Gersdorff’s case surgeons) to memorize the most important parts of the text. Poems
became a guide for preventing illness through regiments and pharmaceuticals, accounting
for season, complexion, humor, sex, and elements, or surgical treatments and dissection
procedures. The Regimen Sanitatis Salernitanum or “Solerno Book of Health” concludes
thus:

The Heart and Liuer, Spring & Summers bleeding,
The Fall and Winter, hand and foot doth mend,
One veine cut in the hand, doth help exceeding
Vnto the fpleene, voyce, breft, and intrailles lend,

332 An English translation was made by Haven C. Krueger, Avicenna's Poem on Medicine (Springfield,
333 Monika Schulz, Magie oder die Wiederherstellung der Ordnung (Bloomington: Peter Lang, 2000) 54.
334 Johann Tollat, Arzei Büchlein der Kreutter, oder Margarita medicine (Augsburg: 1497 & 1502;
Strassburg 1507) cited in Erik Midelfort, A History of Madness in Sixteenth-Century Germany (Stanford
1999) 142.
And fwares griefes that in the heart are breeding.
But here the Salerne Schoole doth make an end:
And here I ceafe to write, but will not ceafe
To wift you liue in health, and die in peace:
And ye our Phyficke rules that friendly read,
God grant that Phyficke you may neuer need.

Finis. 335

This poem was popular throughout Europe, appearing in Hartmann von Aue’s
Der arme Heinrich in roughly the last decade of the 12th Century. 336 In the dramatic text,
the protagonist and courtly knight Heinrich is a young lord from Swabia who becomes a
Job figure, stricken by the plague. He travels to Montpellier to seek the advice of the
most learned doctors, eventually arriving at Solerno in Southern Italy where doctors
inform him he needs the blood of a virgin to heal his calamities. In the above passage,
each complete syntagm of the poem collects body regions with seasons, mystical and
practical remedies, as well as the technical skills of phlebotomy, “The Heart and Liuer,
Spring & Summers bleeding.” By reading aloud, the student can also invoke the presence
of the author, whereas Heinrich had to travel across Europe for the doctor’s knowledge.
Such a spoken union of allegorical fragments will be much different from the graphic
words read and compared with images and dissection gestures.

The shift from an oral to typographic medium in the 16th Century caused a shift in
the organization and utility of certain signs over others. A poem that comes to an end
“ceases to write,” which does not mean that the power of the words cease but, simply one
must put the pen down because speech is linear and one cannot write forever. If
memorized, the poem can be repeated orally in times of need and reinvigorate the power

335 “The Salerno Book of Health” Images from History of the School of Salernum, Harington, Sir John.
(New York: Paul B. Hoeber, 1920) 156.
Frankfurt am Main 2004).
of speech, specifically during the proper season to treat the proper illness. The separation of spoken word from visual ‘graphic word’ allowed one to write down the meaning and transport it beyond the reach of the doctor, giving the written word a new power.

The change from orality to visuality also had distinct effects for the performativity of the brain. The action of the subject in unifying spoken and graphic words shifted the site of the performance of knowledge from speech to sight, from an aural image inside the mind to a visual image outside of the body. As spoken words slowly become visual, the conceptual designation of the brain as part of the head became its definition. Greek, Latin, French and German words for ‘brain’ often signified various parts of the head: brain in English, or hirn in German, as well as cerebrum in Latin, or skull and cranium, and even kare and encephalon in Greek, and French tête, signified various images such as ‘head’ ‘skull’ ‘contents of the head,’ ‘face,’ ‘vertex of head’ and even cold, white stuff ‘in the head.’337 All of these spoken words provided symbolic images for the concept ‘brain’ that were head-like, which can be seen in many early academic anatomies that provide a list of multi-lingual medical synonyms, as well as popular images where the brain is described as the head in German, French, Latin and Dutch fugitive sheets.

Heinrich Vogtherr, the most prolific printer of such fugitive sheets, inscribed at the top of an image of an anatomized female body that the brain is “colder and moister than all other members of the body.”338 Such aphorisms were easily memorized, helped with treating humoral imbalances, and defined gender stereotypes. The image attached

337 The following etymology stems from Grimm’s Dictionary entry for ‘hirn’ (Bd. 10, pages 1555-1558). The middle English brein, bren meant skull or skullcap; old Nordic terms hvern, hvörn, hiari, “The white mass in a fishhead”; Latin term cranium, English skull, and German Haupthafen (Head bowl) all signified the head as vertex of the body and the skullcap as an upside down bowl. The Greek karē meant face or head, while enkephalos, signified the head’s contents, or the contents in the head.
to such a description was not the brain, but that of the head where the face of the
anatomized woman peered back at the viewer. Carlino and Karr-Schmidt describe the
performativity of such images in general contexts.\textsuperscript{339} Readers could see the image, touch
the removable flaps, and speak the poem to unify a hybrid construction where word,
image, and gesture were guided by a allegorical idea, namely, the head. Karr-Schmidt
quotes Vogtherr as writing in his own art book or\textit{Kunstbuchlein} in 1538-39,

\begin{quote}
  But the visual form of the eyesight from life gives much more, as well as
  more truthful understanding; neither the most realistic imagination nor
  envisioning of writing, though many things have been well enough written
  with the stem of a feather, but the ignorance is born from difficult and
  uneven understanding.\textsuperscript{340}
\end{quote}

Here, the hybrid presentation helped to enhance understanding in the same way
Dürer argued that one should use words and images. Yet, in relation to the brain, the
images still presented a verbal allegory of the head. I am not using hyperbole to say
that all dissection images between Gersdorff and Vesalius (1517-1543), and many images
through the 16\textsuperscript{th} to 18\textsuperscript{th} Centuries, presented the brain as still part of the “head” rather
than a separate organ by itself. Martenson argues that the brain did not come out of the
head or skull until Thomas Willis’ \textit{Cerebri anatome} of 1664, though this can be debated
since we have wood cut images of the entire cerebral structure much earlier.\textsuperscript{341} Words
used to describe the brain in anatomical texts were similar to those used in Fries,
Gersdorff, and the fugitive sheet: short, aphoristic maxims that could be easily
memorized, defined the brain as a part of the head. The isolation of the brain as an organ
came, as I am arguing, through the separation and emblematic recombination of images,

\textsuperscript{341} Martensen, \textit{The Brain Takes Shape} 75.
words, and gestures that began as a performance of knowledge in the early part of the 16th Century.

Emblem theory can help us to look further at the structural relationship between spoken and graphic (or printed) words. Daniel Russell defines allegory and emblem along structuralist terms, which I can apply to Fries and Gersdorff. Russell writes that “allegory is syntagmatically extended, while the emblem is, at least potentially, paradigmatically extensible through an infinite series of analogical variations on them from the common formulary of proverbial lore, ancient maxims, and the like.” That is, spoken, visual, and gestural allegories present meaning as an unchangeable whole. The emblem, on the other hand, is a collection of these historical maxims brought together without an absolute hermeneutical strategy.

One source of power of the allegory came from its historical support in use, or bond between the syntagm and paradigm. If a doctor is not speaking, the power of the words diminishes. If an image does not repeat a visual pattern, the power behind the image disappears. If gestures do not invoke meaning, they are confusing. Fries’ allegorical knowledge of the brain is justified by God (or the medical, political or religious authority who knew God’s will) so that all signs need to be related to the divine signature of nature inside his head: when he speaks he is speaking based on his knowledge of God’s idea. Detaching words from the speaker—like detaching images from the artist and gestures from the actor—detaches the signifier from the divine signified. Gersdorff’s knowledge of the brain is justified by God but also supported by his peers on the printed page: he has to show his thoughts on paper in order for readers to

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342 Russell, "Perceiving, Seeing and Meaning” 80.
follow his movement between gestures, images and words. These thoughts on paper became the 16th Century emblem.

The popularity of printed collections of adages, proverb, or aphorism to which images were attached in the early 16th Century attests to such an interpretation. The spoken allegorical sentence is understood as a linear whole, syntagmatically extended with specific elements for each paradigmatic utterance. The image is also a whole with minimal features that must be present to signify. For example, when Fries writes:

Das houpt uß zehen dingen gemacht ist.

The head is made of ten things.

Each position in the sentence in their syntagmatic relation to each other is essential to understanding the idea, or the nature of the head through the linear grammar that creates an internalized, symbolic image. Such an entrenchment of scientific thought is not particular to medieval times: Ludwig Fleck calls it part of any thought collective, where “words turn into slogans; sentences which were once simple statements become calls to battle. They no longer influence the mind through their logical meaning—indeed, they often act against it—but rather they acquire a magical power and exert a mental influence simply by being used.”

Like slogans or maxims, the statement, “The head is made of ten things,” is performative in that it creates a brain that is only one part of the whole image of the head. It is theatrical in that it is a sign of the logical order of God’s creation. The spoken truth of the sentence is the presencing statement that ‘the head is made of ten things.’ No

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344 Fries, *Spiegel 94*.
345 Fleck, *Genesis and Development 43*. 
amount of cutting, imaging, writing or thinking will change the truth of this syntagmatic relationship between ordered thought and the world.

Also defining this statement is the paradigmatic possibilities of the domain of the head. Where as the syntagm denotes through its linear syntax, the paradigm connotes, or provides the ‘realm of possibilities.’ Where as the syntagm is presenting and immediate, the paradigm is only available in absentia.\textsuperscript{346} The relationship between the two is one of tension, especially as one translates meaning between various media. In spoken words, the meaning is linear since one word follows another in time. In printed words, however, the necessary linearity is dissolved as one can commence reading any where in a sentence that is distributed through space. The syntax of reading allows one to move from spoken word to figure word, or, to some other signifying structure (such as an image or gesture) through denotation and connotation. In this way, printed language is read more like an image, in space rather than in time.

An example of the shift from a word as sound to a word as image can be seen in Fries’ diagnosis of all body ailments (Table 3). In addition to the head, Fries offers a similar flowchart for each organ that can be applied to rationally diagnose a patient’s symptoms and provide a treatment to rebalance the body’s imbalance. In relation to the brain, Fries’ text outlines the spatial relationship between words and their signified meanings on both syntagmatic and paradigmatic axes. In diagnosing headaches,\textsuperscript{347} Fries provides the reader with the following image that visualizes his rationally ordered system of knowing the head and the brain.

\textsuperscript{346} Green, “Syntagmatic relationship in Index Languages” 366.
\textsuperscript{347} By “head pain” Fries means any type of illness that relates to the head.
### Table 3: Fries’ Visual Diagnostic Procedure for Head Pains

| Vo Schmertzens des houbets. | Von heism lufft.  
|                            | Von kaltem lufft.  
|                            | Von feüchtem lufft.  
|                            | Von truckenem lufft.  
|                            | Von ubrigem blut.  
|                            | Von ubriger colera.  
|                            | Von ubriger flegma.  
|                            | Von ubriger melancholy.  
| On Pains of the Head       | from hot air.  
|                            | from cold air.  
|                            | from moist air.  
|                            | from dry air.  
|                            | from excess blood.  
|                            | from excess choler.  
|                            | from excess pflegm.  
|                            | from excess melancholy.  

In structuralist terms, we see a shift occurring from an internally organized thought style to one that is visually organized with words as figures on the printed page. We also see slippage between the oral paradigms and an analytically constructed, visual system. In an oral structure, each syntagm has a set of paradigmatic words that could fit the ailment “on pains of the head” such that a doctor could create the following function. On the one side of the equation, a sensible deviation (pain, hot, cold, etc.) from the norm or ideal body member (head, chest, abdomen) can be immediately translated into a sensible complexion (hot, cold, moist, dry), non-sensible element (earth, air, fire, or water) or humor (blood, phlegm, choler, melancholy). A further removal from sense occurs when one applies the mathematical grade mentioned in chapter three. The symptomatic paradigms are combined on one side of the equation that can be related to a diagnosis of the cause and grade of the deviation on the other side. The causes can be

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348 Fries, *Spiegel* 94".
complexions, elements, and humors. The grade is always the proportion of the deviation of complexions, elements, and humors from the normal state.

The table below (Table 4) shows how a doctor might conceptualize this fragmentation and recombination process along both syntagmatic and paradigmatic axes. In this table, we can also see a translation problem in moving from oral speech into visually ordered graphic words. For Fries, as mentioned in chapter three, the doctor’s goal is to immediately move from sensible symptom to rational diagnosis and know the arithmetic proportions (grade) in the intellectual faculty.

Table 4: Structure of Diagnosis in Fries’ *Spiegel der Artzney*[^349]

<table>
<thead>
<tr>
<th>Syntagmatic Axis</th>
<th>Degree of Sensible deviation</th>
<th>Deviation from ideal function</th>
<th>Organ or member =</th>
<th>Complexion</th>
<th>Humoral excess or deficiency</th>
<th>Element</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paragmatic Axis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paradigms</td>
<td>Little Pain Head Hot Blood Air 1/1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[^349]: The flow chart was created by Fries. The Table was created by myself.
In order for this equation to work, the two sides must balance. The goal was not treatment of the patient or alleviation of pain but conceptual unity of the theory. If a doctor senses (sight) the patient has “much” pain in the “head,” he can then conclude a non-sensible cause for the ailment, which is based on the authority of the system. The patient or the equation can be rebalanced through the same graded qualities in nature. A spoken diagnosis of ‘Much pain [of the] genitals means hot choler of the heart [of a] grade 2/3,” is supported by the practicality of treating such a diagnosis with herbals of the same grade, the performativity of the doctor’s spoken or written words, and the presence of the doctor. Complex syrups, rituals, and treatments were created that balanced the imbalance of the body, so the authority of the doctor continued unabated. Fries recommends a “composition” herbal remedy that will make a dry brain wet:

For head pain of a "dry sort" (no running of the nose), one should not use bloodletting or purging, but should take clean water, milk and let it warm with raw eggs so that you can wash the sick person’s head and dry with a towel. There after take rose oil with bit of breast milk. Rub a bit on the forehead of the patient.350

Emphasis on the presence of the physician and the oral nature of the diagnosis is clear from Arnold of Villanova’s De cautelis medicorum, or a list medical aphorisms physician should know as precautions to treating the difficult patient. Written in four parts, Fries translated some of De cautelis medicorum verbatim so that German readers could continue the healing system unblemished. Suggestions range from “ask angels to guide ones thoughts,” “take care in how one diagnoses urine to not be judged a fool

350 Fries, Spiegel der Artzney 95. “Sonst weder ader lassen digerieren noch purgiere. etce. [...] nim ein gerste wasser un milch darund iii rowe eyer un laß ein wenig warm werden da mit wesch dem kranken sein haupt/und trucken das von studen an mit eine tuch. Darnach nim roßöl oder violöl mit ein wenig frawe milch vermischt/ darin netz ein tüchlin un leg es uff die strinen un reib die stirne wol damit.”
(sometimes patient’s brought the urine of another or an animal),” and “use difficult words the patient will not understand but will trust because of the doctor’s authority.”

Without the support of the speaking body of the physician, such attempts at concealing the flaws of a system are unsuccessful.

A problem in this system also occurs when one attempts to translate the oral diagnostic system into printed text: typographic mistakes can be made that are spread very quickly. In his second book on the practical art of treating patients, typographical errors in Fries’ *Spiegel der Artzney* switched elements of ‘complexion’ with those of ‘humors’ and of ‘elements.’ Yet the printer error that created a ‘monster’ did not change the outcome for the patient: the patient was or was not cured. Visual or typographic mix-ups eventually caused a crisis in the Galenic humoral system that could only be discovered with the absence of the speaker, or the oral medium (doctor), and the isolation of the message in print. In many cases, the doctor (rather than the treatment) is the message.

In the 1530’s to 1550’s, Fuchs, Brunfels, and Christoph Wirsung would all publish medical texts in the years after Fries’ *Spiegel der Artzney* that condemn this practice of creating complex “compositions” in favor of medical simples, or herbs isolated in word, image, and gesture. In the syntagmatic relation of graphic words in a sentence, the power of the oral structure is lost because it was based on the orality of the diagnosis, the presence and authority of the doctor as medium. The sound of his voice and presence of his body, his medical tools such as the urine flask, and potential contact

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with the patient, rather than the actual practical application of the spoken words, provided
the value in the content of the statements.

If we look briefly at an example from Gersdorff’s text, we see an ordering process
that is based both on both visual and oral articulation. He conducted an anatomy of the
head based on the parts that are known as they are spoken one after the other, penetrating
the reader and himself based on the linear syntax of speech. This order of operation need
not be the case when speech can be written down or drawn in an image. Graphic words
allow one to begin anywhere in the sentence, allowing the brain (or any fragment of the
head or body) to be the start and end of a conceptual whole. As we transition to the next
section, namely to oral speech that translated into illustrations and woodcut images, a
brief look at emblematic thought style that will be presented in chapter five is due here.
For example, Gersdorff describes an anatomy of the human body in both images and
words, moving between the two almost seamlessly:

Augenschinlich anatomy zu erklerung der obgemelte capitele oder
beschribung füglicher wyß hyenoch volgt.

A visible anatomy, as used to clarify or describe the preceding chapter,
will now follow.352

In this emblematic relationship, the printed words point to an image; the image directs the
reader to go and reevaluate the anatomical descriptions explained in the previous chapter;
the anatomical descriptions in the previous chapter then guide the reading of the image;
the two (words and image) guide the manual gestures of the dissection of an actual
corpse. The reader, rather than restricted by the linear syntax of spoken speech, is
allowed to move between written descriptions, images, and the corpse that isolated parts
within a movement of signifiers.

352 Gersdorff, Feldtbuch 17v.
In addition to the movement of signifiers, memory changed from a symbolic, imagistic chamber or hall of figurative associations in the head to a non-linear ordering of words, images, and gestures outside the body.\textsuperscript{353} The ‘object’ [gegenwurf] is that which throws itself at the viewer at the end of this emblematic process. Whereas Fries’ allegorical thought style emphasizes the power of the spoken word, an emblematic arrangement of signs has no natural priority. Or, the priority is established within the thought style. The word, the image, and gesture can be exchanged within their syntagmatic relationship where one could start with the [image\to word\to gesture] and move to the [word\to image\to gesture] in order to access the meaning of the [gesture\to word\to image]. The thought style that guides the emblematic movement between these three signs performs the ideogram of the body and the materialization of the brain as emblem in the early 16\textsuperscript{th} Century.

Even through they had negative effects on an oral medical system, graphic words that combine words with an image were also highly successful. Within a visual medium, the power of the printed word in specific shapes provide a dual reading of the text where the visible shape of the writing was just as important as the content of the writing. Because of the lack of the author’s bodily presence, a figure provided physical presence through the combination of a symbolic image and printed text (Fig. 22). At the end of Book I, Chapter Five of Fries \textit{Spiegel der Artzney}, the concluding paragraph is shaped into the image of an hourglass, whereby the printed words become themselves elements in an image connoting death. Opinions of such pattern poems (Bildgedicht, Figurgedicht) range from clever to banal, fitting into a developing mannerist style.\textsuperscript{354} In

\textsuperscript{353} Walter Ong, \textit{Ramus, Method} 46-47.  
\textsuperscript{354} Daly, \textit{Literature} 124.
Fries’ example, the banal content of the poem—a simple transition paragraph from medical herbals to the common needs of a doctor—does not yet allow the device to be called emblematic as the two signifying structures of *pictura* and *narrative* do not support each other. At most, it is an intellectual game and a manifestation of the ornamental rather than an attempt to present knowledge.\(^{355}\)

### 4.3. The Visual Head and Brain

In our attempt to understand the head and brain presented by Fries and Gersdorff, we will now leave the spoken and graphic word for the sake of early illuminations and woodcut images. Broadly speaking, let us first look at some longer trends in the history of anatomical images spanning the turn of the 16\(^{th}\) Century and then at brain images in particular. We will apply the theories of allegory and emblem to early brain representations found in Fries and Gersdorff’s text as a relevant alternative to those currently in use in the history of medicine, namely the move from schema to visually accurate representation, disparaging the ‘emblem’ for the sake of more visually accurate images.\(^{356}\)

Images have been researched extensively in the 16\(^{th}\) Century, particularly those of allegorical and emblematic qualities. Grombrich, Belting, and Benjamin have provided an extensive vocabulary by which one can understand the allegorical quality of the body in relation to the image.\(^{357}\) Michael Sappol’s *Dream Anatomy* exhibition at the National

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\(^{356}\) Choulant, *History and Bibliography* preface.

Library of Medicine emphasizes the “showmanship” of early modern anatomy, images, and lectures describing the dissected body.\textsuperscript{358} This play between image fragments—where a corpse is represented in self-display while at the same time alphabetized lists of each anatomical part guide the seriousness of the reading—combines an illustration’s naturalism with the symbolic that is both allegorical and emblematic.\textsuperscript{359} I will direct such a discussion to bibliographical terms, where the shift from allegory to emblematic representation at the end of the 15\textsuperscript{th} and beginning of the 16\textsuperscript{th} Century occurred in stages, namely, from written and printed word to illumination, from illumination to contrafact, and from contrafact to visual representation.

If we first look to manuscript and incunabula illuminations before the 1460’s, and then from 1460 to roughly the turn of the 16\textsuperscript{th} Century, we see these illuminations were created in an attempt to mirror the meaning of words, both spatially on the printed page (words were often printed directly on top of images) and in their signification power. Images and words usually represented some other meaning, or extra-textual signified concept. That is, the printed word and image usually signified a concept available to reason but not available to the senses but presented as an allegory. The emblem was a hybrid visual, verbal presentation that emphasized both the sensible and the non-sensible qualities.

A problem in the historiography of late medieval or early renaissance medical images occurs when one follows contemporary reading habits and focuses on the denotation of the image rather than the connotation of the symbolic possibilities, the

\textsuperscript{358} Michael Sappol, \textit{Dream Anatomy} 8.
\textsuperscript{359} Michael Sappol, \textit{Dream Anatomy} 17.
meaning in absentia. Anne van Arsdall has argued that medical doctor/historians of
the 19th and early 20th Century trying to validate their own knowledge through
historiography dominated the history of medicine the first half of the 20th Century,
causing a rhetorical flourish of prejudices against contextualizing knowledge,
emphasizing only a historical teleology. The image spoke: the more accurate the better.
Only in the last thirty years has a nuanced understanding of the potential meanings of late
medieval medical texts and images arose, specifically by those outside the medical field
interested in history of medicine and through a critical engagement of the apparatus by
which we create history.

Beginning briefly with Illuminated medical texts, illustrations were not new to the
16th Century. Manuscript illuminations were popular from the high middle ages, which
gave way to block cuts in the mid-15th century. The purposes of these illuminations were
often technical, as well as religious, or secular. The signifying power of early images
presented the conceit of written or printed text in a visual form (to bring light to a
concept), to demonstrate a skill, decorate and add value to the book, represent the status
of the owner, and give healing powers to the material. Russell argues that printed
emblems of the 16th Century can trace their origins to illuminated miniatures of previous
century. In early illuminated medical manuscripts and printed books, such as Guy de
Chauliac’s Chirurgia magna (la Grande Chirurgie, Der grosse Wundartzney, The Great
Surgery) as well as this text in which one sees a demonstration of the surface of the body,

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a space in the text was usually left blank after the scribe had finished copying the text (Fig. 23). An illuminator would draw a visual scene based on the symbolic meaning of the text. Or, the empty space on the page of an illuminated manuscript would be filled by the illuminator’s own imagination (Fig. 23). In this way, illuminations were not knowledge producing but one of two structures. The image and words were synonyms, restating the content of the text in a visual form. Alternately, the illumination and text had little to do with each other since the relationship between author of the text and author of the image were often disconnected. The epithet from Horace’s *Ars poetica*, “ut picta poesis” (As in painting, so in poetry) was the standard translation theory for moving between images and words and would continue, at least in theory if not in practice, through out the 16th Century. However, the typographeum replaced the scribe and illuminator so that images were mechanically reproduced rather than individually created.

