Visualizing Medical Knowledge:  
Conceptions of Health, Disease and Cure  
in Twelfth-Century Illuminated Manuscripts

Introduction:

Pick up any present-day medical textbook and you will find illustrations: charts, graphs, diagrams of human anatomy, images of disease and medical procedures. These illustrations usually function as explanatory devices meant to clarify or reinforce an associated text. They both represent and teach “real life” medicine: what a patient can expect from a hospital stay or what a doctor can expect to see when opening a body. Although these might seem like the most obvious reasons for including images, in the Middle Ages, medical illustrations did not always operate in this way, particularly in the twelfth century.

Medical knowledge before the twelfth century was conveyed less through schools and books than through apprenticeships and personal relationships.1 The books that were produced, such as *materia medica* and miscellanies, were predominantly practical and contained brief abstracts of ancient medical authors.2 Further, such books emerged largely within a religious context. It was not professional practitioners but monks and clerics who generally copied and used these works. Their illustrations often did not even relate to an accompanying text, or when they did—as in the case of herbals—the images did not always accurately represent the subject (the plants) they purported to depict. It was not until the thirteenth century, when books came to be used in a university context to teach doctors, now considered professionals, that we first see

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1 There is always a danger of anachronism when one uses a modern word for a historical phenomenon. Here by ‘medical’ and ‘medicine,’ I am referring to those cultural practices and ideas involving bodily health, disease, and healing.

the formalized medical texts and images that are the forerunners of our modern scientific medical book.

In this regard, the twelfth century represents a fascinating time of transition. Greek and Arabic medical works were being translated and dispersed throughout western Europe, and these texts introduced a more theoretical approach to medicine. They offered a rational understanding of the body and of healing that supplemented the more practical and religious methods that had previously dominated European medicine for hundreds of years. Questions were raised about the relationship between the old ways and the new, and the medical books produced in the twelfth century include puzzling images that reflect this tension. Most are not purely “scientific” nor are they always included in books that today would be considered “medical.” On the contrary, we find medical and botanical themes mingled with a wide assortment of texts and images relating to natural philosophy, cosmology, morality, pagan mythology, and Christian theology and exegesis. Twelfth-century medical images show us that “medicine” still meant something quite different than it does today. Furthermore, these images appeared in unexpected places: while most of the work of translation occurred in Italy and Spain, the new images were produced in