Hans Wächtlin (ca. 1480-1530), the artist of the many images in Gersdorff’s text, as well as the brain images in both Fries and Gersdorff’s texts, provides us with other examples of anatomical representations that shifted the emphasis between words, images and their synonymous relationship. As a student of Hans Holbein the elder, Wächtlin was active in the medium of single sheet prints. He was also one of the first artists

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365 The distinction between illumination and narration in medieval text, and the emblematic relationship between image and text, is one of the supplementarity in the emblem. Illuminations can be omitted without losing knowledge such as the case with Fries between the 1518 and 1532 editions. In the emblematic relationship, the text and images are created together, thus the omission of one makes deciphering the whole impossible.  
367 Also known as Hans Veuchtelin, Wechtlin, or Wechtle, though he distinguished himself by inventing the epithet, Hans Wächtlin “with the pilgrim staves” based on one of his early works.
outside of Italy to use linear perspective to draw visually accurate images.\textsuperscript{368} He was a contemporary of Lucas Cranach the Elder and Albrecht Dürer, though not as productive as either because of his presumed early death. His most famous works besides the medical images in Fries and Gersdorff’s texts are the more than 100 woodcut images made for Sebastian Brandt’s copy of Virgil’s \textit{Aeneid} (1502) and a single sheet figure of an ornamental skull using the chiaroscuro technique (Fig. 24).\textsuperscript{369} In this image, we can see the juxtaposition of the curve of the skull within the straight edges of the nave, juxtaposing shadows and light to create a visibly accurate though symbolically meaningful object. The short inscription on the base of the monument reads “Glory in Worldly Happiness,” which provides a moral reading to an otherwise visually accurate image of a skull. Johann Dryander picked up this theme for his own anatomical images, specifically the anatomy of a skull produced for his 1536 \textit{Anatomiae} (Fig. 25). The title “Human head, eleventh figure” and the image are to be interpreted along with an hourglass as the spinal column and the short phrase, “INEVITABLE FATVM“ inscribed on the base. In such images, the visual accuracy of the image was either guided by or replaced with the invisible yet symbolic meaning of the words.

For a shift to occur, namely from an emphasis on words over images, to an emphasis on the equality of images to words, to finally an emphasis on images guided by words, the total separation of the knowledge content of words and images had to occur. Though this separation is commonly attributed to G.E. Lessing in the 18\textsuperscript{th} Century—the playwright and cultural critic who noted the distinctive epistemological functions of words and images, poetry and the plastic arts—we can already see the division in the

\textsuperscript{369} Brandt’s \textit{Aeneid} was printed by Johann Grünninger and the woodcuts were made by “the unknown artist from Strassburg,” which has not been definitively determined to be Wächtl.
This separation created a new application of media in relation to a reader’s use of words and images and is analogous to the separation of individual words into visible discrete units during the early middle Ages (9th-11th Centuries), as opposed to the \textit{scriptura continua} of ancient writing, that helped effect the reader as silent and internal rather than oral and external. In the \textit{longue durée} of medical manuals, the shift in media from the scroll to the codex, and its performative transition from oral to visual reading, at least partially helped effect the later change of words to images by creating words as visually isolated units rather than orally spoken wholes. The illuminated text further externalized meaning to the page while at the same time made the subject a fluent reader who could move between image and word.

The majority of medieval illuminations were either religious or medical in content, the most common being herbals, bestiaries, and general health and surgery manuals, or bible stories such as the \textit{Biblia parperum} by Roger of Parma. The shift from illumination to woodblock print required new techniques and new topics to print in order to sell to growing audience, which increased the topics from more technical to a general audience. In these illuminated books, the written and printed narrative had primacy over the image, which was simply decorative, often without a clear function in relation to the text except to please the viewer or provide a memory enhancement. Woodblock prints began to change this relationship in the middle of the 15th Century so much so that Bland argues that German presses started providing visual equality on the

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373 Paul Saenger, \textit{Space Between Words} 24-25.
printed page to text and image in the 1460’s, with Italy 1470’s, and the Dutch in the 1480’s.\textsuperscript{374} The images themselves were sometimes literal and sometimes allegorical, often detachable from the meaning of the text to be understood by illiterate or to be looked at while someone read them aloud.\textsuperscript{375} Such a detachment of word and image occurred with Wächtlin’s images that were incorporated into Fries’ text without explanatory text. The goal of these images without explanatory text was to stimulate sales rather than supply knowledge.

Bland also argues that in the early years of printing, one can see an averaging of images; that is, in order to get as much print-life out of a wood block, printers required they be cut as an average across many socio-economic boundaries. These stylized bodies, plants, buildings, and landscapes could be used in medical, religious, political, popular, or technical books, depending on the need.\textsuperscript{376} We can see this in the images included in Fries’ text since several had been copied from woodblocks used in Hieronymous Brunschweig’s \textit{von der Anathomi} (Fig. 26). Fries did not mention these images and removed them for later publications.

Whereas Bland emphasized the average appearance of the images, one may even say the images were also allegorical such that, at least in relationship to the body, they portrayed not the sensible but the knowable or imagined body.\textsuperscript{377} In this way, illustrations in illuminated manuscripts and early woodblock prints provided the truth

\textsuperscript{374} Bland, \textit{A History} 101-139. If one counts ‘block printing,’ printed images were already in the hands of German printers before the use of moveable type.

\textsuperscript{375} Robert Scribner, \textit{For the Sake of the Simple Folk} 5.

\textsuperscript{376} Images in Fries text can be found in medical, surgical and religious manuals. The same image of a ‘scholar’ (who also stands for a doctor) can even be found in a version of Sebastian Brandt’s \textit{Narranschiff}, where the scholar finds the truth by comparing books.

\textsuperscript{377} Russell, \textit{Emblematic Structures} 10. The difference between average and ideal is important to the shift in knowledge and representation occurring in the 16\textsuperscript{th} Century: where as an average takes a potential mean of many individual objects, an \textit{allegory} begins with an ideal and gives it form.
through a vehicle of sensible form. Images included in Fries *Interpretation of the Map of the Sea* provide a visual form to descriptions of all the diverse cities, people, and animals of the world, most of which the author had never seen or could see. The images were the minimal sensible traces needed to recognize the idea in one’s intellect or imagine if they possibly could exit. This visible shortcut, however, was still secondary to that described in the *historia*, the written word that one could internally visualize.

By the early 16th century, one can see the reversal of the relationship of image to printed narrations, which could now be better stated as the printed word in relation to image. The quality of images had been improved, introducing cross-hatching and metal forms (schrottschnitt) in addition to a self-conscious organization of the page while removing remnants from manuscript culture such as hand coloring and chiaroscuro. Within this crossover period between manuscript and printed book, one sees the use of techniques from both media until print became the established mode of knowledge dissemination after the Protestant reformation.

Important to this shift in medical texts from word to image was the contrafact of the first half of the 16th century, which testified to the origin and accuracy of the images. *Contrafact* had several meanings such as “copy” “portrait” “effigy” or “imitation” in the sense of a “true resemblance” rather than the more modern sense of “counterfeit, falsification or forgery.” This means that images with the epithet ‘contrafact’ were thought to be either 1) images made after a truthful, personal witness

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379 Lorenz Fries, *Uslegung der Mercarthen oder Chartha Marina* 1530.
380 Bland, *A History*, 114-130. Von Gersdorff and Fries’ texts include both cross-hatching and color.
without embellishment added by the author, or 2) images made after images, which were themselves truthfully made. The relationship between the words and images was intentionally self-reflective and speaks to the epistemological concerns of knowing images and words. That is, the word *contrafact*, (Latin roots *contrafactum*, *contrafacere*, *contrafactus*) provided the image with something it lacked, the *authority* of a witness, the power of a verbal oath of presence and trustworthiness the image could not itself guarantee. The image then provided the word what it lacked, the visual *presence* of an experience that one had not personally witnessed but in the intellect.

Rather than provide the viewer with all the details of the scene in the visual image, the *contrafact* image, particularly those of an anatomical nature, provided the viewer with the truth of the scene. This truth is not the average if one is creating an image of the herb or the body parts heart, lungs, liver, or brain: the *contrafact* is an artist’s ability to know and represent the essence of the object or event.\(^\text{382}\) This speaks to the theatrical and performative relationship between words and images in early 16th Century knowledge of anatomy. A *contrafact* image is theatrical in that it is a sign of sign, or a meta-sign of an image that is already a sign of some other object or event. It is performative in that it gains its very trustworthiness and knowledge-ability from the interaction of words and images. Without the word “contrafact,” the image has a dubious quality. The existence of the word “contrafact,” however, also implies that all images have a dubious quality if the word “contrafact” were not there. However, since the word

\(^{382}\) Here I disagree with Carlino’s interpretation of the *contrafact*, which he argues can be both a faithful copy of another image and a faithful copy of reality, the key being the definition of reality. Whereas Carlino argues these images were intended to be ‘devoid of imaginative input,’ I would speak specifically about an artist’s *rational* input needed to see and represent the *truth* of a scene, rather than just a rote copy of visible material. As Engenolf stated in defense to Schott’s charge of plagiarism, the details of various plants are important to distinguish one from the other, but not one plant from itself or essence: “can a specimen be painted or portrayed in some manner or shape other than it truly is?” See Carlino *Paper Bodies* 1999, 85.
is there, the image can be trusted.

Several of these contrafact images were printed in Gersdorff’s Feldbuch der Wundartzney and copied into Fries’ Spiegel der Arztney. I will examine them now in their relationship to images of the brain made after the dissection of 1517. Upon initial inspection, the first image of the dissection to appear in Feldbuch der Wundartzney is known as the “Contrafact Lassman” (Bloodletting Manikin), adorned with the title „Augenschinliche Anatomy“ (visible anatomy) and page number XIII (Fig. 27). The body is surrounded by a black frame, which separates the image from the borders of the page and the printed text on the preceding page. The black line is itself a performative line popular throughout the late 15th and early 16th Century, providing a border that the page itself did not, or was not assumed to provide, creating an artificial space within which it can be an image rather than part of the text.383 Within the frame, alphabetized letters with lines pointing to specific body parts indicate positions on the body for blood letting. Below and to the right of the body is the phrase “Contrafact Lasßman, 1517.“ Within the frame of the dissected body, from top to bottom, one can see the lungs, heart, diaphragm, liver, stomach, spleen, kidneys and bladder.384 The intestines, though still connected to the stomach, are represented behind and partially concealed by the cadaver.

Typical of southern German woodcuts of the early 16th Century, this image was made as a copy. A previous version can be found in Reisch (Fig. 28). Brunschweig copied it in his (1515) Liber de Arte Distillandi (Fig. 29). Reisch’s image was also the

384 Each edition is illuminated or colored based on the needs of the purchaser or printer. Often, only the first few pages were colored. The liver in the first image has three of the five lobes hand colored red, which differs from the second image of this anatomy that are not colored and present the liver with five lobes, standard in medieval representations from Mondino. In this way, coloring changed the anatomy of the body, or allowed one to see a different anatomy that through the technique of print and cross hatching alone.
model for later images published in Strassburg, Ausgburg, Wittenberg, Nurnberg Paris, Padua, Antwerp, and Venice through the 17th Century. Where as the earlier images from Reisch and Brunschweig maintain a close connection between words and images (each organ has a name written directly upon the image), later images and fugitive sheets show a distinct separation of words and images, which are then recombined in an emblematic fashion through the reader. The emblematic relationship between graphic words and images can be seen in fugitive sheets by Jost de Negker in Ausgsberg (1538), Heinrich Vogtherr of Strassburg (1538), Andreas Vesalius (1538) in Padua, Hans Weygel in Nuremberg (1556), Alain de Matonniere in Paris (1560), and Simon Gronenberg in Wittenberg (1589). As Kathleen Karr-Schmidt has shown, these early fugitive sheets unite the three languages of word, image, and gesture in a playful dissection without the mess as the reader can read, see, and lift paper flaps in a virtual dissection.

This image of a dissected body, with limited verbal clarification, acts as a mediator between two sections of the text as well as to the actual dissection event that occurred in 1517 Strassburg. On the one hand, the first section of Gersdorff’s text on anatomy ends with a reference to the coming image, transitioning the reader from reading a verbal narrative to reading an image. On the other, the words on the image designate sites for blood letting and the small subscript “Contrafact Laßman 1517,” relate this image to trustworthiness and the coming section on blood letting in which Gersdorff describes the proper technique for phlebotomy. The visible surface of the body—sites for bloodletting—now have visible connection to the invisible interior body organs. The

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385 See list of anatomical images found in Wieger Medizin 1-25; Carlino, Paper Bodies 115-352.
number ‘1517’ situates the image in relationship to the public dissection in Strassburg from which this image was ‘truthfully’ made. The alphabetized letters with their designating lines to specific body parts also double the link to the next section in the book, a narrative to the place and purpose of blood letting sites on the body. Sudhoff even suggests that this image, like the ‘Bloodletting Manikin, while denoting anatomical knowledge, connotes the martyrdom of Saint Sebastian, the patron saint for the plague (Fig. 30).\(^{388}\) In this way, very similar to the Tau discussed in chapter one, the image performed its healing power by attracting the disease away from humans. As a teaching book on anatomy, this image then assumes a pedagogical, moralizing, and healing tone rather than a purely investigative one.

A second print of this visible anatomy reappears later in the text, yet this image has a slight variation. In the second book on surgical treatments of various wounds, the image is situated at the beginning of the chapter on purging, Book II, Chapter XVIII (Fig. 31). The image is identical, except for the coloring and the title “visible anatomy” is exchanged for a poem like the others seen in chapter one of this dissertation (Compare Figs. 27 & 31). The lack of illuminated color changes the anatomy of the body (without the color, the liver becomes five lobed rather than three) and poetic description alters the reading of the image, causing tension between the subtitle that emphasizes its truthfulness and blood letting:

Whoever wants to purge himself will heed

Know first your form and capacity
Complexion and medicinal dose
Otherwise, of illness you will never be loose.\textsuperscript{389}

The poem introduces the well-known epithet from the oracle of Delphi *Know thyself*, which in this context is not to know one’s anatomy, but to know one’s own *complexion*.\textsuperscript{390} Such knowledge was not visible, but based on an ideal body from which each person deviated in their balance (hot, cold, moist, dry). For this specialized knowledge, Gersdorff refers the patient to a doctor who is trained in the medicinal arts and can provide the proper regiments or purge urine, stool, vomit, and thus rebalance an unbalanced complexion. Knowledge of the body fragmented through dissection is only useful to a point. Accurate knowledge of a patient’s complexion, in relation to the anatomical position of his or her internal organs, can help an unbalanced patient. The poetic inscription turns a reading of this image based on the visible in favor the invisible, intellectually known complexion.

If we apply this history of medical images to those of the brain at the end of the 16\textsuperscript{th} Century, we see that a visual allegory (which has been defined as a vehicle for an invisible truth or sensible representation of the non-sensible, the intellectual) and the emblem (a collection of allegorical fragments) both help to explain the transition occurring in the performance of the inner senses in relation to internal and external signs. Currently, the most exhaustive survey of early brain images can be found in Clark and Dewhurst’s *An Illustrated History of Brain Function*, which presents manuscript

\textsuperscript{389} Gersdorff, *Feldtbuch* 58\textsuperscript{v}. “Wer sich purgieren will/ der merck, Erkenn vor ab sein gstalt un sterck/Erwolung/dosis der artzney.Der Krackheit würt er sunst nit frey.”

drawings from the 13th Century to contemporary neuro-imaging techniques.\textsuperscript{391} I will briefly outline their categorization strategy for early brain images and then suggest my own approach to these images based on the allegory and emblem.

Clark and Dewhurst’s now standard text in the history of the brain provides an excellent collection of early head and brain images, as well as an outline of the changes that occurred in representations of brain illustrations in the following three categories. After outlining the medieval cell theory, three types of ‘transitional representations’ are offered whereby distinct differences in the schema of the inner senses can be noticed across Europe, namely the appearance of the cerebral ventricles, the disappearance of the \textit{rete mirabile}, and the cerebral convolutions become represented for the first time.\textsuperscript{392}

The first change is that the contours of the cerebral ventricles become visible in an image. Representations of the cerebral ventricles only appear briefly at the end of the 15th Century with Leonardo Da Vinci who injected the brain of an ox with wax. Thereafter, the visible representation of the ventricles becomes most noticeable and standard between 1520 and 1543.\textsuperscript{393} Artist/anatomists like Leonardo Da Vinci (1472—1519), professors of surgery and medicine Berengario Da Carpi (1460-1530), Charles Estienne (1514-1564) and Andreas Vesalius (1504-1564) also visually emphasized the ventricles.

During this transition period, linear perspective is used to isolate and accurately draw the brain and head, creating representations of anatomical structures such as the cerebral ventricles. Words describing the inner senses are overlaid on top of these

\textsuperscript{391} E. and Dewhurst K. Clark, \textit{An Illustrated History} 1-67.
\textsuperscript{392} Clark & Dewhurst, \textit{An Illustrated History}. The text is structured by the “Cell Theory,” followed by the ventricles, (pp. 51-53) \textit{rete mirabile} (pp. 56-59), cerebral convolutions (pp. 60-67). A typographical error in the 1972 edition continues the title “rete mirabile” onto the chapter on “cerebral convolutions.”
\textsuperscript{393} Clark & Dewhurst, \textit{An Illustrated History} 51-53.
structures, whereby Da vinci places the words “impressiva” (perceptual center), “sensus communis” (common sense), and “memoria” (memory) imposed on the anterior, central and posterior ventricles of an ungulate. The simultaneous presentation of dueling theories—one based on the sensible, the other the intellectual—caused difficulties. The first difficulty occurred in that visually accurate anatomical illustrations (made after dissection) represented what one could see, yet many of the structures were unnamed, causing a plethora of new anatomical parts to be created during the 16th Century, as well as difficulty in naming such parts.394

A second problem arose in the debate about representing that which could not be seen, or canonical structures of the brain such as the faculties of the soul and the rete mirabile. Clark and Dewhurst mark this as the second change, the rete mirabile represented and then omitted from cerebral illustrations, in the transition period from medieval brain images. The ‘miracle net’—a vascular structure positioned at the logical point between the head and the rest of the body, either at the base of the skull or the ideal point in the center of the head—functioned as the mediator between body and soul, or the organ that filtered the animal spirits from the blood making them ‘more subtle’ for use by the soul. However, because one could see and represent a visible structure did not make it a valid candidate for knowledge. Moreover, the reverse was often more important; the intellectual and non-sensible truth of an object—such as the head having a rete mirabile—was often deemed more important than sensible experiences. A debate of this magnitude

was not easily answered, though the *rete mirable* became an important topic of discussion.\textsuperscript{395}

While the images of the brain in Gersdorff and Fries do not represent the ventricles or *rete mirable*, Gersdorff does mention the “porcelain womb” in his text on the anatomy of the head and accompanying fugitive sheet. Representations of this structure appear in texts by Magnus Hundt (1449-1519), Leonardo Da vinci, Johann Dryander *Anthomia* (1500-1560). The most common representation came from Vesalius’s *Tabulae sex* (1538), which was subsequently plagiarized around Europe (Fig. 32). Though he personally admonished his early mistake, stating clearly in his 1543 *Fabrica* that no such structure existed in man, images had already been copied in Walther Hermann Ryff’s *Anathomia*, as well as fugitive sheets from the University of Wittenberg that accompanied Philipp Melanchthon’s commentary on Aristotle’s *De Anima*.\textsuperscript{396} I will discuss this shift in detail in chapter five, where one invisible and imaginary organ, the *rete mirable*, is replaced with a visible organ, the *pituitary gland*, to fulfill the role of mediating between the rational soul and the material body. As we saw in the previous chapter, the pituitary gland, or “phlegm gland” played a growing role in socialization and body hygiene in the early 16\textsuperscript{th} Century, replacing the *rete mirable* as one of the performative organs in the brain.

The end of the *rete mirable* began around 1521, when Berengario da Carpi first questioned its existence. Though existing in ungulates and translated into human anatomy by Galen (thus becoming standard doctrine through the middle ages), it’s hold on the medical and philosophic community was so strong that it was still discussed in

\textsuperscript{395} Clark & Dewhurst, *An Illustrated History* 56-59.
\textsuperscript{396} Kismet Bell, "Faithful Bodies” 3-22.
1664 by Thomas Willis in his *Cerebri anatome*. The *rete mirabile*’s use as a ‘concoctor of spirits’ was an key piece to the pre-Harvey description of Galenic humoral physiology, though the structure became less important after William Harvey’s description of blood circulation in *Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus* (1628), becoming replaced with the “circle of willis” in Willis’ description of cerebral blood circulation.\(^{397}\)

Fries and Gersdorff fit in the final addition to the figurative transition of the brain in the early 16\(^{\text{th}}\) Century, namely, the addition of cerebral convolutions to representations of a dissected head. Here Clarke and Dewhurst classify the images used by Gersdorff and Fries, where gyri (ridges) and sulci (furrows) are visible for the first time.\(^{398}\) Since the brain was still considered only to be one part of the head, the convolutions of the cortical surface were deemed irrelevant until cortical localization theories began to emerge in the 17\(^{\text{th}}\) Century.\(^{399}\) In these early images, the cortex appears like “the clouds, “coils of the intestines” or even, as some have called them, “like a plate of macaroni.”\(^{400}\)

After Gersdorff and Fries, Dryander, Ryff, Estienne, and Vesalius provide woodblock representations of the cortical surface in the first half of the 16\(^{\text{th}}\) Century. Bartolommeo Eustachio (1520-1574) became one of the first to use copper plates for his engravings. Images in his 1574 *Tabulae anatomicae* show some of the more accurate representations of the brain and the nervous system, thought like Da vinci, his work on the brain was not known until well after his death.\(^{401}\) The German surgeon and eye

\(^{397}\) Clark & Dewhurst, *An Illustrated History* 56-59.
\(^{398}\) Clark & Dewhurst, *An Illustrated History* 50-60.
\(^{400}\) Dewhurst, *An Illustrated History* 60-67.
\(^{401}\) Eustachio’s *Tabulae anatomicae* was not published until 1714.
doctor Georg Bartisch provides flap images of the head, where by the viewer can lift paper flaps to slowly dissect the head (Figure 33). Underneath the flaps, the cortical surface is clearly visible, though this book was intended for ophthalmological use rather than solely for anatomy of the brain.

The categories provided by Clarke and Dewhurst to understand the transition occurring in representations of brain and brain function the early 15th to the 16th Century have been useful, but three difficulties arise with their presentation of brain images, the first being the presentation style of their contemporary text, the second the difference between medieval schema and early modern representation, and the finally, Clark and Dewhurst see a progression that moved brain images from static, dynamic, to naturalistic representations, which emphasizes a more modern representation technique rather than attempting to understand the images as they may have been understood in the early 16th Century.

If one looks briefly at the images of the head and brain in Clark and Dewhurst’s text, we see that most of the images are cropped, only showing an isolated and enlarged fragment that presents the brain, which assumes the rest of the image was not as important or at least not as important for their goal of a diachronic history of the brain. However, the majority of the images that represent the head and brain before the 1520s were part of some other presentation, such as treatments for illnesses of the whole body, physiology (which was not yet separate from anatomy), memory enhancement, and astrological signs. By situating these images within the visual and verbal context in which they were created, we can see the importance of the humoral theory and treatment

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of illness. When Gersdorff wrote that anatomy helped one to know one’s complexion, he
demphasized the visible and emphasized the knowable. Judging only the accuracy or
inaccuracy of the image misses much of the knowledge presented therein.

The second difficulty in the common classification of these brain images is the
distinction between schematic categories and those that present the head and the brain
naturally or with the tools of linear perspective that show the object in three dimensions.
Though I mentioned this distinction previously, additional points can be made here.
Firstly, such a dichotomy would not have been made in the late 15th and early 16th
Century and belies a contemporary medical thought style, that is, a belief that artists and
anatomists will seek to make more visibly accurate images, which in the late 15th and
early 16th Century, was a highly contentious debate that involved religion, philosophy,
medicine, the arts and crafts. Images of the head, brain and inner senses prior the 17th
Century moved back and forth between naturalistic, schematic, and allegorical without a
clear or universally accepted demarcation between the various representation styles.

An alternative and fruitful approach to these images would be to ask, “What do
these images denote and connote?” Such a question would begin to see the inner senses
and their representations within a signifying system that was both performative and
theatrical. Do geometrical shapes in images from the 14th and 15th Century really denote
the ventricles? In addition, do ‘S’ shaped lines really denote the convolutions of the
brain, or do they simply denote the difference between the brain matter and the pia mater
that immediately covers the material and the corpus colossum and ventricles immediately
below? Alternatively, could the geometrical shapes denote the inner senses and connote
harmony and resemblance to the platonic forms, the four humors and four elements? The
‘S’ shaped lines could also denote a difference of brain matter from the other important parts of the head while they connote clouds and the head’s ethereal and vertical position. Rather than emphasize denotation and the presentia of the image of the head with circles that represent the ‘ventricles’ of the inner senses and the ‘S’ shaped lines the represent the cortical convolutions, one can read a meditative meaning in absentia of the elements of the head mentioned at the opening of this chapter: divine, verticality, reason, perfection. Such an interpretation, which I present here, is that these images are visual models of the head and brain that had once been stored in memory. As visible images, they are now stored as performative thought on paper.

Omar Nasim and Christoph Hoffman have shown in their recent collection Daten sichern (Securing Data) that acts such as writing and drawing are part of an epistemic process of securing objects of knowledge. Thoughts on paper create the appearance of products, but as a method of externalization, of inscription, the formulation of knowledge from thought, hand, utensil and paper create an epistemological method that is much different than the spoken word. Understanding this epistemic process, one that is just as problematic (or abounding in resources) for science as for literature, is part of understanding a culture of inscription. Thoughts on paper also pose another problem with the traditional categorization of a temporal shift in representations of the inner senses, namely, Clark and Dewhurst assume that the visual representation of a dynamic thought process is a progression in the theory and thus facilitated a move to a more

accurate knowledge of the brain in the late middle ages.\textsuperscript{405} By dynamic, they mean that one first sees separate geometrical shapes and then later these shapes are connected by the “vermis”. This implies that the brain became a more dynamic object later in the theory’s history.

By looking at these early hand written and printed images and text describing the inner senses in the 16\textsuperscript{th} Century through an inscription process, one sees not an increase of the dynamism of the inner senses—which were by definition dynamic from their inception—but of the increased citation of the inner senses as images translated from words. Doctors, surgeons, philosophers, theologians, artists, and politicians attempted to perform these organs of the soul by translating verbal descriptions and body gestures in visible representations. The inner senses were not just a theory; they were a performance of the truth of the head and brain.

If we accept the difference in verbal representations of the inner senses and the images that present the head and brain in both in Fries and Gersdorff’s texts, we see the performance of the inner senses in the image included in both of their texts (Figs. 1 & 2). Since I will provide an in depth study of the fugitive sheet in chapter five, I will only briefly mention them as representations of the brain with historical antecedents and effects on future images. The difference between brain images before 1517 and those after 1517 is clear to contemporary readers: squiggly lines represent the cerebral cortex. Images between 1517 and 1543 slowly begin to present the surface of the brain through serpentine lines that are visually analogous to ‘clouds’ and ‘intestines.’ Yet, how

\textsuperscript{405} Clark and Dewhurst use the term “now” in describing the addition of dynamic elements to the inner senses, which implies a ‘prior’ and ‘posterior’ in the development of the theory. Such an adverb is misplaced in temporal changes and definition of the inner senses, which from their inception were dynamic.
important is the appearance of the cortex for doctors and surgeons in the early 16th Century?

Looking at an image’s “play between denotation and connotation” can help us understand and analyze these images. Norman Bryson tells us that denotation is that which the image “means” and can be determined through minimal codes recognized in the image. Connotation can be determined through the ornamental codes that are not necessary to the image yet support its status as “real.”[^406] Where as allegory emphasizes connotation, emblems move back and forth between the two registers. The small squiggly lines that to a modern viewer represent the grey matter of the cerebral cortex could have simply been inserted to create space in the circle of head to differentiate it from the background. As we have already seen in many images, clouds, like early landscape backgrounds, were connotation elements, ‘realism’ inserted to make the more important representations stand out on the blank page. They were also important in their associations with verticality, the heavens, and the angels, qualities of the head as the highest member.

If we briefly look at these early three-dimensional brain images that began with Hans Wächtlin’s images of the brain included in Gersdorff and Fries’ texts, we see a maximum amount of codes were used to present the “brain” as an object recognizable as one of the ten parts of the “head” (Figs. 1 & 2). In these images, the brain had yet to receive its own ontological status. Most brain images in the early 16th Century, moving from Gersdorff to Da Carpi, Dryander, Ryff, Estienne and then Vesalius, included the severed head with flaps of dura mater folded over, or the head bowing a gesture of

presentation, concealing most of the face to protect the soul of the corpse. Usually the entire head was included and occasionally the entire body was part of the image, representing the ideal relation of the three natural, sensitive, and animal souls. This analogy was important because the suculi and gyri, fissures and convolutions of the cerebral hemispheres—thought to look like the abdominal viscera when the skullcap was removed—created a visible analogy between ‘belly or womb of the head’ to ‘lower belly.’ To ensure that the image was recognized as the “brain” rather than the ‘small intestine,’ the entire head was included in the image, introducing all the possible meanings of the word ‘head’ and ‘brain.’ In this way, a brain could not be understood in isolation from the body: all members were important to know their differences and relations to each other.

A close inspection of the representations of the cortical folds of these early brain images shows an indifference to their representation: because the inner senses were the most important for both the performance of knowledge and dissection, brain matter could be represented generally, i.e. analogically, like clouds or intestines, which portrayed their ideal ‘heavenly’ and ‘digestive’ functions. Comparative anatomy had not yet established the proper analogy of one brain to be another brain. Shadows were used only to show that the surface of the brain had contours to be removed through the process of dissection, not that the contours were important. The contours were not relevant denotative codes for recognition. The small lines were connotative codes, cerebral landscape, ornamentation and decoration—simple difference—to show what the viewer could

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407 See Park, *The Criminal* 12. The University of Bologna required that publicly dissected bodies be procured from “at least 30 kilometers away” to protect the honor the family of the deceased.
perceive and forget on the way to the central cells in front of them and in their own process of knowledge formation.

Another look at images in Gersdorff’s *Feldbuch der Wundartzney* shows that this ‘clouding effect’ was used elsewhere (Fig. 34). Through such a reading, rather than emphasize the convolutions, these small lines in early brain images could be recognized on a connotative level as small accessories or ornamentation that fill emptiness of the image in a conscious awareness of the space of page. Such a foregrounding effect attempted to make the image stand out against the less important background. By comparing Estienne’s images of the head and brain (Fig. 35) with Gersdorff’s apparatus to straighten the arm (Fig. 34), we see that clouds are used in a conscious effort to change the spatial relationship between the foreground and background and to possibly lessen the isolation of the body fragment. In Estienne’s image, the clouds in relation to the ornamental globes on the corners of the seat, the upside down skullcap, as well as the carved circular patterns in the base of the seat create an alternate reading of the connotative elements to the corpse’s head, especially since the words on the sign the body holds describes only the two of the ten parts to the brain: dura and pa mater.

The relationship between denotation and connotation can be made further through one of the first comparative anatomists, Andreas Vesalius, who produced some the most visually accurate images of the head, brain and cortical convolutions. Vesalius described theses structures only briefly in Book V, but his descriptions were also not visual, but tactile! After one uses a finger or instrument to play with the material—

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408 For the artistic use of pastoral or urban backgrounds (landscapes, towns, and clouds) as a foregrounding rather than signifying effect, see Daly, *Literature* 7. See Gersdorff: Title page, 57, 88, 89, 90, 91, 92, 96, 106, 110, 111.
another inscription process—the brain is cut away, becoming a visible marker one must pass on the road to the center of the head. In describing image four, Vesalius writes,

“The height or depth of the convolutions can now be explored with fingers or seekers (instruments). It is possible thus to investigate the upper surface of the corpus callosum and the sulci on either side of it. This done, remove on both sides a large part of the cerebrum with a wide and sharp razor…” (italics my own). 409

In Vesalius’ image, the instruments or seekers have visually disappeared though the verbal description is still present. However, if one looks at the brain images in Fries and Gersdorff’s text, one sees the instruments are still playing or demonstrating the brain (Figs. 1 & 2). The movement between denotation and connotation is thus not clear: are the ‘seekers’ point to something visible or invisible in these brain images? Is one playing with words or images or a real brain? Or, emblematically, is one translating each of these structures across their boundaries to secure or create a new object?

We have also seen with Wächtlin and Dryander’s images of skulls, the movement between denotation and connotation often occurs through the descriptive words such as a title or epithet. In the early 16th Century, the relationship between these two structures was analogous to the relationship between ‘body and soul’ where the body was the material image and the soul the divine word. 410 Without the word, images are often indefinable, either infinitely meaningful or meaningless. For this reason, Fries’ image has been emphasized over Gersdorff because it does not provide an interpretive text to guide the reader in understanding the meaning of the dissected body and brain. As we will see in the next chapter, this ‘absence of soul’ allowed historians to insert themselves into the image to define the meaning of these squiggly lines that appeared for the first

409 Charles Singer, Vesalus on the Human Brain 65.
410 Peter Daly, Literature, 1-20; Daniel Russell, Emblematic Structures 56-109.
time. The fugitive sheet image in Gersdorff’s text, which is adorned with an interpretive poem like most other images in *Feldbuch der Wundartzney*, is often ignored or the soul is removed (the poem omitted) because of its distracting emblematic presentation.¹⁴¹

4.4 The Dissected Head and Brain

As spoken words separated from graphic words and images, so to the gestures of the mind separated from the gestures of the body, namely, a shift from dividing the world with the inner senses to those manual dividing gestures of the hand and knife. Dissection. In this section, I will look at the theatricality of anatomy and dissection found in Lorenz Fries’ *Spiegel der Artzney* and Hans von Gersdorff’s *Feldbuch der Wundartzney* (1518) and their relation to the public dissection that occurred in Strassburg in 1517. The relationship of mental to physical anatomy also defined social roles through an epistemological hierarchy that moved from the physical to mental, external to internal: cutting, writing, seeing, imagining, and speaking created a highly scripted social theater that moved between epistemic zones of kinesthetic, visual, and oral meaning, mirroring a physical distance between actors who performed the dissection and the deceased body. I will begin by discussing rituals of dissection generally and conclude by looking closely at the specific gestures of dissecting the head in the early 16th Century.

A reader of Fries’ *Spiegel der Artzney* can find two descriptions of the first public dissection to take place in 1517 Strassburg. One reference has already been mentioned at the beginning of this chapter where the author encourages readers to attend a dissection on their own. A second reference occurs in the title at the top of the image of the dissected cadaver (Fig. 1). The title above the printed image states:

¹⁴¹ Ludwig Choulant, *History and Bibliography* 130-135; 156-167.
A portrayal [contrafact] of anatomy of the inner parts of man through the highly trained physician and doctor of medicine, Wendlin Hock of Brockenaau, which occurred in Strassburg at which were many barbers and surgeons present to thoroughly investigate.412

Here, the title creates a social distance between the public dissection and the medical doctor Fries by allowing that only “barbers and surgeons” attended the dissection. Hans von Gersdorff, however, approached the first public dissection to occur in Strassburg with a different tone. Rather than an event that only involved barbers and surgeons, Gersdorff describes the public dissection as attended by physicians, surgeons, and doctors alike. He argued that knowing the names and places of organs is essential for all medical personnel, whose duty is to restore health to their patients. Gersdorff describes the public dissection at the conclusion to his section on the anatomy of the human body and before an image of dissected corpse, presumably made by Wächtlin from a visible witness to the very same public dissection. Gersdorff describes the relationship of words, images, and personal experience in the following way:

A visible anatomy [image], used to clarify the preceding chapter, will now follow. The anatomy [dissection] was performed in the year 1517 in the honorable city of Strassburg. One should know the place and type of the body’s objects [gegenwurf] (First of all the chest and abdomen, which is good for both the physician and surgeon). In attendance were learned and esteemed physicians, doctors, surgeons, and barbers who investigated and understood a scoundrel corpse executed by hanging. It was artfully described by the highly educated doctor of medicine Wendelin Hoch of Brackenaw, and immediately portrayed with all forms, colors, and designating words as you can find in the coming image.413

In this passage, the term ‘anatomy’ signifies the division of words, images, and the manual gestures of cutting of the corpse. The specific meaning is only gained through the syntagmatic assemblage, i.e. through the performance of the signs. Cutting divides the body manually, speaking divides the body orally, and images divide the body visually. For Gersdorff, the actual experience of dissecting a corpse was only one method for a surgeon to divide and know the body. Anatomy would not become its own university discipline until the 1540’s in Italy, and even later Germany. Most of Gersdorff’s knowledge of anatomy came from his more than ‘forty years of experience’ as a military and town surgeon making his anatomical knowledge based on surgical applications such as the “serratura” image from the previous chapter.

Gersdorff’s ‘applied anatomy’ was common to the early 16th Century as surgeons needed to know how to treat common ailments and injuries “so the patient is not injured and the reputation of the surgeon not hurt.” Images dealing with amputation (serratura), bloodletting, torso wounds from arrows or gunshots, and head wounds were particularly important for a military surgeon treating soldiers in battle. Gersdorff’s trepanation instruments are represented in relation to treating head injuries so a surgeon can quickly know whether the skull was fractured and which of the inner senses were affected (Fig. 36). Following Hippocrates and Galen, Gersdorff provides trepanation techniques for treating skull fractures and other illness of the head.

In addition to treating war wounds from spears, arrows, swords, or blunt objects seen in the Woundman (Figure 11), surgeons also occasionally needed to remove the evil
from a patient’s body. Like Hans Sachs’ *Fool Surgery*, Hieronymous Bosch satirizes such techniques by showing the removal of the ‘stone of folly’ that caused madness, a surgical technique parallel to the emblematic brain grinders of the 17th Century (Fig. 37). Such stones were thought to block the pneuma or cause humors to collect and bring about mental illness to the afflicted. Knowledge of the ten anatomical parts of the head is essential for a surgeon since Gersdorff repeats the maxim that if the brain [substance] is injured, the patient will die because injuries to the “brain is cannot be healed.” In the same section on head wounds, he urges surgeons to discern quickly and accurately the location and which of the anatomical parts of the head are injured.

Applied anatomy also complicated the relationship between the living body and the corpse. Doctors and surgeons believed that the corpse was anatomically different from a living body, as the Padua-trained physician surgeon Alessandro Benedetti (ca. 1450-1512) wrote in his *Anatomy or History of the Human Body* that the heart is often moved in a corpse. He wrote,

“I have seen a certain person who was killed by a dagger thrust; when his chest was dissected and the dagger shoved into the wound the point neither of the heart nor of the lung corresponded or was lined up with the wound, so great is the difference in position between cadavers and living persons in regards to their organs.”

The brain was also thought to be much different in shape, substance, and size after the soul had left. Though not unique in naming anatomical structures after the function,

416 Gersdorff, *Feldbuch* 24v “denn das hirn ist unheylbar.”
Nicola Massa (1485-1569) reiterates the common anatomical names such as “corpus collosum” or "hard body" above the posterior ventricle, which means “shaped like arch” for an “oven to cook the soul has an broad shape.”\textsuperscript{418} Allessandro Achillini of Bologna (1463-1512) similarly describes another structure, “the testudo or fornix,” named after its shape like a “tortoise shell” that protects the first and middle ventricles. In this oven, the remains of the material cooked from the blood exit through the anchae, or the brain’s “buttocks,” which then purges superfluity from the nostrils.\textsuperscript{419} Without the rational soul to give the brain form and to digest thought, the brain substance was thought to collapse like a ruined building. Such concerns were mediated, at least partially, by the development of alternate media for anatomical study—such as the image and later wax anatomies—to preserve a replica of the body if not the soul.\textsuperscript{420}

Katherine Park’s outline of the changing definition of life and death and its geographical specificity from the 14\textsuperscript{th} to the 16\textsuperscript{th} Century also shows an unstable relationship between the living and dead body.\textsuperscript{421} Park rightly implies that cultural historians should be clear that human and animal corpses were dissected for religious, judicial, punitive, medical, surgical and epistemic reasons well before the 16\textsuperscript{th} Century: the intricacies of the ritual, the timing of the gestures, geographical location of the dissection, as well as location of the body during the act of cutting, the site on the body of the knife’s penetration, together defined the meaning of the gestures of the dissection.

\textsuperscript{418} Lind, Studies 237.  
\textsuperscript{419} Lind, Studies 58.  
\textsuperscript{420} Roberta Panzanelli, \textit{Ephemeral Bodies: Wax Sculpture and the Human Figure} (Getty Research Institute, 2008).  
\textsuperscript{421} Park, \textit{The Criminal} 17-18.
Legal autopsies were often performed at the behest of a wealthy family or a judge in deciding the official nature of the death. Such practice, as Erasmus von Rotterdam humorously describes in his *Encomium medicinae* (Praise of Medicine), led to a distrust of the practicing doctors or surgeons who were the very intercessors on behalf of “money” “knowledge” and the “law” who failed to help the patient through their theater of death.

The presence of a text—medical, surgical, religious, or judicial—influenced the very performativity of the ritual, focusing the performative meaning of the gestures of cutting. A body cut for punitive reasons was obliterated and the pieces scattered around the city as a penance for the sinner’s transgressions, where as a religious ceremony would stop at a certain point to create a relic, or a meaningful fragment of the body that was imbued with spiritual power. Gersdorff’s surgical text was to be consulted during a dissection where as Fries’ texts suggests not. In addition to medical and surgical dissections, Alston has outlined the changing relationship of the dissected body to both political and ecclesiastical bodies in the late Middle Ages, a relationship that was nowhere near as taboo as early 20th Century histories suggest.

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422 See Park, *The Criminal* 5
423 Desiderius Erasmus von Rotterdam, *Lob der Heilkunst: Ein Vortrag* (Strassburg: Heitz, 1907). Erasmus wrote to a friend, providing a humorous anecdote (ca. 1515) on the trustworthiness of autopsy and medical knowledge: “What’s wrong with doctors? A doctor is in it only for the money. Each one has his opinions about the illness and there are usually ten of them in the room. For example, a patient had an incurable illness. Yet, they only condemned him to die after they received their payment. He then died knowing he was going to die (well done!). Since they could not decide on the cause of death, they asked the poor widow for the body so they could dissect it. In order to get the body, they had to promise to pray and perform the proper 30 masses. They patted themselves on the back for their performance in convincing the wife and relatives that a dissection was necessary. They tell the family to leave and should not be a part of such a scientific practice. What happened to the body? What was the cause of death? He died from a piece of lead in the diaphragm. When they told the wife, she said, I could have told you that. He was only recently shot.”
Knowing the head, brain or any body part was theatrical in that the very
enactment of diverse gestures of cutting assumed a prior, context specific meaning to the
gestures of cutting. In 1517 Strassburg, the fragmented body had not yet become a
meaningful product of the gestures of dissection: meaning was found in the very gestures
of cutting in their relationship to the images and texts, as well as the hierarchy of surgeon
and doctor. Looking specifically at the first dissection to occur in Strassburg, which was
performed outside of a university or funeral practice, we see that it provided juridical
punishment to a criminal and redemptive meaning for an indistinct group of barbers and
surgeons, doctors and physicians who cut the body for the sake of knowledge. This ritual
created the head and brain as an isolated fragment, a bonus really, where primary purpose
was to unify the social body through an exclusion of one of its diseased members. In
Foucault’s terms, the spectacle of the public execution, the theatrical representation of
pain, and dissected body provided an immediacy to the power system, which would later
become hidden behind ever more detailed mechanisms and technologies.426

In addition to a performance of power, Cunningham argues that even into the late
16th Century, the dissected body was still the performance of the text of the ancient
author to which the school or anatomist belonged. In Bologna where Wendlin Hock of
Brockenau studied, the text was Mondino’s *Anathomia*. After the 1530’s, medieval
doctors and surgeons and their bad translations of Galen were ignored. Yet, this did not
fix the problem. *Autopsia* (seeing for oneself) emerged in the Renaissance as academic
anatomists tried to directly apply theories of Plato (pre-Vesalian anatomist), Aristotle
(Fabricius at Padua), Herophilus & Erasistratus (Colombo at Padua), and Galen (Vesalius

at Padua) to the dissected body. After the mid-16th Century, however, a problem arose; conceptually different anatomical bodies increased as each anatomist relied on a different ancient authority.

Recent theorizing on the history of anatomy and dissection has shown that dissection was not particularly new in the early 16th Century, nor was it any more useful than in previous centuries. The performance of cutting the body is meaningful in historical periods based on various definitions of the body as well as specific situations in which the body was cut. Carlino’s historical study of changes in larger rituals of public dissections, where one’s social status determined one’s relationship to the corpse, the authoritative text, and the geographical location of the anatomy, shows that dissection was conducted much earlier than previously thought and in ways that differed chronologically and geographically.

Carlino’s text, Books of the Body, provides a detailed analysis of title pages in early Renaissance academic anatomy texts to demonstrate the progression of dissection methods from Middle Ages to the Renaissance at the university setting. Up until the 16th Century, dissection was not a regular practice outside of the annual academic dissections at universities or those done for punitive or judicial reasons. Carlino argues insightfully that the title page is the one difference between medieval manuscripts and renaissance

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427 Andrew Cunningham, The Anatomical Renaissance: the Resurrection of the Anatomical Projects of the Ancients (Aldershot: Scolar Press, 1997) 10. Cunningham argues that Aristotle’s anatomical project was to define the soul in all animals, not just human. Thus, for Aristotle, making associations between various animals and their systems was recommended if one wanted to understand the animal soul. Plato’s project was to connect his theory of the tri-part soul with the body. Neo-Platonists thus saw the dissected body as having three distinct parts. Herophilus and Erasistratus were Alexandrian vivisectionists who used live dissections of the human body to explain the body at work, not just its mechanical parts. Galen also focused on the human body, used Plato’s tripart soul as well as structural (skeleton and muscles) and functional (internal organs) definitions of the body.

428 On the changing relationship of theater and dissection, see Andrea Carlino, Books on the Body 8-67 and Anne Klestinec, Theatrical Dissections and Dancing Cadavers: Andreas Vesalius and 16th Century Popular Culture (University of Chicago, 2001).
texts since the actual practices were very similar: the image shows anatomy’s integration in broader social spheres because anatomists would not need a title page to understand a text’s information, general audiences would.429

Though he is focused specially on reprints of Mondino’s *Anathomia* between 1400-1500 used in an academic setting, Carlino’s study can be useful here since Mondino’s *Anathomia* can be seen as the origin of Gersdorff’s understanding of dissection mediated through Guy de Chauliac. The title page images show a constellation of the hierarchical authority in highly performative and theatrical procedures of dissection. Dissections, if they were allowed at all, took place once a year (usually in the cold of winter to preserve the body), in a public place where specific individuals played various roles. These public dissections were often associated with carnival periods where social and moral transgressions were mediated by specific redemptive rituals such as dissection.430 The public nature and open invitation was also a means to control how and when dissectors could engage the body helping to define the line between life and death, or to prevent vivisection as well as ensure the body from the text matched the body on the table. Within the theater of the public dissection, participants each had a function: ostensor (physician & professor) guided the sector (surgeon or barber). The lector (translator) was removed from the body and stood up on a pulpit. He read from an ancient text and acted as a censor to ensure all procedures were followed. Since the title page was of a university scene, students, ordered by rank, surrounded the dissection table to learn the secrets of the body.

430 Anne Klestinec, *Theatrical Dissections* 24; 34-35.
In these early title page images, a mutually agreed upon system of roles played by each of the performers ensured no unnecessary cutting, probing, or deviation from ancient authority would enter an already dubious practice. In this way, if we apply Fischer-Lichte’s definition of theatrical, the human body was literally a sign of the text, or a sign of the ideal body. The body was also doubly theatrical because of the emphasis on reading aloud, where the body’s fragments materialized based on a demonstration of phonetic divisions of the ancient master’s spoken words. The body that was dissected was the creation of the conceptual divisions outlined by Mondino, translated through Guy de Chauliac and Gersdorff. These divisions were themselves based off an amalgam of Aristotle, Plato, Galen, and the Alexandrian anatomists. One did not dissect to find new anatomical parts, but to demonstrate the accuracy and authority of the ancients.

The order of a dissection was also strictly followed, as Gersdorff states, “begin with the two lower venters” or the location of the natural and sensitive spirits. These are the least noble parts, the abdomen or seat of the natural spirits that man had in common with vegetation, and moved to the more noble regions of the thorax or vital and sensitive spirits, which man had in common with animals, concluding with head and animal spirit, that was man’s domain alone. One can follow the body divisions by comparing the images between Peyligk, Reisch, Brunschweig and Gersdorff (Figs. 2, 8, 27, 28, 29). Historically, the diaphragm performed the symbolic divide between the two lower cavities, which was represented by a single line in Peyligk, Reisch and

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434 Von Gersdorff, *Feldbuch* 17⁵.
Brunschweig’s anatomy. In Gersdorff’s image, the diaphragm had become a separate organ, though it retained its states as a liminal organ between chest and belly. The tongue and another visible gesture become the division between the head and the chest in Gersdorff, namely, the severed “wind and feeding tubes” creates a division that did not previously exist. The severed esophagus and trachea is not visible in images from Reisch and Brunschweig. In Peyligk, the tongue is only visible as an organ of taste and speech. What was once a dividing gesture of the pen was now the dividing gesture of the knife recorded in an image.

By the Mid-16th Century, public dissections required that individuals with specific social standings played the role of lector, sector, and ostensor. By the time Vesalius printed his well-known Fabrica, the role of the student and sector had merged, as well as that of the ostensor and lector, which brought about a change in relation to the anatomist, the body, and the text.435 Not only did engaging a corpse change how one saw the living body; within the changing social climate, ritualized observation within a potentially hostile environment changed one’s relationship to the spoken and the written word. Between the publishing of Feldtbuch der Wundartzney (1517) and Vesalius’ Fabrica in 1543, Greek versions of Galen’s medical and anatomical works had been found and translated into Latin at the University of Paris (where Vesalius, Dryander and Estienne were all studying between 1533-36), and along with increased dissections, caused a high level of disdain for the errors in Medieval Latin and Arabic texts.436 Such a discovery also changed the ‘textual’ or wordy nature of dissection by omitting his medieval and Arabic translators and attempting to interpret Galen himself.

435 Carlino, Books 11.
436 Cunningham, The Anatomical xxiv.
Even before the anatomical age or the ‘Empire of Anatomy’ as Park calls it,437 we can see the body/text relationship in Gersdorff’s text, specifically the section on anatomy, in that his is one of the first translations of Guy de Chauliac’s *Chirgia Magna* (1348) into German. Only on occasion does he deviate his descriptions of the body and brain from the guide provided by the medieval authority.438 Like Brunschweig before him, the written body found in Gersdorff’s text can be traced through Chauliac, to Mondino de Luzzi, whose *Anathomia* is based on Nicholas of Reggio’s *De juvamentis membrorum* (c. 1310), which is based on a previous translation of Galen’s *De usu partium*.439

For example, a comparison of passages on dissecting the brain from Chauliac, Brunschweig, and Gersdorff show almost identical descriptions of the brain and cerebral cells that Gersdorff applies to both images and the technique of dissection. These descriptions are part of the theatrical performance of an oral tradition based on reading a text out loud, as well as mirroring a text through the gestures of dissection because it was an authority. The dissection of 1517 Strassburg was a theatrical performance of the text by the hands of a dissector on the dissection of the body, and the brain found through dissection of the criminal body was similar to the brain found by Chauliac and Mondino centuries before Gerdorff. One finds similarities by comparing three passages side by side:

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437 Park, *Secrets of Women* 207.  
439 Singer, *Vesalius* xxv.
From Guy de Chauliac’s *Chirurgia Magna* (1348):

The brain divided longitudinally in two has three ventricles, and each ventricle has two parts, and in each part resides a virtue. Common sense is assigned to the anterior cell. The second imagination. The middle thought and reason. In the posterior is preservation (reminiscence) and memory.440

Hieronymous Brunschweig *von der Anathomi* (1497):

Lengthwise three cells, the front-most is divided in two. Each part has a power. The front most contains common sense. The other imagination. The middle thoughtful and rational powers. In the rear-most the memory power is housed. 441

Hans von Gersdorff *Feldtbuch der Wundartzney* (1517):

The brain, lengthwise, has three chambers or little cells, and each cell has two parts, and each part exercises a power or faculty. In the first part of the front-most chamber or cell is common sense. In the second part is imagination. In the middle cell is judgment and reason. In the rear most cell is the thoughtful power of memory. 442

Such a description of the anatomy of the brain had become a slogan that could not be challenged, even in the face of a dissected body. The power of the word held court over the power of sight. Since dissections were rare and followed the order of the text, the head was often the last to be dissected and until the 1530’s, represented in relation to the entire body. However, even as the texts remained the same, we see that the rituals of dissection themselves changed in relation to the images and printed text. In addition to

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440 Sudhoff, *Lehre* 176-178. Chauliac’s description of the brain can be traced through Mondeville to Mondino; Chauliac writes “…Cerebrum secundum longitudinem habet tres ventriculos, et unusquisque venter habet duas partes, et in qualibet parte organisator una virtus. In prima parte ventriculi anterioris assignatur sensus communis, in seconda imaginative. In medio ventriculo situat cogitative et rationalis. In posteriori vero servativa et memorativa.”


the above mentioned larger changes that occurred in rituals of dissection, one can also
provide a microanalysis of the gestures of cutting and positioning of the corpse,
specifically the head and brain, in relation to social and religious expectations,
technologies of preservation and representation.443

If we look closely at what Gersdorff describes in words compared to the image,
the reader sees in their mind something different than what can be seen in the images, and
presumably different that what one would see during an actual dissection. After
examining the cranium, he continues:

And here is enough said about the anatomy of the skull and the five
exterior parts. But those interior parts you cannot know by looking at the
external surface of the skull. The skull is divided with a saw at the
roundest part. You then lift up the upper part and the first thing you see is
the dura mater and pia mater, which are two artery rich skins, one bound
to the brain and the other to the skull, both covering the entire substance of
the brain. After the dura mater comes the pericranium and food is given to
the brain through the pia mater. From it come veins and arteries from the
interior through the holes in the lowest bone and exit through holes in the
highest bone. There after one sees the substance of the brain, which is soft
and white and of a round figure, though this is without its faculties that
were once contained within.444

In this short description, we see the ‘ten parts of the head’ found in Fries
description of the ideal head in full view, which comes from Mondino’s Anathomia. We
see a critique of previous images that “attempt to see the soul on the skull.” Though
Gersdorff’s description is more complicated than Fries’, it is much simpler in vocabulary

443Park, The Life 112.
444 Gersdorff, Feldbucb 7r-8v. “Un hiemite ist genug gesagt vo de anaomy des hirnschedels/und von den
fünf sticken de ußwendig behalten. Aber die die inwendig behalte seint magst du nit bewissen mit der
gesicht des hirn schedels sie wird dan geteilt mit einer segen noch der rondigkeit. Unnd so du dan uff
hebest das ober teyl / das erst das dir zükumpt das ist dura mater und pia mater/ un das seint zwey aderecht
felling / das ein ist an de hirnschedel/ das ander umb das hirn/ und bedecke die gantze substatz des hirns.
Von der dura mater kompt pericraneeum / und von pia mater würt dem hirn spysung gegeben / und von ir
komen vene und arterie vom inwendig durch die löcher der understen bein/und von usszwedig dur die
oberste bein. Darnach folget die substantz des hirns? un dast ist weych und wiß/ und einer ronder figuren.
On die züthuung die in im seint.”

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and detail than those of 16th Century academic surgeons and anatomists. The basic method of longitudinal dissection, beginning with the removal of the skullcap, was first proposed by Galen and described in detail the first century A.D. Singer argues that this type of dissection is first authored by Gersdorff, though one can see similar examples throughout Europe. Contrary to a contemporary reader who looks at these images of the brain and sees convolutions, Gersdorff did not, or at least he did not write it down. What he did write down is peculiar when describing the brain: “There after one sees the substance of the brain, which is soft and white and of a round figure, though this is without its faculties that were once contained within.” The future of neuroscience is written in the ruins of the house of the soul.

What Singer recognizes, and many historians of the brain mention but have yet to fully describe, is that the newness of these brain images is not the words used to describe the brain, the images produced, nor is a their a new dissection technique. The change occurs in 16th Century with the supplementarity of verbal descriptions, images, and the gestures of dissection in relation to each other—signs that stand in an equal rather than hierarchical relationship—helping to create the brain as an isolated object, an organ on its own that is separate from the head. It was not until Niccolo Massa’s Introductory Book of Anatomy (1536) that the verbal distinction between head and brain was made, thus isolating the brain as an object to be known in isolation. Massa writes, “The substance has been wrongly called marrow by many people since the brain is in itself a principal and noble member in which the mind is located.” Such a statement is no small thing;

445 Galen, On Anatomical Procedures Book IX, 226-236. Galen describes the dissection of an ox’s brain, though the same technique can be found in von Gersdorff and Vesalius to dissected a human head.
446 Singer, Brain Dissection 261-274.
447 Lind, Studies 237.
the shift from the term “brain” that means “marrow” of the head to a “principle and noble member” helps us see a change in thought in the early 16th Century that puts the brain to the fore as metonym for entire head.

Gersdorff’s emblematic description of the brain, along with images, and gestures of cutting the head and brain are part of an alternate signification pattern than the allegorical images of the brain and body found in the previous century and also to doctors and surgeons practicing and writing simultaneous to his own work. One the one hand, Gersdorff describes a dissected brain to demonstrate the brain’s relationship to the head, which is defined in relation to the two lower cavities of the body, humoral physiology, and its meaning as the ideal organ closest to heaven.

On the other hand, Gersdorff distinguishes his descriptions, images, and techniques of dissection from those before him, namely of Magnus Hundt and others who attempt to know the inner senses through looking at the head, skull, or external parts. Such knowledge assumes that by looking at the head of a living body, or simply reading a verbal description of the inner senses from one of the ancient masters—a method Fries also supports—one can imagine the contents of that body and head and know the truth. The head or skull no longer played the role as a window to the soul, an allegory by which one could internally contemplate the meaning. For Gersdorff, the movement between word and internal image is not enough, or the two sign systems are not equivalent. Dissecting an actual body helps one to physically move through the external members to the hidden members, something reason cannot do without the help of the actions of dissection. Even though the goal was the same—performing the inner senses as well as theatrically citing the ideal body—the performative method of cutting the body helped
create a language of dissection separate from, yet combinable with the spoken and printed languages of words and images.

In this chapter, by looking at the performativity and theatricality of the head and brain in Hans von Gersdorff, Lorenz Fries and the historical context of the early 16th Century medicine and surgery, I have shown the brain recorded in speech is much different than that recorded with graphic words, symbolic and visually accurate representations, and the gestures of dissection. Knowledge of the head prior to the 16th Century was allegorical in that signifying signs—words, images and gestures—were defined in relation to a signified only knowable in the faculty of reason. I have argued that an understanding of the brain before and through 1517 requires knowledge of the meaning of head, of which the brain is only one part.

I have also shown that contemporary historiography tends to isolate the brain created through images and dissection as if it [the brain] always existed, which is not the case. The isolated brain appears as a repetitive citation of language scripts particular to post-19th Century medical, anatomical and practices of historiography rather than originating from the early 16th Century. Visually accurate representations that appeared in the late 15th and early 16th Century shows the brain as a part of the head and only occasionally in relation to other dissected brains. Along the way I hope I have resituated the public dissection that occurred in 1517 Strassburg within its cultural milieu rather than continue the fetishization of brain images printed in Fries and Gersdorff’s text by “excessive dominance of the visual in contemporary neuroscience.”448 Lorenz Fries and Hans von Gersdorff had two very different approaches to the head and brain, which can only be seen if knowledge is defined as performative and the use of signs as theatrical,

shifting the focus away from the object and onto its construction. By focusing only on the product of such practices—namely the head and brain isolated in word, image, and gesture—one misses the very birth of the brain as an object independent of the body and its more formative member, the head.

In chapter five I will explore the creation of the emblematic brain that required a subject to translate and maintain meaning of signs across distinct mediums, recombining the isolated words, images, and gestures in an emblematic fashion. I will show the successes and failures of translating the brain across what I have artificially described in this chapter as the solitary structures of words, images, and gestures. I will provide a close reading of the oft-ignored fugitive sheet included in Hans von Gersdorff’s *Feltbuch der Wundartzney* where the translatability of words, images, and gestures become essential to performing the brain in the early 16th Century.
4.5 Figures

Fig. 20. Grammatica from Gregor Reisch *Margarita Philosophica* (Freiburg: Freiburg: Johann Schott, 1503). rpt. Max Planck Institute for the History of Science.
Fig. 21. The Inner Senses from Gregor Reisch’s *Margarita philosophica*. (Freiburg: Johann Schott, 1508). rpt. Max Planck Institute for the History of Science.
Fig. 22. Pattern Poem in Lorenz Fries Spiegel der Artzney (Strassburg, 1518) rpt. Bayerische Staatsbibliothek [2053].
Fig. 24. Skull with Ornamental Frame by Hans Wächtlin, 1510-1511. rpt. © Trustees of the British Museum.
Fig. 25. HVMANI CAPITIS from Johann Dryander’s *Anatomiae* (Marburg, 1537). rpt. Wellcome Image Library, London.
Fig. 26. Sick Patient in *Das buch der wund Artzney. Handwirckung der Cirurgia* (or) *Von der Anathomi* (Strassburg 1515) rpt. In Lorenz Fries *Spiegel der Artzney* (Strassburg 1518). rpt. Bayerische Staatsbibliothek [2053].
Fig. 27. Visible Anatomy or Bloodletting Manikin from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 28. Anatomy in situ from Gregor Reisch *Margarita Philosophica* (Freiburg: Freiburg: Johann Schott, 1503, 1508). rpt. Max Planck Institute for the History of Science.
Fig. 29. Anatomy in Situ from Hieronymus Brunschwig Liber de Arte Distillandi (Strassburg 1515) rpt. National Library of Medicine.
Fig. 30. Saint Sebastian at the Column, engraving by Albrecht Dürer (1500). Rpt. In Dürer in Dublin: Engravings and woodcuts of Albrecht Dürer. Chester Beatty Library, 1983.
Fig. 31. Lassman with poem from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. rpt. Bayerische Staatsbibliothek [1457].
Fig. 32. Vascular System with *rete mirable* from Andreas Vesalius’ *Tabulae Sex* (1538). rpt. Wellcome Image Library, London.
Fig. 33. Brain from Georg Bartisch, *Ophthalmodouleia*, (1583). Rpt. University of Kansas Medical Center.
Fig. 34. Instrument to Correct a Crooked Arm from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Bayerische Staatsbibliothek [1457].
Fig. 35. Dissected Head from Charles Estienne’s *La dissection des parties du corps humain divisee en trios liures*, (Paris: 1546). rpt. National Library of Medicine.
Fig. 36. Trepanation from Hans von Gersdorff, *Feldbuch der Wundartzney* (Strassburg, 1517) rpt. Wellcome Image Library, London
Fig. 37. Cure of Folly (removing the stone of madness) from Hieronymous Bosch (ca. 1494-1516). Museo Nacional del Prado.
CHAPTER FIVE

The Brain as Emblem

Think not that atoms, rushing in a senseless, hurried flight
Produced without a guiding will this world of novel form.
The mind that shaped them wise beyond all other intellects
Maintains and fashions everything in logical design.
The ordered movements of the stars recurring in their course
Bear witness that a deity intelligent and good
Established these provisions and now holds them in control

—Philip Melanchthon, Hand written poem in his copy of Andreas Vesalius’ *De humani corporus fabrica libri septem* (ca. 1445)

5.1. Introduction

We have thus far approached the brain in two of three tools used in applied emblematics. In chapter three I looked at the thought style guided by the proper performance of the inner senses by which Fries and Gersdorff defined the brain. In chapter four, I separated the possible structures of understanding the brain into word, image, and gesture to see their relationship with the divine idea of the head. In our final chapter, the third approach we will use to understand the brain in Fries and Gersdorff is that of an *enigma*, or a puzzle or riddle to be solved. This puzzle has many pieces to be assembled. Yet, as with all emblemtatic forms, meaning only appeared through the completed whole as a collection of fragments. A difficulty appears when attempting to solve an emblematic enigma: the pieces are of differing structures. Within an allegorical thought style, all human communication structures related the material world to a meaningful signified. Whether one spoke, wrote, printed, drew, painted, sculpted or

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449 Andrew Cunningham, *The Anatomical Renaissance* 231-232. Poem translation found in Cunningham, Chapter 8. Poem translated from Latin to English by Dorothy M. Schulian in Melanchthon’s copy of Vesalius’ *De human corporus fabrica libri septem* at the National Library of Medicine, Bethesda (MD).
gestured, the truth could be known by the inner senses. If one knew these relationships, one knew the world and the human body. As an emblematic enigma, however, a collection of fragmented parts without a rule by which to assemble them, the head and brain were not so easy to understand.

The quote at the beginning of this chapter was written by the Protestant humanist Philip Melanchthon and appears in his copy of Vesalius’ anatomy text. For the Protestant reformer, this poem was written to himself as a reminder while he engaged images of the dissected human body. The phrase, “think not that atoms, rushing in a senseless, hurried flight, produced without a guiding will this world of novel form” was a reminder of the apparent chaos of the body, but also of the order instilled in it by God. “The mind that shaped them wise beyond all other intellects maintains and fashions everything in logical design” is a statement of faith that, when looking at the human body, one always looked for the logical design that shaped it. As anatomy became a tool to understand the human body, it also became a tool to understand oneself, *nosce teipsum*. In many orations throughout his university career, Melanchthon urges himself and his students to reject atomism, Epicureanism, Stoic fallacies. Their weapon against threats to Protestantism became anatomical and physiological knowledge of their bodies that each student could use to control himself. If such an anatomical body is related to Fischer-Lichte’s definition of theater (*A depicting X while S looks on*), we see that students (A) in the early 16th Century, through a mixture of Protestant natural philosophy and anatomy, performed their bodies and brains (X) to themselves (S) and to the growing public paying attention to the body in a similar fashion (S₁). Such a performance—where the audience is no

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longer God but oneself and the public watching each body’s visible performance of an invisible anatomical articulation—is part of the shift from allegory to emblem in the 16th Century.

In this chapter, I will outline the fragmented parts of the brain and head created by Fries and Gersdorff and the subsequent influence of their woodcut images and dissection techniques through the second half of the 16th Century. The brain as an enigma, as a collection of fragments with a hidden meaning, appeared as part of a small adjustment of the inscription process, namely, in the relation between the power of recording the brain in words, images, and gestures. This chapter will lead us, rather than to a more accurate knowledge of the history of the brain, to a history of a set of actors, stages and objects that fragmented and emphasized visible and tactile rather than invisible and aural parts to the brain. We saw a few of the visible fragmented parts in the previous chapter: the ventricles and cerebral convolutions. We also saw the disappearance of an invisible fragment, the rete mirabile. In place of the rete mirabile, a visible anatomical structure appeared through dissection, namely, the pituitary gland or “the phlegm gland” at the base of the skull.

The pituitary gland was mentioned by Galen, Mondino de Luzzi, Guy Chauliac and Gersdorff, and appeared visually when the rete mirabile disappeared. More importantly, not only did the pituitary gland appear, but it became part of the program for teaching Protestant social-discipline through a mixture of anatomy, natural philosophy, and religion. I will trace an unlikely path from the self-taught writings of Leonardo da Vinci and Gersdorff’s Feldtbuch der Wundartzney through the university trained texts of Fries’ Spiegel der Artzney, and dissections by Johann Dryander of the University of
Marburg. We will see image stealing from Gersdorff *Feldbuch der Wundartzney* and Vesalius’ *Fabrica*, and conclude with plagiarized copies of fugitive sheets that adorned the Protestant writings of Philipp Melanchthon, some of which emphasized the pituitary gland as a form of self-control. This story will use the transformation of the verbal yet invisible *rete mirabile* into the pituitary gland a site of cerebral control to be used for personal self-discipline in the future of the Protestant reformation.

5.2. Cerebral Enigma

In her monograph, *Women's Secrets* (2006), Katherine Park provides an introductory guide to interpreting anatomical images with emblematic character. Assuming the esoteric structure (and vanity of the author) of images in Vesalius’ *Fabrica*, Park follows Daniel Russell to provide a way to understand the visual enigma. Though her text focuses on the origins of dissection in Italy, her use of emblem theory may help direct the understanding of the broader use of anatomical images in the sixteenth century. Emblematic images are known to provide a small written inscription or motto that guides the overall construction and intended interpretation strategy for the image.\(^{451}\) By using the motto as a frame, one can move between the image and the text in specific ways. Park uses such a motto as an entry point to interpret the title page from Andreas Vesalius’ *De humani*. Such an emblematic interpretation allowed Park to resituate the history of anatomy and dissection in relation to a male desire to uncover “the secrets of women.”

The OED defines *enigma* in both narrow and broader forms. Broadly speaking, an enigma is “a short composition in prose or verse, in which something is described by

intentionally obscure metaphors, in order to afford an exercise for the ingenuity of the reader or hearer in guessing what is meant; a riddle.” Specifically, an enigma is “an obscure or allusive speech; a parable.”452 Park and Daston have described this new enigmatic understanding of nature in the shift from wonder to curiosity that began in the 17th Century.453 Though timelines are always dependent upon the actors, this shift follows that shift occurring between allegory and emblem outlined in this dissertation, namely, Fries is content to meditate in wonder on the world, moving from gesture to image, to word in the inner senses. Gersdorff, however, sees his role as assembling gestures, words, and images in an alternate order to find the enigmatic solution to a problem. Rather than God providing direct access to the world, he created an enigma by which doctors, surgeons, inventors, astronomers, and tradesmen must work to coax the secret from its hiding places.

In addition to Park's focus on the written motto of an emblem as the key to unlocking the meaning or emblematic enigma, one could also focus on the primacy of the image(s) with their own interpretive strategies. Heckescher defines the emblematic relationship of words to images in the Reallexikon zur deutschen Kunstgeschichte as such: “In the emblem one is dealing with the combination of the word of the lemma with the picture of the icon which produces an enigma, the resolution of which is made possible by the epigram.”454 In his reading of Vesalius’ text on anatomy, Melanchthon provides such a trinity by combining the words and images of the text with his own poetic epigram, or moral reading. As we saw in the introduction and chapter one, applied emblematics demonstrates a plethora of strategies used to create and interpret sixteenth-

453 Daston and Park, Wonder 303-305.
century emblematic forms, none of which are exhaustive.⁴⁵⁵ Schöne suggests one begin with the *pictura*, which is then focused by the text to provide access to various signified ideas.⁴⁵⁶ Or, one could begin with theatrical gestures or representations of gestures, which Daly argues is the “most emblematic of all art forms.”⁴⁵⁷

The appearance of the emblematic form from the remains of allegory occurs through a realization that signs do translate across signifying structures and they no longer provide direct access to the signified truth. The expression of this problem of the failure of using words to describe the allegorical body, as well as the solution through an emblematic re-articulation—namely, how images and gestures can help depict an object where words fall silent—can be seen in a quote from Leonardo Da vinci. Da vinci laments the use of spoken words to describe the visual experience of the body, an epistemological problem that will preoccupy anatomy for generations to come. Here Da vinci speaks of the problem of finding the third ventricle of the heart, an imaginary structure not unlike the *rete mirabile* at the center of the brain or the faculties of the soul in the cells of the head:

> With what words, O writer, can you describe the arrangement of that of which the design is here? You persuade yourself that you can satisfy the hearer when you speak of the representation of that which has substance and is surrounded by surfaces. Cumber not yourself with words nor busy yourself in making enter by the ears things, which have to do with the eyes. How can you describe this heart without filling a whole book? And the more detail you write of it the more you will confuse the hearer.⁴⁵⁸

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⁴⁵⁵ On the role of the enigma in emblems (as well as critiques), see Daly *Literature* 57; Schone *Emblematik* 21. Jöns, *Das „Sinnen-Bild“* 28
⁴⁵⁶ Schöne *Emblematik* 40.
⁴⁵⁷ Daly *Literature* 206.
⁴⁵⁸ Da vinci quoted in Charles Singer, *Vesalus on the Human Brain* xxvi. I have not yet been able to find the original quote.
In this quote, we can see the exhaustion of the author in relation to the verbal signifier, which moves ad infinitum towards an unattainable goal. Such a crisis of commentary led to second problem of approaching signifying structures in isolation: signifiers do not remain easily within their signifying structures. Isolating a word from an image and gesture was the extremely difficult work of the previous chapter; the failure of a word to show or to present visually can only be redeemed through another structure, a visual image seen in the mind or with the eye; the failure of an image to tell orally is redeemed through a word, spoken or visualized; the failure of a gesture to extend past the tactile boarders of the skin is redeemed in images and words. The art historian Meike Ball has spent much time undoing the ‘word image opposition’ that has created the disciplinary boundaries of literature and visual and plastic arts. For Bal, images are meaningful because they speak or can be described. Words are meaningful because they show through metaphoric images. She breaks down the very phrase ‘word and image’ as a hierarchy that I have traced in previous chapters, whereby Western culture seeks to move through the body and the image to arrive at the word.

Must a signifier remain within its structure if they are to communicate within their specific abilities? Can words, images, or gestures be redeemed in translation? The spoken word ‘brain’ provided 16th Century doctors and surgeons with images of a ‘circle’ and ‘container’ as well as ‘vertical’ images of God and clouds. The head-figure spoke of the domain of the ‘face’ where the geometry of the head—was it circular, square, triangular, or some other polygon?—provided doctors with access to a patient’s complexion and ultimately their soul. The horizontal alembic on the head image found in

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459 Meike Ball, *Reading Rembrandt: Beyond the Word-Image Opposition* (Amsterdam: Amsterdam University Press, 2006) 27; see also, 25-59 for a longer art historical discussion.
Reisch (Fig. 21) provided the body with a linear syntax to translate the world from singular to universal. One can compare early alembic images of the inner senses to an image in Brunschweig’s *Liber de arte distillandi*, by which cooks, apothecaries, surgeons, and doctors could learn to distill the essence of plants for medicine, syrups and spices as well as make the “water of life,” or turn wine into alcohol spirits (Figure 38).\footnote{Terence Scully, *The Art of Cookery* 161-162.}

Finally, in addition to speech and images, doctors and surgeons could use their own gestures and the gestures of the patient to create a synchronous medical art beneficial to both. If the patient was not dying or deathly ill, the surgeon could perform manual tasks to help restore health. If the treatment failed, the patient’s sins too great, or God simply wanted them dead, powerful rituals committed the corpse to the community and the soul to God. In the case of criminals, the gestures of torture and eventually dissection redeemed and healed the ‘criminal-patient’ as well as the offending town through a highly choreographed social ritual. When the body of the sector and the body of the corpse reached their limits, recording the edges of themselves to the point of obliteration, the remains of the corpse were interred to be forgotten. However, the inscription of the process through anatomical word and image extended both of their lives indefinitely.\footnote{Bruno Latour, “Visualisation and Cognition: Drawing Things Together,” *Knowledge and Society Studies in the Sociology of Culture Past and Present* 6 (1988) 3.}

The power of the emblem and emblematic form occurred precisely through recognition that the signified of a signifier is not the ideal object understood in one’s intellect. Derrida has shown that the signified is not an idea or universal within a divine language accessible only to reason: the signified of the signifier is another signifier.\footnote{Jacques Derrida, *Of Grammatology* 7.}
The signified of the signifier resides within the languages of man and as such, constantly delays meaning, the theatrical, the sign of a sign.\textsuperscript{463} \textit{Plus ultra} of a word as another word is infinite, resulting in endless commentary of the late Middle Ages; \textit{plus ultra} of an image as another image simply cites an amorphous shape; \textit{plus ultra} of a gesture is limited by the body that gestures.\textsuperscript{464} Yet, \textit{plus ultra} of a word as an image halts the signification process until it starts again; \textit{plus ultra} of a gesture as a word or image records the gesture in an external form for later use. The enigma that could be solved by the allegorical thought style—or the enigmatic solution at which one could arrive through the allegorical thought style—turns into a constant play of meaning within an accepted “ensemble of accessories.”\textsuperscript{465} Such an ensemble described by Barthes and Derrida, was the emblem in the 16\textsuperscript{th} Century.\textsuperscript{466}

The use of an emblematic form to present an enigma had another function, namely, multiple signifying structures created a new audience to which information became available and meaningful. Latin had been the language of the clergy and the university education since the fourth century.\textsuperscript{467} By translating a hidden Latin tradition into the vernacular, as well as the use of images, Gersdorff and Fries created a way for the “enigma” to be solved or at least played with by an increased number of people. It also created the problem to know or define the possible meaning that could be gained

\textsuperscript{463} Fischer-Lichte, \textit{Semiotics} 149-151.
\textsuperscript{464} \textit{Nec (non) plus ultra} or “nothing further beyond” was a motto for the Pillars of Hercules at Gibraltar, serving as a warning to sailors not to transgress the physical boarder. \textit{Plus ultra} or “still further” was the motto adopted by Charles V to symbolize his control over all of Europe and to break ties with ancient past. Francis Bacon’s emblematic title page to \textit{Instauratio Magna} (Great Instauration, 1620) carried a combination of both mottos. See Steven Shapin, \textit{The Scientific Revolution} (Chicago: University of Chicago Press, 1996) 20.
\textsuperscript{465} Derrida, \textit{Of Grammatology} 153.
\textsuperscript{466} See Barthes, \textit{The Fashion System} 7 28-38.
through the author’s emblematic combination of words, images, and the gestures as read by the reader. Since emblems are open for a reader’s free association, one does not have to be literate (at least in the verbal language printed with the emblem) to gain some sort of meaning from the image. Russell argues that the reader developed an ability to think critically because of the necessity to separate the words and images as well think with their combination.468

Of the three estates in the Middle Ages—Peasants, Clergy, Nobles—the peasants were the ‘common men’ with very diverse commonalities.469 These estates, more a way of life than an economic status, were established by God and unquestionable.470 Such a leveling term finds the ‘meaningful’ as that which relates to everyone, or at least to he who controls what everyone believes. Yet that ‘every man’ was not so clear in the early 16th Century since there were many types of the ‘every man.’ With the rise of guilds and skilled labor in the 13-14th Century, a middle class began to show contours but still no definition. A person of the lower estate, prior to the end of the 15th Century, was a ‘nobody’ or ‘niemand,’ a physical entity defined by their non-existence. If one takes the term literally, the ‘no body’ was a person whose absence of a physical body became the sacrificial victim for the collective body. A popular fugitive sheet from the end of the 15th Century reads, “I am called nobody, but what everyone does, I am blamed for it.”471 In this context, the gemein man becomes the common man or the ‘collective man.’ He is both ‘no one’ and the ‘poor man’ who Fries calls the ‘der arme Man.’ In writing his book

468 Russell, Emblematic 7.
469 Huizinga, The Waning 46-47.
471 Gerta Calmann, “The Picture of Nobody,” “Niemand hiess ich, was jederman tut, zucht man mich.” Calmann argues there is no connection between this fugitive sheet and the Odyssey reference.
for *der arme Man*, Fries was paradoxically writing for no one (niemand) and everyone, a collective body in pain because of his non-existent existence.\(^{472}\) In *Spiegel der Artzney* and *Feldbuch der Wundartzney*, the presentation of words and images allow these ‘no bodies’ to acquire common bodies.

When Fries, Gersdorff and other doctors and surgeons translated academic knowledge into the vernacular language, they were redefining the definition of the term ‘gemein’ as that which ‘all men have in common,’ or their bodies.\(^{473}\) The ‘gemeine mensch’ and the ‘der arme Mensch’ become equivalent in both senses of the term ‘meaning’ as one who belonged to the category of the ‘common man’ which in medical terms is someone who has a body. Fries and Gersdorff, as members of a growing educated middle class, the rise of universities, trades guilds, privately tutored young men who bridged the gap between the ‘common peasant’ and the ‘noble’ or well off. Brady has shown the class distance among these groups to be as great as the estate difference and more intricate than history has led one to believe.\(^{474}\)

Of the differences between estates or classes, the great leveler of this ‘common man’ was death, the popular trope in poetry and literature. The poem below the fugitive sheet of the skeleton in Gersdorff’s text attests (Fig. 39),

> How high were you, God’s creation  
> Yet you are in suffering, thrown in excrement  
> Fleshly urges you suffer great,  
> Fleeting as the snow in heat  
> No lasting thing does remain  
> Riches, beauty, power you hold in vain  
> Nothing can halt the traveler’s path  
> From this life to the day of death.

\(^{472}\) Fries, *Spiegel* 8\(^{v}\).
\(^{473}\) “Gemein,” *Deutsches Wörterbuch von Jacob Grimm und Wilhelm Grimm*. Bd. 5, Bd. 5, 3170-3242
\(^{474}\) Brady, *Ruling Class* 30.
Where as the image of a skeleton presents osteological articulation, the poem provides a reading of the image as a *memento mori*. The reader, who was to combine both image and interpretive text, becomes the active assembler of practical, moral, and intellectual domains of meaning. Yet, how does one resolve the meaning in this image where the words present an invisible moral lesson in conflict with the visible meaning of the image? In such a case, where the words and images appear to contradict, we will use emblem theory to bring the disparate signification systems together to solve the “enigma.” The complete poem reads,

1  I am Death, gruesome monstrosity  
   And yet life resides in me  
   When I, alive carry flesh and arteries  
   Contain all members without complaint

5  Isolated I stand here before you  
   Robbed of blood/flesh/skin/ and listen still  
   The entire world puts a foot on me.  
   O man, observe what will become of you.

   How high were you, God’s creation

10 Yet you are in suffering, thrown in excrement  
   Fleshly urges you suffer great,  
   Fleeting as the snow in heat  
   No lasting thing does remain  
   Riches, beauty, power you hold in vain

15 Nothing can halt the traveler’s path  
   From this life to the day of death.

   There you and I were young, pretty, strong  
   Precious, rich, lay here without blemish  
   Yet without life, the worms eat you

20 Know yourself man without omission  
   Believe me, frightful I am alright  
   But bring a truthful warning before you.  
   Honor God, take watch, who destroys the world  
   Your soul is eternal/your body wastes.475

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475 Translations of two fugitive sheets (Fig. 2 & 38) are my own.
Rather than move from the physical gestures of dissecting, touching, or using one’s external senses, to looking at an image, to finally understanding the words, the emblematic presentation creates a new order for perception by which one moves from image, to word to gesture in a multitude of combinations until one discovers the enigmatic idea. One moves from the articulation of the skeleton, noticing each bone with their names, to “I am Death” and “There you were young, pretty, and strong” and then back to the image that “isolated stands before you.” Eventually one should, in addition to learning the names of the bones, understand the truth and “Honor God, take watch, who destroys the world, Your soul is eternal/ your body wastes.”

It is in this sense that we will approach the fugitive sheet that presents the head and brain created by Hans Wächtlin, which were printed by Johann Schott, accompanied by a poetic text from Hans von Gersdorff’s *Feldbuch der Wundartzney* as well as included by Johann Grünninger in Lorenz Fries’ *Spiegel der Artzney*. Such a collection of signifying structures, through the medium of the vernacular fugitive sheet, surgical and medical texts, effectively guaranteed the broad dissemination of the ‘common body’ and brain in the early 16th Century.

**5.3. The Brain As Emblem**

In this section, I will outline the use of brain images between Hieronymous Brunschweig, the predecessor to Hans von Gersdorff in the Strassburg surgical school, and subsequent copies of brain images found in Johann Dryander, Walther Hermann Ryff, Charles Estienne, and Andreas Vesalius. We will follow the transition from the ‘alembic’ of Gregor Reisch’s *Margarita Philosophica* to Andreas Vesalius’ brain images
in order to show an alternate history of the brain that ended not with anatomy, but with anatomy used in service of Protestant theology that used the arts of dialectic and rhetoric to present a new yet traditionally organized body through images, words, and gestures. Such images, spoken and written speech, and theatrical gestures use rhetorical strategies to communicate something. However, what that something is can be uncovered easily in some cases and only through meticulous effort in others. The following pages will attempt to uncover possible strategies behind the presentation and reception of anatomical fugitive sheet attached to Gersdorff’s Feldtbuch der Wundartzney. The rhetorical strategy of these images will then be used to understand the fugitive sheet images used to accompany the brain hidden in Philip Melanchthon’s Liber de anima.

Hieronymous Brunschweig provides us with a brief glimpse of the future of surgery and the epistemology that moves between word, image and gesture that we can follow in Gersdorff and subsequent reprints of the images of the body and brain that was later borrowed by subsequent surgeons and anatomists. It is here that the emblematic thought style, whereby objects are isolated by word, image, and gesture and then reunited into a discursive network of meaning creation. Only a few years before Fries and Gersdorff published their own medical and surgical texts, Hieronymous Brunschweig wrote his Book of Surgery, published first in 1497 and reprinted in 1514, from which images and anatomical descriptions were included in Fries’ and Gersdorff’s text. Johann Grünninger, printer of Fries’ Mirror of Medicine, also published Hieronymous Brunschweig’s Book of Surgery. As we have seen, plagiarism was standard practice in the early days of printing, even valued since truth rather than improvement was the goal. In Brunschweig’s Book of Surgery, one can see the convergence of what Katherine Park
has deemed Northern and Southern European trends in dissection in late medieval Europe. Brunschweig suggests two reasons to dissect body: first, ‘in order to preserve the bones,’ which was a long standing Northern European practice encompassing burial rights as well as body transportation when one dies away from home. Second, one dissects in order to ‘know the body,’ which was associated with Southern European academic medicine.476 In this quote, one can also witness the rapid shift in attitudes to dissection that occurred in the early 16th Century.

In the first section on anatomy of the body, like Da vinci, Brunschweig presents the failure of words to describe the body. There is a point in the process of division where the habit of thought no longer allows one to proceed, or to proceed is to traverse a long established thought style:

In my opinion, anatomy (which is necessary for every surgeon) can be divided in two paths: the first is to divide the body into common parts of members, skin, flesh, arteries, and bones to the smallest words until frustration (verdruss) no longer allows one to continue.477

Before the 16th Century, words would not have failed to describe the body because the body’s contours were ideal and fix as the microcosm of the macrocosm. One would describe the common parts and then the parts specific to each of the three main members of nutritive, sensitive, and animal souls. In this instance, however, words fail to describe the smallest parts that dissection makes available; doctors and surgeons are faced with an epistemological divide, what I have called the shift from an allegorical to an emblematic epistemology. This divide is centered on the medical and surgical use and purposes of anatomy. In this quote, anatomy is a method that encompasses grammatical,

476 Park The Life of the Corpse 111-120.
477 Brunschweig, Von der anathomi 1v. “Mein meinung ist da die anathomi Welch not ist eim ieden cirurgicus zu teilen in zwen weg. Der ein weg ist einer in einer gemein von de glider/hut/fleisch/adern/ und das gebein mit kurtzen worte/uff dz der verdrüß vermitte bleib.”
logical, conceptual and physical divisions, not just those gestures that divide with a knife. A body defined by allegory is divided logically with words into conceptual units around a common locus or the *lo锡 communes* of medieval grammar exercises.\(^{478}\) We saw such common topics in Fries’ memory system organized around the Strassburg cathedral.\(^{479}\)

In dissection and visual representation, a knife and image divided the body along the same conceptual borders. Each, the word, image, and gesture of cutting, all demonstrate the ideal proportions of the body.

However, physically cutting the body can divide it [the body] beyond the division of words, or concepts available to the dissector. This ability to go *still further*, namely to infinitely divide the body, creates a problem that goes beyond the traditional performance of a cursory dissection taught in Galen, Mondino, and Chauliac. Here, Brunschweig offers a solution: move from words and conceptual division to divisions made by personal experience:

> The second (type of anatomy) is to provide a specific description of members through seeing and experiencing. This happens in at least two ways: the first is through my short descriptions (kurtz geschriift). The second is through an image (figur), which one can see in the previous image of the skeleton or articulation of the bones (geschicklichkeit der bein).\(^{480}\)

In this passage, Brunschweig moves from historical descriptions of the ideal body to personal witness of seeing and experiencing. There is no evidence that Brunschweig attended a dissection; we also know that he died several years before the event in 1517.

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\(^{479}\) Jean Michel Massing, “Laurent Fries.”

\(^{480}\) Brunschweig, *Von der anathomi* 1v. “Der ander vo eim iedien glid in besunderheit als de not ist die anathomi zu besehe und erfare/ mag geschehe zu minst in zwei weg. Der ein durch mein kurtz geschriift. Der ander durch die figur dar i du siehest geschicklichkeit der bein.”
Strassburg. Like the contrafact image in Gersdorff’s Fieldbook, true and trustworthy experience can happen through an oral testimony, a written text, and now, images. Images placed before the eyes offer what one cannot understand in the rational faculty nor see in an actual corpse dissected before the sector, namely, a visual experience of the smallest divisions of the body. Yet, images fail since they can only present a spatial unit in single moment of time, often as an ‘artificial’ rather than a ‘natural’ divide.

Brunschweig uses this passage to specifically describe a skeleton image, which is the model for the image of the skeleton included in Gersdorff’s text (Fig. 40). The image of the skeleton Brunschweig mentions is of a single, idealized moment; it shows the center of the body—the core, Death—after all the material has been removed. Though it is a representation of an object extended in space, a precursor to the numbered images of dissection found in Gersdorff and Fries that are extended also in time—the image fails at showing the extended duration of the procedure of removing the “members, skin, flesh, arteries, and bones.” His image only shows the last step, the skeleton.

Brunschweig laments that images are extended only in space, where as words are extended in time. In order to overcome the failure of the image, Brunschweig offers a third solution:

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482 Hans Wächtlin, the artist who drew the brain images included in both von Gersdorff and Fries’ texts, attempts to bridge this time/space gap through a series of six brain images during the stages of dissection, foreshading modern ‘moving images’. In 1538, fugitive sheet ‘flap anatomies’ based of this technique found in von Gersdorff’s text also attempt to unify image, word, and gesture by laying several layers of body organ images on top of each other so a reader can see, read, and touch in their own private virtual dissection by lifting paper representations of various organs. See the recent dissertation, Susan Kathleen Karr Schmidt, Art-A User’s Guide: Interactive and Sculptural Printmaking in the Renaissance (Dissertation: ProQuest, 2006). Carlino Paper Bodies, 1999
But since the skin, flesh and arteries are not revealed to the eyes in a figure, one will see that figure through the written description (geschichte) of the dead body and through cutting, boiling, or dissolving in calk.\textsuperscript{483}

He shows that a single image of a skeleton cannot reveal to the eyes what has already passed, namely, the body. Tradition would have the bones boiled and washed in acid in order to remove any remaining flesh for burial.\textsuperscript{484} In order to make the body reappear, one will ‘see the figure’ through two techniques: written description—a figure visualized by its history read aloud in one’s imaginative faculty—and through cutting, boiling, or dissolving in calk. Since the dissection has occurred by which the image of the skeleton in Brunschweig’s book was made, this ‘cutting’ can only mean future dissections. We see then an important shift from previous dissection strategies outlined in the previous chapter. The dissections of Mondino and Guy de Chauliac were meant to demonstrate the ideal, timeless body. For Brunschweig, the gestures of dissection become a way to show a series of single moments of time in sequential order. Rather than the ideal body immortalized by symbols in memory, Brunschweig presents a method whereby fragments can be immortalized in gesture, word and an image outside the body.

Though Brunschweig does not follow his own method—he leaves his own images relatively bare of written descriptions—he provides a method by which future surgeons and doctors will approach the body. Rather than a public dissection being defined by its performativity and theatricality of ancient authors and ideal bodies—or merely a change in its performative and theatrical purpose has occurred—a dissection now becomes an inscription process where words, images, and gestures constantly attempt make up for, to

\textsuperscript{483} Brunschweig, \textit{Von der anathomi} I\textsuperscript{v}. Aber die hut/fleisch un geeder nit geoffenbart werde mag durch die figur wurt besehen durch die geschte die toten corper durch schneidung oder sieden oder beissen in ungeleschemt kalck, etc.

\textsuperscript{484} Park, \textit{The Life of the Corpse} 12.
supplement the lack of the others.\textsuperscript{485} Latour goes beyond Edgerton to show that the power of linear perspective in the 15\textsuperscript{th} and 16\textsuperscript{th} Century is more than the code by which vision is stabilized, it is “interesting because it creates complete hybrids.”\textsuperscript{486} These hybrids or \textit{immutable mobiles} have long been called emblems, where by the fantastical and the ordinary, the mundane and the exciting a placed together in image and word to be reactivated by each reader who engages the diverse inscriptions.

The power of the emblem and the emblematic thought style can be found in that the movement between words, images, and gestures—in order to make up for their lack of signifying power—creates entirely new signified objects such as the brain as a collection of parts in the early 16\textsuperscript{th} Century. Where as words have difficulty showing something extended in space but excels in extending signs in time, an image struggles to show something extended in time but can expand single moments in space. The gesture, part of an embodied extension of the perceptual apparatus, unites the image and the word with the guiding movements of the knife. The movement between them is the creation of isolated objects rather than the endless \textit{historia} of medieval commentators, the allegorical images of medieval artists, and cutting of bodies ad infinitum through torture, purification, protection and redemption of the body only in parts.\textsuperscript{487}

The shift from allegory to emblem is defined by artificial starting and stopping, jerks in thought,\textsuperscript{488} creating a style or fashion of signification where repetitive movement across signifying structures do so to their point of failure. Where bodily gestures fail— namely, they lacked abstraction and transportability— the word and image extend their


\textsuperscript{486} Latour, “Visualization and Cognition” 8.

\textsuperscript{487} Düleman, \textit{Theatre of Horror} 58-132.

\textsuperscript{488} Kittler describes the ‘stops, jerks, and ruptures’ of thought that move between contemporary structures. See \textit{Gramophone}, 14.
signifying power. Where images fail—they represent space, simultaneously everything and nothing—the gesture and the word give contour. And finally, where words fail (spoken, graphic, and typographic)—they are linear, creating amorphous connections without sensible assurance—the image and the gesture give figure. At the end of this process one has a structure in which, to a popular motto of the 16th Century Holy Roman Empire, *Tanto monta, monta tanto.*

5.4. Hans von Gersdorff and the Deadman Fugitive Sheet

In order to see the emblematic presentation of the brain image included in Gersdorff’s text, let us briefly compare the poem and 19th Century medical historian Ludwig Choulant descriptions of the “deadman fugitive sheet image” (Fig. 2). Such a comparisons shows the disparity in thought styles from the 16th to the 19th Century. The completed poem attached to the fugitive sheet describes the fugitive sheet image in 1517 from Gersdorff’s *Feldbuch der Wundartzney* (Fig. 2):

1 I am a mirror skilled doctor/
   Opened without any pain
   Use for truth to proctor
   Of man’s inner parts’ domain.

5 From these with letting/purging/potion/
   Syrups-confection-pills to gulp/
   More in wound-medicine solutions/
   In plasters/salves/herbs/stitches/expulsions.
   Do not neglect your self in illness.

10 Materials clearly many/
   Learn the location, art, nature
   Match each body limb/ like my figure
   I testify to you the truth/
   Hans Wächtlin’s privilege is the image here:

15 A personal witness artistic and true

489 “Each as important as the other,” referring to Isabelle and Ferdinand of Spain. See Barbara F. Weissberger, ed. *Queen Isabel I of Castile: Power, Patronage, Persona.* (Woodbridge, UK: Tamesis, 2008) 12.
Tells how one divides the skull in two.

And saw through the roundest section/
Through two skins and you’re almost on it
Therein find the brain deposit.

Its cell and holy marrow station
Common sense/imagination
In the front part does lower.
In the center the thoughtful power
Memory would be housed in the rear.

The mind has wonderful ways/
Many arteries through which to jostle/
From the roots of the porcelain womb. [rete mirable]
Therein does the brain stem dwell
And leave from the back most cell

The spine/there also has its source.
The tongue/the seventh numbered figure/
Falls on both air and feeding tubes

Has a mouth hole/ and also lips around/
Its workings wonderful/ and learned/

How to make good/evil go up/down.
Lungs/heart/with breastbone from the tomb
All secured by the diaphragm.
Stomach/liver/spleen/gall and even more
Two kidneys same on either side

That the action of the bladder reunites/
The measure orders all within/
That neither one nor the other alone can win/
But give together life/help/and proper effect
As clearly shown by Guido/ [Guy de Chauliac]

It’s been Germanized freely in this Field book/
Thanks must be given, be to him who it be.
Printed in Strasburg
By Johann Schott

If we compare this poetic description with that of Choulant from 1852, we have an
entirely different mode of engaging an image. Certain codes such rhyme, rhythm, and
meter are omitted. Vocabulary has changed: the porcelain womb or rete mirable as well
as the organs of the soul (common sense, imagination, reason, and memory) are omitted.
Latin terms have been added that would not have been available to the 16th Century. I include the entire quote to be sure to understand the difference in thought style:

A plate from Laurentius Phrysen: *Spiegel der Arzney*, 1518. It represents the anatomy of the Middle Ages, as it originated with Mundinus, in respect of the viscera of the three cavities. In the abdominal cavity, immediately below the diaphragm, the five-lobed liver, an old Galenic error based on zöotomy, which Mundinus somewhat mitigates by saying: “though its five lobes are not always separate from one another in the case of man.” Below it the round stomach, on one side of it the spleen, below it the kidneys with a blood vessel entering from above: below them the ureters leading into the bladder. Behind it the aorta and the inferior vena cava with its branches. The intestines are taken out and placed alongside the abdominal cavity. In the thoracic cavity the heart lies in the median line of the body, with its apex pointing to the left. In accordance with the concept of these times, the heart is represented as entirely surrounded by the left lung, just as Mundinus says: “see the lungs in the midst of which the heart lies, veiled by pulmonary lobes.” Above, the trachea is shown coming from the lungs, with the oesophagus in back of it. The brain is represented in six separate figures. The first figure only crudely suggests the cerebral convolutions and the separation of the two hemispheres of the cerebrum. The second is supposed to represent the large middle “brain cell” partitioned by a part which Mundinus calls *Vermis*. In the figure, this part is shown lifted out by means of a peg. The represented parts are what we now understand to be lateral ventricles, which were then thought to be joined, and the corpus callosum. The peg in the back leads into an alleged posterior brain cell or probably what we now understand to be the fourth ventricle. A similar representation is shown in the third figure, the middle ventricle without the corpus callosum. At the forward end can be seen the right optic nerve and the attachment of the dura mater to the crista as the beginning of the falx cerebri. The fourth figure shows the optic nerves with their decussation, and, at the back, the upper opening of the posterior “brain cell.” The fifth figure shows the decussation of the optic nerves, cut off in back and in front, also the inner base of the skull lined with the dura mater, and, at the back, the tentorioum cerebri open in the center. The sixth figure shows the cerebrum turned back, at the front of the chiasm of the optic nerves sectioned from the rear; behind it three pairs of nerves originate. The seventh figure shows the tongue with the upper opening of the trachea and behind it, the oesophagus. On the whole, a much better executed illustration than that of Magnus Hundt.490

490 Choulant, *History and Bibliography* 415.
We see here an almost impossible gulf in thought styles, whereby we would be apt to believe Fleck that no communication is possible between them.\textsuperscript{491} Whereas Gersdorff honors his predecessors (Guy de Chauliac) because of his proximity to the original source (he wrote two hundred years before Gersdorff), Choulant degrades these images for the very same reason. The older the image the less relevant it is because of its detachment from any type of personal witness. Where as poetry helped in memorization and was used often in medical texts in the 16\textsuperscript{th} Century, Choulant omits the poems as excessive and distracting. Where as the author of the Feldtbuch describes not only the image, but asks the reader to put themselves in the place of the dissected body—\textit{I am a mirror skilled doctor}—Choulant describes only that which one can see on the page, assuming the reader will trust the veracity of his statements since the reader can see for her or himself. He gains trust from the reader by going so far as to denigrate verbal descriptions of the non-visible, which a proper doctor or historian would not accept.

Also noticeable are the metaphors that transition the reader from one organ or idea to the next. Choulant pays special attention to spatial descriptions—above, below, behind, left, right—that are absent in the poem. The numbers are clearly more important to Choulant—(1-6), and then (7) for the tongue—each guiding his reading of the dissected head. The fugitive sheet poem only mentions the number seven (7), which adorns the tongue. In the poem, the movement from brain image to brain image (or head image to head image) occurs through the gestures of dissection, emphasizing the terms “divide” “saw” and “through.”

Yet, clearly movement between thought styles is possible. Fleck admits that, in any thought style, a form of casuistry in the formulation of a problem already contains

\textsuperscript{491} Ludwig Fleck, \textit{Genesis} 99.
half the solution.\footnote{Ludwig Fleck, \textit{Genesis} 23.} As such, when we look at the formulation of the problem of the brain in Fries and Gersdorff, it deals specifically with the inner senses. As the anatomists like Vesalius skipped the Middle Ages to return to the source, we too must learn from Vesalius and move beyond the truth assumptions from the 19\textsuperscript{th} Century that have mediated Gersdorff and Fries for the last Century. By following the thought style of the inner senses, a practice I have attempted throughout this dissertation, we can see an allegorical pattern of organizing signs that was valid through the end of the 15\textsuperscript{th} Century and an emblematic pattern that was valid (generally) after the 16\textsuperscript{th} Century.

Emblems, like these fugitive sheets, were unruly medleys that needed to be disciplined. Whichever interpretive model one chooses to approach the emblematic body image, doctors, surgeons and patients in the sixteenth century believed that there was a \textit{locus} that brought together the fragmented parts. Without the ability to organize the parts based on a particular idea, the body would be chaotic. As Hillman and Mazzio have shown, the failure to discipline all the parts around a single idea created personal and social anarchy where a single part ruled the whole.\footnote{Hillman & Mazzio, \textit{The Body in Parts} xi-xxix.}

To understand the logic of an emblematic presentation of a fugitive sheet, in addition to an analysis of the general trends of fugitive sheet production, one should attend more closely to the connection between the image, text, the knowledge of the body presented, as well as their practical use. Through a "close reading" or "thick description" of inscriptions, the representations of body and organs, poetic inscription, and the surgical settings in which fugitive sheet images were used, we will see that an organ's anatomical location and physiological function are only of secondary importance to its
teleological significance.\textsuperscript{494}  

In the first line of the poem, one experiences a tension between the lively rhythm and rhyme of the poetic description and the stillness of the representation of the dead body. The first stanza utilizes the first person pronoun to state, “I am a mirror” engaging the barber, surgeon, doctor, or pleasure-reader in a dialogue concerning his or her own internal physiology. The rhymed verse allows one to visibly skip a line to relate ‘surgeon/doctor’ with ‘proctor,’ apparently attempting to show that the use of image, and vicariously a dissected body, can be a way to teach the truth about the body and its hidden parts. The grotesque and hidden parts of the body are brought to the surface through dissection, and the image functions as mirror by ridding the unnecessary, showing not a reflection of the skin, or the superficial, externally visible parts, but the hidden parts, or that which can be known only through dissection.

By returning to the skipped line “opened without any pain,” the poem speaks to the doctor or surgeon’s fear of dissection, a fear for the location of the soul of the deceased and his (doctor or surgeon’s) proximity to the cadaver. That fear should be assuaged by the image, which was “opened without any pain.” As an image, this statement is true. As a representation of a dissected body, however, the pain and suffering of the corpse was for the good of the community.\textsuperscript{495} The once living body has been transformed into a corpse to be used for the doctor to learn the truth of the domains of the inner parts:

\begin{verbatim}
I am a mirror skilled doctor/
Opened without any pain
Use for truth to proctor
\end{verbatim}


\textsuperscript{495} Düleman, \textit{Theatre of Horror} 106
Of man’s inner parts’ domain.

If this poem is read aloud, another tension arises as to who is speaking, the surgeon/doctor or the corpse? The strategy of the “I” allows the surgeon/doctor to himself take the place of the corpse, performing a Vanitas motif popular in the 16th Century. Such a rhetorical strategy, the use of an image and small poem, was possibly also more effective as an auto-didactic text than Fries’ master/student dialogue. Since the mirror reflects not the visual, but the “true” nature of things, the accuracy of the image is only secondary to the moral imperative conveyed by the remainder of the verse, which describes the three instruments of medicine: regiments, pharmacology, and surgery.

Once the balance of parts is known, what we later learn is the body’s proper “measure.” Imbalance of this measure of elements, humors or complexions can be remedied through expulsions, regiments, bloodletting, or orally through purging, potions, syrups, pills and other artificial means. If these do not work, one can move to the final instrument of medicine, namely, surgery, or ‘wound-medicine solutions.’ The manual gestures of the surgeon are a last resort to rebalancing the microcosm (human body) that had become out of sync with the macrocosm (nature). All of these artificial means are created to help anyone who is ill. Neglecting the arts of medicine and surgery would be unethical at best, blasphemous at worst.

The well-trained surgeon has a wealth of knowledge at his disposal, whereby “materials clearly many” speaks to the education and training necessary for a successful surgeon. This directs one’s attention to the importance of the Fieldbook of Surgery as the source for knowledge. The inner relationships of visceral organs, the visible balance of their gross structures reflect the invisible fluid humors, that, when the stability between
the visible and invisible is undone, can be remedied by the art of medicine that can rebalance the imbalanced. By learning the “location, art, and nature” of each body organ, the doctor/surgeon can rebalance the natural disposition of organs that have come into disarray.

Until this point, very little if any reference to the image has been made. Other than the word “letting”—which could lead the reader to see veins in the corpse’s right arm displayed for bloodletting—one can assume that the poem has been describing the surgeon’s role of helping a living patient as well as the surgeon’s role in learning his own medicine. Other fugitive sheets of the period were used as bloodletting manikins to describe where on the body would be best to ‘let the blood.’ Other images such as Dryander’s ‘Letting man,’ place an enlarged vein in the forehead, the neck, thigh, calf, or foot, similarly positioned as a metonym for the complete procedure of phlebotomy (Fig. 41).

In line 10, however, the poem takes a sudden turn. The education of the surgeon is to be done through this representation by moving between word and image, “match each body limb/ like my figure” so as to memorize the entire anatomy of the body. The vital organs of the cadaver are labeled with a line pointing from the name to the organ, which suggests the reader move from the poem to the image for the first time. Listed from bottom to top, moving left to right (Fig. 2): Die Blosz (Bladder), die gall (Gall bladder), Die nieren zu beide siten (Kidneys on both sides), das milz (spleen), der Mag (Stomach), die Leber (Liver), das hertz (heart), die lufft ror (the air tube), die speiß ror (feeding tube). We can see the other half of the image as well—namely, the dissected images of the head—but that will appear shortly.
After one has read the image for the members and returned to the poem, one can read a short statement of authorship that supports the image’s truth content. The truth content, in emblematic terms, is an image’s potential facticity, or its believability within a certain epistemological group. 496 The “I” has now accumulated another character, whereby the corpse/surgeon/doctor takes an oath that this image (contrafact) is the truth and was authored by Hans Wächtl, ”I testify to you the truth/Hans Wächtl’s privilege is the image here: A personal witness artistic and true.“ This declaration implies that the image was created before the poem, making the poem an interpretation of the image. The image and the poem become a testament to the truthfulness of all that is stated, visually and verbally.

If the poem was made to describe the image, one assumes the image was made to describe the dissected body. The dissected body, as we learned, gained its division from the oral speech of Dr. Wendlin Hock of Brackenau, who provide the oral narrative to the dissection. This circularity provides us with the beginning of an emblematic reading of the dissection event that occurred in 1517 Strassburg and was subsequently recorded in image and word. The woodcut image describes the dissection, the poem provides an interpretation of the image, and the gestures of dissection describe the oration of the doctor who is reading from a previous text. In describing each other (words describe gestures, images describe words, and gestures describe text, etc), the emblematic meaning explodes from the inscription process in a way that is not sensible in image, text, or gestures. Since we have yet to complete the poem, the meaning is as of yet vague.

If we return to the poem, the last two sentences of the first stanza provide a dual transition. First, they move visually from the first to the second stanza. This visual

496 Schöne Emblematic 14-15.
movement becomes a description of how to use dissection to access the inner senses as well as a transition from the image of the body to the series of images of the dissected head: “A personal witness artistic and true/Tells how one divides the skull in two.” The transition is an important part of reading an emblematic image: the vowel sound “oo” becomes an aural metaphor to connect two distinct ideas, the personal witness of the image and the dissection of the head into its divided members.

As of yet, however, the head remains whole and part of the dissected cadaver. The number (1) above the first dissected head is misleading in that the ‘original’ head is still part of the body. We can know this from Gersdorff’s description of the dissection, in which he states that a ‘criminal was hanged.’ Such a form of execution was reserved for the criminal lower class, where decapitation by sword was a more noble way to die.497 One can assume that the decapitation of the body occurred during the course of the dissection, at which time the subsequent images were drawn and the woodcuts cut.

Nevertheless, such a practice was not necessary in representing a dissected body through image. Charles Estienne provides images of dissection of the head where the entire body is still present (Figs. 42-49). In Estienne’s anatomical atlases, however, the image of the dissected head is manually inserted into an image.498 The predominant scene is that of a landscape or a study and the body is often in a reposed and sexualized position. Singer’s and Clark and Dewhurst’s collections of brain images enlarge the head to point of omitting the body, which was not the purpose of such a representation. By inserting an anatomy image into a popular representation, the goal would have been more to stimulate

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497 Dülman, Theater 97.
the reader than to teach. Alternatively, the emblematic quality of presenting more than one structure simultaneously that creates an enigma, if pleasurable one, for the reader to solve as well as focus their gaze. The head could not yet be understood as isolated from the body, yet alone the brain from the head.

Estienne did not only use brains to convey the pleasure of engaging images in books. In addition, in his *La dissection des parties du corps humain diuisee en trios liures*, in describing the female reproductive organs Estienne emphasizes the clitoris, which had been at the center of many academic medical debates (Fig. 50). This “new” or “re-newed” organ became the center of his gynecological studies on the necessity of a female orgasm during reproduction, as well as the loquacious meanderings of male doctors. Estienne also called this organ the “little tongue” or *languette*.500 As a vernacular educational text specifically addressed to medical students, the images bring together text, image, and touching, as well as a little tongue, pleasure and knowledge, unifying the body, soul, and the urges of the privy parts around what had previously been considered an ornamental detail.501

If we return to Gersdorff’s fugitive sheet image, the second stanza of the poem in Gersdorff’s text mentions the brain images to describe the process of sawing the crown of the head, the value of the ventricles, the (former) spiritual contents of each, and the tongue where language resides. In this stanza the reader is told how to dissect the head, a procedure that we witnessed would become standard practice for anatomists throughout

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500 Park, “The Rediscovery” 176.
the 16th Century, utilized by Johann Dryander, Walther Hermann Ryff, and Andreas Vesalius in particular:

And saw through the roundest section/
Through two skins and you’re almost on it
Therein find the brain deposit.
Its cell and holy marrow station
Common sense/imagination
In the front part does lower.
In the center the thoughtful power
Memory would be housed in the rear.
The mind has wonderful ways/
Many arteries through which to jostle/
From the roots of the porcelain womb.

The visible absence of the inner senses this poem describes becomes visibly noticeable: we see the emblematic power of words that provide presence of absence described in previous chapters. How does one see “common sense/imagination” in the front? By what method does one witness “in the center the thoughtful power” or memory “that would be housed in the rear?” If one looks closely at the images, beginning with (1) and moving to (6), no anatomical demarcation of the ventricles is visible. A lacuna takes the place at the center of the head. Choulant reminds us of what we do see in the image, “The second [image] is supposed to represent the large middle “brain cell” partitioned by a part which Mondino calls Vermis. In the figure, this part is shown lifted out by means of a peg.” For Choulant, verbal references must have a visual equivalent (at least potentially). The opposite is also true: a visual fragment must have a verbal equivalent (or it should be removed). Since the poem mentioned the inner senses, and the image provided an anatomical structure, the represented anatomical structure in the image must correspond to the word, providing a feedback loop between signifiers, never actually
reaching a signified. When the “hard body” or corpus callosum is lifted (rather than the vermis), one sees only paper without a designating trace of the inner senses.

Between the poetic description of the inner senses and Choulant’s description of the image, however, we can notice the difference in representational abilities of images and words. In reading the poem, one really can see the “common sense” “imagination” and “reason” and “memory,” if not with one’s eyes, than visualized in one’s imaginative faculty. In words, the mind really can be seen as it “jostles through arteries from the roots of the porcelain womb.” However, when the anatomists Da Carpi and Vesalius attempted to verify the *rete mirabile* in a body, rather than assume its logical existence, it disappeared as a structure that could not be visualized in an image on paper. After first including it in his *Tabulae Sex*, Vesalius omitted it from his *Fabrica*. We will see that such an omission became an important step in the history of the brain.

If we return to the end of the second stanza, one has experienced the inner senses—both in performance and in words. The poem then suggests one exit with the animal spirits to the rest of the body, beginning at the border between the head and the lower two chambers: the neck. Since antiquity, the neck has long been equated with a “gateway” to the head, the confluence of air and feeding tubes, the spine, as well as “the tongue, the seventh numbered figure.” Like the diaphragm stood as the metonymic divide between vegetative and sensitive soul, the tongue was the member that divided the rational and the sensitive souls, as well as the interior and exterior world.502 The dominance of the tongue in this image acquires double emphases with the divine number seven. However, as the organ that is the site of language, we can see that its

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predominance on the page is not overemphasized, “The tongue/the seventh numbered figure/Falls on both air and feeding tubes.”

In his *Feldtbuch der Wundartzney*, Gersdorff’s translates the Greek and Latin “language” into the German *zunge* or tongue. 503 He also writes that a young surgeon must pay close attention to the tongue, which is anatomically situated in the mouth with lips around, and has the potential to cause “good and evil to go up and down.” Here, the physicality and performativity of speech is palpable: when one reads the poem aloud, one does not have the chance to use the tongue for evil because a good surgeon “never lies, but always tells the patient the truth.” 504 Even disembodied on the page, the moral authority of the visible organ possesses the power of the creation of good and evil like the first word spoken in the Garden of Eden. In order to mediate the power of these spoken words, Gersdorff and Fries dedicate their text to the pure Saint Maria and all Christian people. In several places throughout his *Feldtbuch*, Gersdorff asks for forgiveness if his tongue slips and he does not speak like a poet. Since the poets wander in their eloquent speech, he wants simple speech to show the sure way.

If we continue to explore the power of the spoken word in relation to the image of the tongue, we see a major shift from Saint Augustine, whose first description of Saint Ambroise equates the saint with silent reading. Ambrose was an extraordinary reader. "When he read," said Augustine, "his eyes scanned the page and his heart sought out the meaning, but his voice was silent and his tongue was still." 505 For Augustine, reading aloud was the norm whereby one spoke and heard oneself speak. The tongue was the site of this faculty of speech. Augustine also differentiates between mental and bodily speech

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503 Gersdorff, *Feldtbuch* 58.
504 Gersdorff, *Feldtbuch* 59.
in his book on the holy trinity: “We see in this life as in a mirror, or an enigma that is obscure and difficult to perceive. Yet, who does not see one’s own thoughts? This is a human word, for in thought we look into our own mind, whether those things are present that we also see with our bodily eyes or perceive through the other senses, or whether they are not present, or when thought is thought. But there is a further likeness to the word of God, which is an enigma that is unveiled.” Such differentiation made it possible to speak many languages but to know the same truth since humans had to use signs, yet God knew the truth directly. Elsewhere in chapter sixteen of the City of God, in describing prophecy and utterances, Augustine quotes the Psalms, “My tongue is the pen of a scribe, writing swiftly.”

Any question as to the tongue’s symbolic and anatomical importance can be answered with a brief look at Dryander’s images of a dissected head, in which a dissected mouth is opened to display the tongue. The head, like in Dryander’s other brain images, is taken from Gersdorff’s fugitive sheet (Fig. 51). By doubling the tongue and placing it outside the body along side the head, one can equate speech with the head rather than the body. Such a practice of using visual rhetoric helped create a very distinct body ritual that became part of the Protestant reformation in the early 16th Century where a correctly articulated body in speech, image, and gesture was guided by its imaginary articulation.

The final stanza brings the poem, the brain images, and the dissected body together in a visual, verbal, and tactile unity. Reading from top to bottom, the poem informs the reader “Lungs/heart/ with breastbone from the tomb, all secured by the diaphragm.” Two valves, the neck and diaphragm, secure the members of the middle

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507 Augustine, City of God 446.
cavity, which also outlines the location of the sensitive spirits. Below the middle cavity, “two kidneys same on either side, that the action of the bladder reunites” shows a limited view of the natural spirits in a male body. The written poem also reverses the order of dissection beginning with the head, moving down to the thorax and then to the abdominal cavity. Such a verbal performance of the poem closes the body that the gestures of dissection had opened, completing the circle that is symbolized as the spherical bladder.

In this representation of the body, which is a representation of an ideal body in perfect proportion, the absence of one of the vital organs could destroy the whole:

The measure orders all within/
That neither one nor the other alone can win/
But give together life/help/and proper effect

The conclusion of the poem references the author of the text, Guy de Chauliac, as well as the German version of the *Chirguia Magna* translated by Gersdorff. The poem ends with an indirect statement of authorship:

As clearly shown by Guido/
It’s been Germanized freely in this Fieldbook/
Thanks must be given, be to him who it be.
Printed in Straßburg
By Johann Schott

“Johann Schott” has been taken to mean that the fugitive sheet was created and inserted into Gersdorff’s field book by the printer, Johann Schott. Schott in turn gives credit to three other authors: Guido for clearly stating his surgery, Gersdorff for translating the Latin text into German, and Hans Wächtlin for creating the images. Through the image, the poem, and the dissected body (imagined or real), the reader has assumed at least three identities. The combination of these diverse characters
accommodates many reading styles by which to approach the image: visually, verbally, and gesturally. The head and brain in this image is also one that is approached in all three structures, speech, image, and gesture, creating a fragmented whole that will become the focus of future emblematic constructions.

5.5. Visualizing the Pituitary Gland

If we shift now from Gersdorff’s image to those that came after, we can create a short history of the brain images that first appeared in the fugitive sheet accompanying Gersdorff *Feldtbuch der Wundartzney* in 1517 (Fig. 2) through Vesalius’ *Fabrica*. Charles Singer presents the thesis that Gersdorff utilizes a dissection technique of the head that can be seen in later dissection techniques represented in the images of Johann Dryander, Walther Hermann Ryff, Charles Estienne, and Andreas Vesalius. I will utilize Singer’s findings to show an alternate history of the head and brain that became an isolated organ in the middle of the 16th Century by the process of accurate images and dissection. This alternate history will lead to a tension between the part and whole, the pituitary gland with the rest of the brain. The allegorical body was a disciplined body, where everything had its place. The emblematic body is a hybrid or a monstrous body. Such a move away from the traditional body and the traditional history shows that parts do not always behave nicely, remaining balanced in the background as an unnoticed ornament. Like the clitoris, heart, tongue, eye, and pituitary gland, these metonymic wild members developed a discourse of their own through out the 16th and early 17th Century. As wild members, they also needed to be tamed.

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508 Singer, *Vesalius* 269.
509 Daston and Park, *Wonders* 173.
The pituitary gland was as an enigmatic fragment was not an invisible part like the rete mirabile or the inner senses, only to be spoken of in an infinite regression of words but never seen. Rather, the pituitary gland, like the clitoris, became an extremely visible part with special invisible qualities.510 After Gersdorff’s representation of the rete mirabile in words and images, as well as Vesalius’ representation and subsequent renunciation of that theory, we see the rise of the pituitary gland as the central member under the control of the rational soul, a theatrical part that appears dramatically on stage in the middle of the 16th Century. As parts of its history, let us look at the brain from Gersdorff and Fries to its appearance in Vesalius and subsequently in the Protestant world.

As mentioned in the introduction to this dissertation, the brain images in Gersdorff and Fries are the same. After they were drawn (or cut) by Hans Wächtlin and printed by Johann Schott, the same woodblock was used by the printer Johann Grünninger to print the image was in Fries’ Spiegel der Artzney printed in 1518. Within the same year, Grünninger issued another version of this image, only this time struck off another woodcut. Wieger assumes that the printer Schott and Grünninger had a falling out since little evidence of sharing appears after 1519.511 Grünninger issued another woodcut of lesser quality than the original made by Wächtlin (Fig. 52). In 1547, Johann Dryander, professor of medicine at the University of Marburg, had the images of the dissection of the head, which were number 1-7 in Gersdorff and Fries, copied and reduced to five (1-5, without numbers) in his combination of Gersdorff and Fries medical


511 Wieger, Geschichte 30.
and surgical texts, creating his own *Artzney Spiegel* (Fig. 53). By comparing the two versions, one can see that the images of the dissected head were transposed in the following order, 1=1, 3=2, 6=3, 4=4, and 5=5 (image 2 from the original series is omitted). Dryander’s images are modified and mirror images of the images found in Gersdorff and Fries twenty years previously. The images were presumably copied by hand from the Fries’ text or Gersdorff’s fugitive sheet and then carved into new woodblocks. The text in Dryander’s chapter on the head is taken directly from Fries. By placing the description of the head along side the image of the head, one has what appears to be an emblematic unity of word and image. Yet the phrase, “the head is made of ten parts” does little to provide a description of the images included in the text and continues the citation of ancient authorities.

The first step in the transition of Wächtlin’s images is that the head and brain images in Dryander’s *Artzney Spiegel* are copied from Wächtlin’s woodcuts and presented *without the body*. The omission of a corpse creates a head that is visually isolated. Dryander’s *Medicine Mirror*, in addition to presenting Fries’ and Gersdorff’s medical and surgical knowledge, is a large collection of plagiarized versions of the most well known medical, surgical, and anatomical images to date. In addition to the head becoming isolated, each of the known body organs received several images as well as written descriptions. The effect creates a book of fragmented body parts without a narrative whole. But even before Dryander printed copies of these brain images in his *Artzney Spiegel*, the same dissection technique and representation strategy can be clearly seen in the descriptions of the head found in another of his anatomical publications, *Anatomia capitis humani* (1538). Like images of the brain found Bergengario Da Carpi’s

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512 Johann Dryander, *Arzney Spiegel* (Engenolf, 1547).
book on head injuries, we begin to see a discourse based only on the contents of the head, namely the brain (Fig. 54).

Walther Hermann Ryff, doctor in Strassburg, also copied Dryander’s images in his own text, *Omnium humani corporis partium descriptio*. Both Ryff and Dryander’s books were printed in German and Latin, increasing the audience from practical to academic, trained and nonprofessional alike. These short epitomes on the head are similar in content to Vesalius’ *Tabulae Sex*, though the visual quality of the images does not match the accuracy of Vesalius. Similar images of a dissected head will appear in Book V of Vesalius’ *Fabrica*, leading Singer to argue that all three, Dryander, Ryff, and Vesalius, base their images on the ones produced by Wächtlin and included in Gersdorff and Fries in 1517 and 1518.

Looking at the larger images of the dissection in Ryff’s 1541 text, we can see the relation of images to words and the gestures of dissection that was not yet present in Gersdorff (Fig. 55). The book is structured around 20 folio size leaves in which a head is shown through seven images in various states of dissection. In the fourth of seven figures, after the hair, skin, pericranion, skullcap, dura and pia mater are removed, we see the two cerebral hemispheres as well as the convolutions of the cerebral cortex. In each of the images, we see the total separation of graphic or printed word from image so that the reader cannot look at both and assume an identity, as was the case in many anatomical illustrations of the 15th Century. If we look briefly at the structure of the fugitive sheets in Gersdorff’s text (Figs. 1 & 2), the poem describing Gersdorff’s fugitive sheets, the skeleton, and the brain images surrounding the cadaver, the reader must

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513 Singer, *Brain Dissection* 269.
514 Singer, *Brain Dissection* 261.
515 Singer, *Brain Dissection* 263.
constantly break the syntax of the image to read the description as well as the break the syntax of the text to read the image.

If we return to Ryff’s figure four (fig. 55) the paragraph describing the image is above and separate from the image. Movement between the image and text is made by alphabetized letter to designate the relationship of an image fragment and the description of that fragment. In Gersdorff’s image, there is no specific relationship between the image and the various descriptions of the image other than to generally look at the major parts that are already isolated by the image. The visual representations of the various stages of dissection have only a general relationship to the verbal description, allowing the reader to wander between image and word without specificity. In Ryff’s images of dissection, the alphabetic organization system attempts to control that which a reader may see in the image and in the dissected body.

A good example of this movement between word and text can be seen in the letter ‘G,’ which is positioned at the top of the image. This letter-image becomes a sign with multiple significations: by its position at the top of the image of the head/brain, ‘G’ signifies the vertex, a popular anatomical location that has little significance today. By its position between the two cerebral hemispheres, ‘G’ signifies the division of the brain into two equal part. And finally, for Ryff, ‘G’ signifies the limit of the brain.516 This may seem strange to us, that the edge of the object was not the object’s limit, but Gersdorff’s description of the veins of the brain that ‘exit through the highest bone’ connecting the head with the heavens as well as providing a release for the hot vapors produced in the head meant that the edge of the brain was not a clearly defined edge, contrary to popular

images that attempt to show otherwise.\textsuperscript{517}

The need for this visual, alphabetic designation should be clear. The brain was part of the concept of the head, which meant that it was one of the ten parts, like the pia/dura mater, skull, skin, hair and face, etc. making up the whole. To know the brain was to know its relation to the head. The woodcut image of the dissection of the whole body in Gersdorff’s text was surrounded by a black box to delineate the edge of the image from the edge of the book, creating an artificial border between two domains of image and text. The semi-circle line that demarcated the edge of the brain was not enough to signify the limit of the brain from the rest of the head, the descriptive words, or book. An extra letter was needed to signify what the image could not, that the brain had a limit, a circumference. Even the detailed convolutions, the squiggles that denote the white matter of the head while connoting the clouds in the sky, could not visually separate what was conceptually united.

Just like the outer edge of the brain acquired specificity through the relationship of word to image and the gestures of dissection, so did the telos or center of the brain. The center of the brain included the cerebral ventricles, the rete mirabile, the pituitary gland, and “the gland that receives the phlegm of the brain and on the other passages that purge it.”\textsuperscript{518} In the brain images found in Gersdorff’s text, no trace of the ventricles can be found (Fig. 2). In 1520, the artist who portrayed the brain in Berengario Da Carpi’s


\textsuperscript{518} Singer, \textit{Vesalius} 51.
Isagoge represents the “great ventricle,” or the two anterior ventricles (Fig. 54). This can be seen also in images found in Dryander, Estienne, and Vesalius’ texts.

In the span of twenty years, from Gersdorff through Ryff, Dryander, Estienne and Vesalius, we see a major shift in the relationship of words and images presenting the brain, as well as the gestures of dissection guided by them. Where as Gersdorff states that, after dissecting the head and removing the cerebral matter, one can “see the cells of the inner senses,” which were actually invisible to the eye, the ideal and invisible seat of the rational soul, by the 1540’s, such a statement was difficult to make. Once one saws through the brain matter “where the rational soul once resided” in the corpse, the formal purpose of the brain can be redefined by the gestures of dissection. We previously looked at the poem, which has questionable epistemological value. If one looks at how Gersdorff describes the center of the head, we see a similar sketch:

By the middle cell near the brain stem, which is formed like a pelvis, protected with hard flesh so that it can be filled. Under the skin of the miracle net are the arteries that come from the heart, in which man’s sensitive spirit is concocted.\footnote{Gersdorff Feldtbuch 7. “Bey der mittel cellen des hirns merck/ do ist die statt geformieret noch den schlossen/ unnd mit eim harten fleisch bewart das sye füllet. Und under dem fellin des wünderlichen netz seint allein die aderen die do von dem hertzen gond/ in dene uffquillt der leblich geist des menschen.”}

Compare the lines from Gersdorff to those found in Dryander that describe a brain image and the transition is startling (Fig. 56). Instead of a void where the ‘inner senses’ reside and the rete mirabile should exist, one sees dark shaded areas representing the space for the cerebral ventricles and the descriptions devoid of any inner senses. The reader can see the cerebral ventricles as a visual anatomical part rather than an imaginary, connective metaphor. Dryander writes:
You see here in the present figure, when you penetrate the brain to a distance of about three fingers, that there appears a ventricle on each side, curved in the manner of a new moon.\textsuperscript{520}

This empty space will eventually be filled not with imaginary organs like the \textit{rete mirable}, but with visible physical structures like the arteries that come from the heart and pituitary gland. The Galenic theory of the pituitary gland is vague in terms of anatomy that we know today but very specific within his own pneumatic system: the pituitary as well as the infundibular stalk functioned as filter for the brain, a drainage tube from the brain ventricles to the nose by which the brain's excess mucous or excrement could be removed. In book nine of his \textit{De Usu Partium}, Galen provides a description of the interaction of the pituitary gland, the \textit{rete mirable}, and the ventricles. In order to live, Nature has provided the brain with a means to receive nutriment and evacuate remaining residues.\textsuperscript{521} The Lacuna described by Gersdorff is none other than the third ventricle, or the receptacle for the brain's excrement.

Through the process of concoction in the central ventricle by the \textit{rete mirable} (remember, the \textit{rete mirable} converted natural and sensitive spirits in the blood into animal spirits) two kinds of residues remain, namely vaporous and more heavy, fuliginous.\textsuperscript{522} The vapors, being lighter, travel up and are excreted through the skull and small pores and sutures in the skull, causing baldness in men who are too hot and strange sensations in women. Similar invisible pores allowed spirits to transfer between the right and left ventricles of the heart were too difficult to see. Zwijnenberg has shown that the order and chaos of early modern thought, as seen in examples from Da vinci, was partly due to the difference between written description, images and actually doing something

\textsuperscript{520} Lind, \textit{Studies in Pre-Vesalian Anatomy} 301.
\textsuperscript{521} Galen, \textit{On the Usefulness of Parts} 424.
\textsuperscript{522} Galen, \textit{On the Usefulness of Parts} 425.
with one’s body. The rete mirable can be seen in words, but not in images or in personal witness. The truth of the words of Galen and others was no longer enough: they had to be verified in image and in gesture.

The second more heavy type of brain waste must pass downward to the earth, for which nature provided two canals. At the basin or pelvis in the upper part of the middle ventricle, the infundibulum (pituitary stalk) narrows into a perfect circle. The perfect circle appears in the fugitive sheet of Gersdorff’s image of the dissected body (Fig. 2) as the Bloß, or bladder that reunites the kidneys and the removal of waste. Analogously, the pituitary stalk narrows, transforming into a gland [pituitary or hypophysis], which is succeeded by a bone for protection. The usefulness of this gland is that it filters the residues from the brain, but Galen argues that anatomists have ignored it because they think the brain can filter itself directly. Surrounding the gland is the rete mirable, called the retiform by anatomists. Once the pneuma is elaborated (concocted) by the rete mirable, it waits in the lacuna and the residue is filtered by the pituitary and drained through the infundibulum.

Not much was thought of the infundibular pituitary region until Mondino situated this organ and the rete mirable as the location where the soul distinguishes between the sensible and the intellectual (sensata and non sensata). Through anatomical observation in the early 16th Century, when the rete mirable was questioned and subsequently ignored, the pituitary became its visible replacement in the Galenic

524 Galen, On the Usefulness of Parts 429.
525 Galen, On the Usefulness of Parts 430.
humoral, pneumatic theory. Berengario Da Carpi wrote of a critique of the *rete mirabile* after more than 100 dissections (to be believed as much as Gersdorff’s more than 200 amputations), "So I believe that Galen has imagined the *rete mirabile* and he never saw it and I believe that other men after Galen believe in the (existence of the) *rete mirabile* (in humans) more because of the opinion of Galen than because of fact and what I have said about the *rete mirabile* should suffice and it is while holding Galen in high esteem, that I have said what I had to say respecting him."\(^{527}\)

Bataille et al. have shown that it was not that the *rete mirabile* did not exist, but it did not exist in man.\(^{528}\) Galen had used dissections of ungulates to analogically infer the presence of the structure. Gersdorff stated that he knew Galen had dissected animals, but that was not an epistemological concern. What mattered is that Galen said it and Gersdorff could read the words through a trusted author, namely Guy de Chauliac. His words also allow one to see the organ in one's imaginative faculty, even if it did not present itself before one's eyes. The empty space in the brain cavity, and the empty space in the brain image made by Wächtlin is filled when one reads the word's "porcelain womb."

The early Vesalius went so far as to present the *rete mirabile* before one's eyes by creating an image (Fig. 57). Though he writes that he regrets his decision, it does not stop him from drawing this imaginary organ on future occasions. However, in future images Vesalius makes a distinction between humans, animals, and the image made after Galen's verbal descriptions. Though Toni goes too far in describing the modern quality


\(^{528}\) Bataille, et al., "The Significance of the Rete Mirable in Vesalius' Work" 760-64.
of the Galenic model supported by Mondino, there is an interesting point to be made.⁵²⁹ Namely, that Vesalius transfers the meaning of the *rete mirabile*, an invisible structure, to the pituitary gland, a visible structure. This visible structure will take on social importance with its inclusion in images used by students to understand Philip Melanchthon’s *Liber de anima*.

Vesalius describes the infundibulum pituitary region as well as the *rete mirabile* in Book VII of his *Fabrica*, images 15, 16, 17a, 17b, 18. His description is five fold: in image 15 he provides a square piece of the skull in which the entire region is visible (Fig. 58), followed by image 16 that is accompanied by a description of only the pituitary gland, the infundibulum and surrounding arteries (Fig. 59). Images 17a describes the *rete mirabile* in humans after Galen’s descriptions (Fig. 60), and 17b describes an image of the *rete mirabile* in ungulates (Fig. 61). Finally, image 18 describes the “active” infundibulum pituitary region without he *rete mirabile* to obscure the view (Fig. 62).

Such an image would have been imaginative, as an “erect stalk” does not present itself in dissection; accessing it would have required a vivisection as well as the ability to see the microscopic molecular transfer process that was not theorized until the 1930’s and demonstrated in the 1960’s.⁵³⁰

If we look at his images 17a, 17b, and 18, (Figs. 60, 61, 62) we see a fascinating phenomena occurring where one must first visualize a written description of an imaginary organ in order to for it to disappear. Vesalius justifies the strange hybrid of images that show an imaginary organ, a real organ, and the appearance of an organ in space where an imaginary organ formerly resided: “It would have been purposeless to display the whole

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⁵²⁹ Toni, "Ancient Views on the Hypothalamic-Pituitary-Thyroid Axis" 94-95.
⁵³⁰ Toni, "Ancient Views on the Hypothalamic-Pituitary-Thyroid Axis" 84.
head for the sake of this one small part.”531 Of 17a of the imaginary rete mirabile,

Vesalius writes (Figure 59):

“I have represented the plexus falsely, but in accord with Galen’s descriptions in the De use partium. A and B are the arteries that run below the skull. They are supposed to be diffused into the rete mirable. C and D indicate the branches into which the offshoots of that plexus are supposed to be gathered. They correspond in size to the arteries A and B. E marks the gland which receives the phlegm of the brain.”532

Where in Gersdorff’s image there is an empty space for one to speak the words and imagine how the rete mirabile may have appeared, Vesalius gives the imaginary organ visible contours. We also have words that describe the visible structure of the infundublum and pituitary glands, yet only a hint of how it appears because it is hidden by an imaginary organ. In the next image of 17b (Fig. 61), Vesalius describes the same region in sheep and oxen “lest any think that I do not know the difference between those animals and men. And in this figure A stands for the oft-mentioned gland, B and C for the course of the arteries as they first enter the skull.”533

Finally, Vesalius represents the pituitary gland in image 18 that emphasized the path of fluids through the brain based on Galenic physiology without the rete mirabile (Fig. 62). He writes,

In this small figure I have represented the erect basin or the ladle by which the phlegm from the brain trickles down into the gland below it. And further I have represented the four ducts which carry down the phlegm from the gland through the apertures next to it. Thus A would indicate the gland in which phlegm drops, B the basin from which it is conducted, and C, D, E, F the passages for easy outlet of the phlegm.534

531 Singer, Vesalius 114-117.
532 Singer, Vesalius 116.
533 Singer, Vesalius 116.
534 Singer, Vesalius 116.
As a visible, rather than an invisible structure, the pituitary gland takes the place of the rete mirabile because it can be described, visualized and approached through dissection while still fulfilling the transitional role of helping blood transform into animal spirits in the ventricles of the brain. Yet the addition of ‘C, D, E, F’ has also been shown to be fictional. Where in Gersdorff the organ remained invisible to the eyes but visible through narrative to the imagination and intellect, Vesalius externalized the imaginary organ by making it visible both in real (in sheep) and in imaginary (in humans) states. This powerful rhetorical strategy created the brain as emblem in the middle of the 16th Century where by images, words, and gestures supported each other in a stylized organization of real or imaginary body fragments into meaningful parts. Through the pituitary gland, the enigma that was the brain was solved, at least temporarily. As we will see, this small gland played a role in Melanchthon’s Protestant Theology after the reformation had been clearly been established in the 1530’s, a role which will be made clear in the next section.

5.6. The Inner Senses, The Pituitary Gland, and Anatomy in Wittenberg

The influence of medicine, surgery and the growing art of anatomy in German-speaking lands can be seen through a close examination of the relationship between Melanchthon's Liber de Anima (first published in 1540 and again in an expanded version in 1553) and accompanying fugitive sheets (flap anatomies) used as pedagogical texts at the University of Wittenberg and beyond in the second half of the sixteenth century, specifically, the peculiar mix of anatomical knowledge and Protestant natural philosophy.

535 Parts of this section have previously appeared in Kismet Bell, "Faithful Bodies: Anatomy and Emblematic Fugitive Sheets in Late 16th Century Wittenberg," Focus on German Studies 17 (2010): 3-22.
that subsequently spread to many European universities taught social skills through the metaphor of the body as known through the inner senses and belief in the soul’s ability to control parts of the brain. After a brief history of anatomy in 16th Century Germany, I will focus on the use of the inner senses based on Melanchthon's *Liber de anima* to provide a glimpse of an emblematic approach to anatomy that used the pituitary gland from Vesalius’ *Fabrica* as a rhetorical strategy for young students.

The following is a brief historiography of the use of anatomy and flap anatomy images at the University of Wittenberg. Two historians, Vivian Nutton and Sachiko Kusukawa, have provided the groundwork for much needed future investigations into the importance of German medicine and anatomy at the University of Wittenberg, which first opened its doors in 1502, followed by the grounding of the medical faculty 1508. Nutton's 1993 article on anatomy in Wittenberg uses archival material from the University to provide a glimpse into a network of German medicine and dissection whose foundation was grounded in reading Melanchthon's *Liber de Anima*, a commentary on Aristotle’s text of the same name. Rather than a specific text for a small group training for a higher degree in medicine, like Gersdorff and Fries’ popular texts, *Liber de anima* was taught to all beginning university students, only a few of which would travel to other locations for further instruction in medicine. The spread of this ‘humanistic body’ helped to spread anatomical learning throughout the Protestant world.

The specificity of anatomical knowledge taught in Wittenberg University can be seen in Melanchthon's statement in the preface to his *Liber de anima*, "Jesus had to enter this fleshy mass." Melanchthon situates Wittenberg anatomy as a tool to help the soul

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attain balance by transforming the 'fleshy mass' into a collection of ordered parts useable by human intellect. Melanchthon believed that the intellect was part of the rational soul and connected to the body through the ventricles in the brain. He followed common belief by calling the instruments or organs of the human soul (the inner senses) common sense, reason and memory.\textsuperscript{538} Since man could not access the divine language of the world through the faculty of reason alone, but required sensible information gained through the material faculties of the external senses and common sense, knowledge of the material body provided man with a way to order and control the body. As such, the “common body” provided by Fries and Gersdorff help to domesticate what was becoming an increasingly unruly body. The combination of individual and social discipline with anatomical knowledge was a unique way to apply the popular Renaissance phrase, \textit{nosce teipsum} (know thyself).

Three fugitive sheets from Wittenberg accompanied Melanchthon’s \textit{Liber de anima} (Figs. 63, 64, 65), a male, female, and skeleton figure. They also provide such a motto in dual form: At the top of the page, each sheet has a title that introduces it as a representation of male body, female body or skeleton. At the bottom of the female image of this triptych, the sheet claims that it was printed for Philip Melanchthon’s \textit{liber de anima}. Like the fugitive sheets found in Gersdorff’s \textit{Feldtbuch der Wundartzney}, these images should be seen as a visual aid to a specific text and not stand alone like the majority of fugitive sheets printed in the sixteenth century. Because dissections were preformed every one to three years at Wittenberg, images supplemented a growing desire for knowledge of the body in a culture that lacked actual bodies for dissection.\textsuperscript{539} The

\textsuperscript{538} Melanchthon, \textit{A Melanchthon Reader} 239.  
\textsuperscript{539} Nutton, \textit{Wittenberg} 23
specificity of the pedagogical information provided by these fugitive sheets, compared with other sixteenth-century flap images printed in the vernacular and used only for barber surgeons or private 'study and stimulation' in various locations, provide contemporary historians with access to the often difficult to uncover author, audience and context in and for which such fugitive sheet images were printed.\(^{540}\)

Before we explore these images in more detail, I will briefly outline the unique humanist philosophy proposed by Melanchthon that is important to understanding the dialectic and rhetoric of the images and their accompanying text -or text and accompanying images depending on one's starting point. As director of Wittenberg beginning in 1518, Melanchthon implemented a curriculum founded upon dialectic (logic) and rhetoric (organization of parts) following Aristotle's *Politics, Posterior Analytics and Rhetoric*.\(^ {541}\) Melanchthon believed that God created the world using language (grammar) order by a specific logic (dialectic), presented through the organization of nature (rhetoric). Knowledge of these three arts of demonstration organized the intellect and provided access to the first, divine orator.\(^ {542}\) Fries followed the same *trivium* to order his medicinal arts.

Through this application of the *trivium*, dialectic was the ability to order various fragments into a whole, where by the form of the whole provide meaning beyond each of the parts. In humans, this organization process was thought to be physiological, occurring in the ventricles of the brain. Melanchthon writes in the preface to *liber de*

\(^{540}\) Printed at the bottom of the image of the female body is the phrase, "Edita Vittebergae in gratiam studiosae innentuitis, discentis elementa doctrinae Anatomicae in libello de anima. M.D.X.X.III."


"There is motion in the brain, as if it were arranging images just as the tongue arranges air in articulated voice." Through dialectic and rhetoric, one controlled the motion of the cerebral pneuma to create the loci or thesis by which one organized one's internal image and language collection. Rhetoric was the presentation, or the projection of organized minutiae into the world through speech, art, body gesture or text. Nature was the projection of God's goodness, and thus his speech (verbum). In an oration praising Aristotle, Melanchthon writes, "Recognition of similitude and order in nature is knowledge of God." By combining dialectic and rhetoric together to form the foundation for all teaching at the University of Wittenberg, it can be assumed, as John Schneider argues and Nutton and Kusukawa gesture toward, that Melanchthon conceived of God as a kind of omnipotent orator. He was not far from Fries who argued similarly,

First, one must have discipline of the tongue through grammar, from which follows logic. Without these all art is like a shadow on the wall. When one learns this, he has reason and knows to differentiate between right and wrong.

If we turn to the flap anatomies, the use of dialectic and rhetoric can be seen (Figs. 63, 64, and 65) where assembling and structuring the body is the images' tactile pedagogical method. One places representations of organs on top of each other through a virtual dissection. However, as a genre popular in the sixteenth century, these tactile images did not succeed as a rigorous pedagogical tool for

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544 Melanchthon, *Orations* 86.
545 Schneider, "The Hermeneutic of Commentary" 44.
546 Fries, *Spiegel* 111. "Zum erste so sie habe disciplin der zungen durch die Grammatic so gebent sie sich zu der gebenedeyte Logic on welche alle künst glich als ein schat an der wand. Wann die lernt die vernünfítt versassen ein wééllichkeit zu sünderen das falsch von dem rechte/ Wan welcher diese küst nit kan/ der ist gleich als ein kind/ er kan un weist nit was er kann."
doctors and academics, or in many locations outside of Germany.\(^{547}\) Heinrich Vogtherr in Strassburg printed the first flap anatomy sheets in the first half of the sixteenth century, who borrowed the technique from Schott and the fugitive sheets attached to Gersdorff’s *Feldtbuch*. These sheets eventually became part of many print operations around Germany. That they were used in at the University of Wittenberg's education curriculum automatically places in question the knowledge presented because most fugitive sheets were printed in order that barber surgeons have a general knowledge of the body when told where to cut by academically trained physicians.\(^{548}\)

Though not fully agreed upon by historians, Paul Luther and Barthomäus Schönborn, both medical instructors at Wittenberg, used the sheets as supplements for Melanchthon's text in their medical and anatomical lectures.\(^{549}\) Nutton even posits that the visual representations would have been essential given the layout of the Wittenberg anatomy theater where seeing the dissected body, if there was one available, would have been very difficult for seated students.\(^{550}\) Though the importance of the sheets is disputed, a general glance over the images demonstrates both their usefulness as an *aide memoire* and their connection to the popular authority on anatomy at the time: the head of the male figure represents Vesalius, whose *Fabrica* is the basis for each isolated organ and bone.\(^{551}\) Melanchthon possessed a copy of Vesalius text and the changes made between the 1540 and 1556 editions of his *Liber de anima* include much of Vesalius’

\(^{548}\) Carlino, *Paper Bodies* 107-110.
\(^{550}\) Nutton, *Wittenberg Anatomy* 32.
work in the later edition. However, instead of presenting an exact replica of the original woodcuts found in the *Fabrica*, each organ in the fugitive sheet is a rough copy (almost unrecognizably rough) of Vesalius' naturalistic representations. To understand the dialectic and rhetoric of the images, one needs to move beyond an analysis of the general trends of fugitive sheet production and read more closely the connection between the image, knowledge of the body and *Liber de anima* in their emblematic presentation. Through a "close reading" of the organs and the text the images, as well as their association with *Liber de Anima*, one finds that the organization of the images follows a specific logic.

Rather than representing all organs, the organs in the Wittenberg fugitive sheets were chosen because they correspond directly to passages in *Liber de Anima*, which provided the viewer with knowledge of the organ's place in the body hierarchy that is related to a social hierarchy. An organ's anatomical location and physiological function are only of secondary importance to its metaphoric, social significance. In addition to their relationship with *Liber de Anima*, the fugitive sheet images also provided the student with a Greek and Latin name for the organ and simplified Latin text to explain the relationship of a particular organ both with other organs in the body and its subservient role to the intellect. These elements allowed the visual body to become a rhetorical device. Through their studies, students learned anatomy in conjunction with other subjects such as philosophy, moral, ethics, law, theology.\(^{552}\) Anatomy's focus, like other subjects taught at Wittenberg, centered on organization and discipline of one's intellect.

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and providing young men with the proper way to think and thus live correctly.\textsuperscript{553} The accuracy of the image or text was not as important as naming the organs and their role in disputations in defense of Christianity.

An example of the use of anatomy to teach intellectual order and ethical behavior can be found in the image of the stomach, represented in both male and female images (Figs. 63 & 64). In \textit{Liber de anima} Melanchthon writes that the stomach received yellow bile from the gall bladder and black bile from the spleen, though he does not engage in the academic debate over the anatomical and physiological purpose of the organ. The former combination (stomach / yellow bile / gall bladder) corresponds to "hope, fear, love, anger, hatred, envy, and zeal," while the later (stomach / black bile / spleen) corresponds to "shame, sadness and melancholy."\textsuperscript{554} This organization of knowledge on the fugitive sheet (name of organ, image of the organ, exposition of meaning) provided an emblematic reading to resolve the enigma. The image also provides a location in the body for feelings, emotions, or passions that arise from a specific location; ordering the intellect meant having a named site in the body that the intellect could discipline.

In addition to connecting the image of an organ with a name and a passion to control, the intellect's process of naming, imaging and interpreting the body follows the \textit{inscriptio, pictura, subscriptio} structure of the printed emblem very closely. The social effects stemming from the stomach, liver, spleen, gall bladder and heart could be trained through this emblematic process. Visualizing and naming organs on paper which subsequently guided a reader to an analogous location in his body, made the self-disciplining process easier. Those who could not discipline their internal organs were

\textsuperscript{553} Nutton, \textit{Wittenberg} 18-19.

\textsuperscript{554} Philipp Melanchthon, \textit{A Melanchthon Reader} 245.
by default living in a 'mass of flesh.' Alternately, Melanchthon states in an early speech on education, one could inadequately know the body as "a series of unconnected items lying together." Disorder, random conflicts, and claims of individual spirituality outside of the "common peace" of the established community were the effects of this type of ignorance. By organizing the body emblematically, one could control the many fluctuating parts.

Like the fugitive sheets, Melanchthon's *Liber de Anima* focuses much of its attention on how the intellect controls the body. The first half of the book provides detailed descriptions of essential body organs; the second half provides anatomical refutations for religious threats to Protestant teaching as well as demonstrates how the intellect can name and control body parts. For Melanchthon, the rational intellect was the essence of man. This instrument of the soul resides in the ventricles of the brain and controls the body either through political or despotic means. Taken from Aristotle's *Politics* (*Politica*, Book III-IX) and *Rhetoric* (*Rhetorica*, Book I, Ch. 8), these two forms of self-government analogically corresponded to larger social structures. "The political" was the most ideal; it occurs when each body part 'desires of its own' to be a balanced and democratic part of the whole. "The despotic" occurs when force is required to control the rest of the body through coercion or manipulation. For Melanchthon, and other Reformation thinkers, since man was no longer perfect after the fall, the despotic occurs more often than not. One could say that *Liber de anima*, as well as the fugitive sheet images, were part of the program of despotic self-discipline; teaching the intellect how to force the unruly body to obey. Melanchthon argued that knowing and ordering, dialectic

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555 Philipp Melanchthon, *A Melanchthon Reader* 53.
557 Philipp Melanchthon, *A Melanchthon Reader* 249.
and rhetoric, allowed one to control the stricken body parts and bring control under the intellect.\textsuperscript{558}

If we return to the fugitive sheets, each image provides such an ideal dialectical center, or locus around which the image parts move (Figs. 63, 64, 65). By finding this locus, one can solve the enigma. In the third image of the triad (Fig. 65), the skeleton raises a skull with the base open toward the viewer (Roman Numeral II). The male figure in the second of the three images also provides viewers with such a guided approach (Fig. 63). Clutched in his right hand, scepter-like, an eye (Letter A) directed heavenward, provides the viewer not only insight into Wittenberg anatomy, but also the symbolic focal point of the image. Finally, in the third image of the female, the spleen (Roman Numeral II) stands as the major physical adversary of the intellect (Fig. 64) The following paragraphs will explore the representation of each of these central ideas (dialectical loci) from which the images speak (rhetorical persuasion).

For the young men viewing these sheets while they read \textit{Liber de Anima}, the image of Death offered them access to the opening at the base of the skull (Fig. 65). This gesture provided viewers with an idealized view of the ventricles of the brain. In his text, Melanchthon presents a version of the ventricular theory that posits three distinct parts of the intellect—common sense, imagination, reason and memory—that are "housed" in one of three cerebral ventricles.\textsuperscript{559} Through this outlet at the base of the skull, the spirits in the head interacted with those in the body and the basilar bone separated the head from the lower spirits. Like Vesalius providing an image of the

\textsuperscript{558} Philipp Melanchthon, \textit{A Melanchthon Reader} 247. For a discussion of the various debates of the spleen's function in Early Modern medicine, see Andrew Wear, "The Spleen in Renaissance Anatomy," \textit{Medical History} 21 (1977): 43-60.

\textsuperscript{559} Philipp Melanchthon, \textit{A Melanchthon Reader} 239-241.
imaginary *rete mirabile* in order to remove it from the body, by visualizing one's access to the body, one was taught to control that which was named. This "gateway" at the base of the skull was the anatomical and virtual pathway through which the intellect could control the rogue appetites of the lesser spirits in the heart (vital spirit) and the liver (nutritive spirit). By allowing students to visualize how and where they accessed their body, the inchoate and uncontrollable "mass of flesh" began to acquire a figure.

In this third image, Death uses persuasion to justify anatomy by providing the viewer with a gesture of goodwill through knowledge of the skeleton: Dissection is for the good of the individual and the community. The passage from the intellect to the body can also be seen in bottom right corner of the second image, which presents a female body surrounded by anatomical fragments (Fig. 64; Roman Numerals III, IV, V). Taken from Vesalius' *Fabrica*, these images are a representation of the pituitary gland and brain "pelvis." Pre-Cartesian physiology ascribes to the pituitary gland and the "tortoise shell/pelvis" (the front of the ventricles and rear of the sinus cavity) the place for collecting the cerebral spinal fluid, which transports the "spirits" to the rest of the body and expels the excess through nose and mouth. As an organ, the brain was not important but as a chamber for the "spirit" and the protector of the ventricles. Melanchthon calls that which resides in the skull "the inner senses, which are more important than the external senses." Thus, the skeleton holding the skull depicts exactly where the ventricles and the intellect would be, allowing viewers a reverse access to themselves. Through a symbol of death, from the image of the pathway to the body's lesser parts, students could order their own body and control the unruly spirits.

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560 Saunders and O'Malley, *The Illustrations* 198.
561 Philipp Melanchthon, *A Melanchthon Reader* 239.
that resided below the head.

The image of the anatomized male figure (Fig. 63) also has a locus around which the image turns. The relative size of the eye in man's right hand provides the idea by which the image could be read. Compared with the male figure's body on a bench and the organs surrounding the body, the eye is the largest and has the most explanatory text on the right side of the image. That the male figure is also touching the eye provides a transition from the various sense organs to the intellect, as if that which is touched with the eye is also seen as an image in the intellect.562 It has been argued that in the Renaissance, there was no detached gaze; only a reciprocity of looking and being seen, touching and being touched.563 This symbiotic perception becomes important for the audience of "young men" who were also required to simultaneously "touch and see" the fugitive sheet by lifting up the pasted flaps to reveal the body interior beneath. Through virtual dissection of their own body while visibly unfolding flaps, individuals became anatomist, criminal, martyr and executioner, each role separate yet intricately intertwined in the systematization of their own body through the paper cadaver before them. Their body's also became common bodies, where by a similar language was used to discipline them all.

Touching and seeing a corpse also helped to organize one's own body. From Melanchthon's many orations in general, and those extolling anatomy and medicine in particular, students were taught that knowledge is predicated on how it is organized: Random facts are useless as well as detrimental to a healthy individual.564 By looking at

563 Park, *Secrets of Women* 73.
564 Nancy Siraisi, "Oratory and Rhetoric" 201-204.
the image, students saw not "a mass" but a cleanly separated group of parts. Like an emblem with parts that need a locus to put them together meaningfully, the body as a collection of parts needed a locus to work harmoniously. In naming each of the essential parts that were visible to the eye and touchable by the hand, the goal was for students to begin to bring the parts together, to control rather than to be controlled by those unnamed fragments. The art of rhetorical persuasion is evident in the eyes of each character, either looking at the viewer (Fig. 65), the eye-scepter (Fig. 63), or the reader finding images of the pituitary gland (Fig. 64). Students were urged to see with their eyes, touch with their hands, and then move beyond the visible to organize the images in their intellect.

As we have seen, these fugitive sheets provided a unique means to unite youthful academic knowledge, Protestant theology and popular media forms. Anatomical knowledge of a body organ was useless unless it was applied to the social interaction of Christians. In each of these images and Liber de anima, theology, politics and anatomy meet in a virtual dissection that encourages young men to control their bodies through rational order will become evident in the female figure (Fig. 64), specifically the attention paid to the spleen in this image and Liber de anima, not only anatomists needed to know the body's structure: Each member of the Christian community (body) was encouraged to know how to discipline his or her own body to be both a productive citizen as well as a good Christian.565

Upon close inspection, the female fugitive presents a problematic yet standard representation of female anatomy of the time. The various stages of an anatomized uterus at the bottom of the page fit with other images and anatomy texts of the

565 Philipp Melanchthon, A Melanchthon Reader 159.
sixteenth century: The uterus stands in as a metonym for woman. Her sitting position and partial nudity also present sexualized and exploitative access to knowledge through sense experience and the gestures of self-stimulation.

Immediately, valid questions of gender roles arise for contemporary audiences. The association with the eye for the male figure and the uterus and child with the female figure are a synecdoche Early Modern body knowledge. However, if one compares the enlarged spleen or the multiple views of the pituitary gland with the text Liber de Anima, the focus on these organs fit with the overall dialectical strategy of these fugitive sheets and the printed commentary's persuasive style. As an entry point into these emblematic images, the spleen becomes more important when one remembers that this sheet was printed for young men to look at and see themselves through the image of a female figure. The spleen provided a metaphoric entry point into the female body that was also part of the male body. The spleen was an organ that needs to be controlled. By naming specific appetitive organs and having the anatomized woman gaze at the spleen, as well the various tissues and vessels that connect the rational spirit in the brain ventricles with rest of the body network, this image provided not only body knowledge, but a step by step process by which students could follow the body's "appetitive paths" in order to control them.

The image of the spleen, like that of the eye in the male figure and the opening of the skull in the first image, is not what one would find in any normal human body or anatomy image. Like the rest of the organs used in the fugitive sheets, each of these

"representations" is a barely discernable, reduced copy of images taken from Vesalius' *Fabrica*, early models of which can be found in Gersdorff and Fries. The pituitary glands also appear as means of discipline and body control. One is able to visualize the valve by which the brain secretes excrement from its, removing all impurities from the soul. Like the pituitary gland in Fries, which was taken from early medieval Islamic speculative philosophy (and would be picked up again by Descartes), the pituitary gland became a real organ that one could visualize, replacing the imaginary organ of the *rete mirabile* in shifting epistemological conditions. Shifting the power of an invisible to a visible organ was made possible by ability to place invisible and visible organs side by side in a recognition of the differing structures of images and words.

If we return to the poem that started this chapter that Melanchthon wrote in the front of his edition of Vesalius' *Fabrica*, we see the need to find the design by which all the fragments are held together. Understanding the design allows one to solve the enigma of nature, which would otherwise be beyond human reach:

Think not that atoms, rushing in a senseless, hurried flight
Produced without a guiding will this world of novel form.
The mind that shaped them wise beyond all other intellects
Maintains and fashions everything in logical design.
The ordered movements of the stars recurring in their course
Bear witness that a deity intelligent and good
Established these provisions and now holds them in control

By looking at the brain as emblem in the early 16th Century, I hope to have shown that

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568 Andrew Cunningham, *The Anatomical Renaissance* 231-232. Poem translation found in Cunningham, Chapter 8. Poem translated by Dorothy M. Schulian in Melanchthon’s copy of Vesalius’ *De human corporus fabrica libri septem* at the National Library of Medicine, Bethesda (MD).
the emblematic structure played an important role in defining the brain in the 16th Century by helping to standardize the body of the common man and reorient knowledge around the strengths and weakness of human languages, which replaced the almighty power of the word. Brain fragments became metonymic signatures, or enigmatic keys to solving social as well as psychological issues. The visual and gestural brain was fragmented, but these fragments were brought together through the rhetorical skill of the words of the narrator, where the sensible brain existed side by side with the imaginary.
5.7. Figures

Fig. 38. Alembic from Hieronymous Brunschweig Liber de arte distillandi de compositis (Strassburg: Grünninger, 1512). rpt. Max Planck Institute for the History of Science.
Fig. 39. Fugitive Sheet Skeleton or Death figure from Hans von Gersdorff, Feldtbuch der Wundartzney (Strassburg, 1517) rpt. National Library of Medicine.
Fig. 40. Skeleton from Hieronymus Brunschwig Das buch der wund Artzney. Handwirckung der Cirurgia (or) Von der Anathomi (Strassburg 1498/1515) rpt. Wellcome Image Library, London.
Fig. 41. Lettingman from Johann Dryander’s Arzney Spiegel (Engenolf, 1547) from the National Library of Medicine.
Fig. 42. Dissected Head from Charles Estienne La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 43. Dissected Head from Charles Estienne La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 44. Dissected Head from Charles Estienne La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 45. Dissected Head from Charles Estienne La dissection des parties du corps humain d'uissee en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 46. Dissected Head from Charles Estienne La dissection des parties du corps humain diuisée en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 47. Dissected Head from Charles Estienne La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 48. Dissected Head from Charles Estienne La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 49. Dissected Head from Charles Estienne La dissection des parties du corps humain diuisee en trios liures, (Paris: 1546). from the National Library of Medicine.
Fig. 50. Female anatomy from Charles Estienne La dissection des parties du corps humain divisee en trios liures, (Paris: 1546). rpt. Wellcome Image Library, London.
Fig. 51. Anatomy of the mouth and tongue from Johann Dryander’s Arzney Spiegel (Engenolf, 1547) from National Library of Medicine.
Fig. 52. Dissected Body from Lorenz Fries’ Spiegel der Artzney (Strassburg, 1519) rpt. Wellcome Image Library, London.
Fig. 53. “Head and its Members” from Johann Dryander’s *Arzney Spiegel* (Engenolf, 1547) from the National Library of Medicine.
Fig. 54. Brain image from Berengario Da Carpi Isagoge Brevis, (Bologna,1523). rpt. Wellcome Institute, London.
Fig. 55. Dissected Head from Walther Hermann Ryff, *Omnium humani corporis partium descriptio* (Strassburg, 1541). Zentralbibliothek Zürich. rpt. Singer (1952).
Fig. 56. Dissected head from Johann Dryander in Anatomia capitis humani (Marburg, 1537). rpt. National Library of Medicine.
Fig. 57. Close up of the rete mirabile from Andreas Vesalius’ Tabulae Sex (1538). Rpt. Wellcome Image Library, London.

Fig. 58. Figure 15 of the infundibulum pituitary region from Chapter VII of Vesalius’ De humani corporus fabrica libri septem © BIU Santé Paris. rpt. Bataille et al. (2007).
Fig. 59. Figure 16 of the infundibulum pituitary region from Chapter VII of Vesalius’ *De humani corporis fabrica libri septem* © BIU Santé Paris. rpt. Bataille et al. (2007).

Fig. 60. Figure 17a of the infundibulum pituitary region from Chapter VII of Vesalius’ *De humani corporis fabrica libri septem* © BIU Santé Paris. rpt. Bataille et al. (2007).
Fig. 61. Figure 17b of the infundibulum pituitary region from Chapter VII of Vesalius’ De humani corporis fabrica libri septem © BIU Santé Paris. rpt. Bataille et al. (2007).

Fig. 62. Figure 18 of the infundibulum pituitary region from Chapter VII of Vesalius’ De humani corporis fabrica libri septem © BIU Santé Paris. rpt. Bataille et al. (2007).
Fig. 63. Male Figure Anatomical Fugitive Sheet: Wittenberg, 1573. rpt. Wellcome Image Library, London.
Fig. 64. Female Figure Anatomical Fugitive Sheet: Wittenberg, 1573. rpt. Wellcome Image Library, London.
Fig. 65. Skeleton Anatomical Fugitive Sheet: Wittenberg, 1573. rpt. Wellcome Image Library, London.
CHAPTER SIX

Conclusion

For Lorenz Fries and Hans von Gersdorff, images included in their texts that recorded the gestures of dissection and contours of the unique brain object, while providing visual traces of brain matter, did not define the brain. I have shown that if one includes verbal and gestural signs used in relation to the brain images, the books in which they were attached, and the thought style that created them, Gersdorff and Fries only mention brain matter as that which one must discard in order to understand the idea of the brain.

Understanding the brain in the 16th Century has been a difficult task because of the conflicting epistemic approaches such as the use of the inner senses along with gestures of dissection, images, and verbal descriptions that both isolated and connected the brain from/to the rest of the body. By approaching the brain as an allegory and emblem, this comparative epistemology has shown how the inner senses can be understood as an extremely important thought style used by 16th Century doctors and surgeons. Lorenz Fries approached the body and brain allegorically, mobilizing gestures, images and words through the proper performance of common sense, imagination, reason, and memory located in the cerebral ventricles. Within his thought style, the images attributed to him since the 1850's had little effect on his approach to the brain. Since he did not provide the “soul” or written interpretation to the “body” of the image, the absence of commentary provide historians carte blanche to interpret the images as they would please.
By reintroducing the thought style of the inner senses, I have shown that Gersdorff also attempted to perform the instruments of the soul. As a surgeon, his performance allowed him to move between words, images, and gestures as equally valid signifiers that produced a collected of fragmented signs. As a diagnostic tool, the inner senses allowed him to recognizing proper and aberrant performances of the inner senses as well as treat injuries to the front, middle and back of the head.

From my research, I have presented the following three conclusions: first, the inner senses can be understood as thought style that created brain rituals. As a thought style, it was performative and theatrical. The inner senses were performative in that they created the very world they performed, the brain included. If we remember that by performative we mean ‘the simultaneity of action and meaning,’ we see that the product of the ritual of knowledge in the 16th Century was not as important the ritual itself. The proper performance of the inner senses by definition made the sensible knowable. By theatrical, I showed that the allegorical head was a “sign of a sign,” or sensible vehicle of the intellectual form. The emblematic brain was alternately theatrical in that, instead of citing the head as a divine organ, the signifiers of words, images, and gestures alternately signified each other in a movement of signification that attempted to access the “secret” of the head and brain.

The second conclusion from this dissertation can be found is that the brain in the early 16th Century was not yet isolated from the head. By isolating the spoken, graphic, typographic and gestural signs that defined the head and brain, I showed that the brain was defined throughout the 16th Century in relation to the allegory of the head. In order for the brain to become isolated, the allegory of the head had to transform into an
emblem. Otherwise stated, the head was slowly understood as a collection of fragments rather than a whole. This fragmentation process occurred in Fries and Gersdorff’s medical and surgical texts whereby the simultaneous presentation of images and words created a new audience with a new anatomical body.

Finally, by studying the brain as allegory and emblem I showed how the various fragmented parts that appeared in Fries and Gersdorff’s medical and surgical texts became dominant metonyms of the whole object in later anatomical and theological texts. The simultaneous presentation of the rete mirabile and the pituitary gland in Vesalius’ anatomical and Melanchthon’s theological works supports this point. As an emblem, the union of word, image, and gesture alternately represents and signifies, so that the emphasis on brain fragments helped to create new brain rituals in the 16th Century that became part of popular and academic literature. Spiegel der Artzey and Feldtbuch der Wundartzney, as popular medical and surgical texts, trained an audience on how to be medical and surgical patients as well as how to properly perform their brains.

From this information about the creation of the brain as allegory and emblem, the images of the dissected cadaver and brain attached to Fries’ book appear to be inserted in the text by the printer Johann Grünninger rather than Fries. The visually accurate brain was the result of the ingenuity of a printer rather than an advance in medical knowledge. The popularity of Gersdorff’s text printed in 1517 must have caught the printer’s eye and he borrowed the woodblock to stimulate sales for Fries’ book, published a year later. The only reference Fries makes to dissection and anatomical knowledge is that “some ancients did it” and “dissection only occurs in large cities and is not useful for a doctor,” and “see the other man’s book in Strassburg who wrote about the third instrument of
Rather than use dissection, Fries attempted to harmonize the body’s four humors and four complexions with the four elements in nature. Even further, Fries utilized buildings in Strassburg such as the Strassburg Cathedral to improve cerebral functioning in himself and his patients. If one imagines, parishioners in the Strassburg Cathedral can be seen rocking forward and backward to stimulate the humors in the head and control the vermis and the pineal gland, which would improve the movement of animal spirits through the cerebral ventricles as the priest delivered his homily.

For Gersdorff, however, the collection of ornamental details became the knowable brain. The hybrid presentation of an ancient authors, images, poetic descriptions, experiments, architectural space of Saint Anthony’s Cathedral, the rehearsed gestures of cutting, the spoken words, colors, sounds, smells, time of year, and the theory of the inner senses were all part of the complicated cultural script that defined the brain as emblem. At any time, each one of these codes could guide the reading of the brain and the style by which it was approached, creating a tension between the whole and the part.

As the concept of the brain becomes increasingly important to styles of contemporary thought, the so called neuroscientific turn of the last 20 years seems to be a reframing of how one asks certain questions of the brain and how one expects the brain to respond to those questions. We have seen that the boundary of the brain object is not stable, but shifted throughout the 16th Century. As such, dissection and typography are two structures among many that defined the ways individuals approached the brain and created brain rituals. Isolating the brain also implies one can isolate it in a parallel but alternative media (i.e. gestures, words and images). The repetitive citation of codes of
dissection and accurate images is particular to a post-19th Century historiography and
does not originate from the early 16th Century.

Through reframing the brain created by Fries and Gersdorff, and attempting to
translate one thought style into another, new questions have arisen that will be helpful in
defining the traces of the historical brain in a post-typographical brain presentation: is the
brain recorded in the scripts of speech and gesture the same as the brain recorded in
moveable type, printed images, and digital code? After the inner senses translated the
allegory of the brain into typography, did the ‘typographic brain’ that arbitrarily began in
1517 end in the year 2000 after the ‘decade of the brain’ translated the typographic brain
into digital code? Or, are we continually dealing with a hybrid object, a cerebral emblem?
For Fries and Gersdorff, as well as contemporary humanists and neuroscientists,
approaching the brain requires the difficult work of harmonizing codes from multiple
signifying structures; translating these diverse scripts also requires an openness to the
performativity and theatricality of a brain that is spatial, temporal and culturally
meaningful.


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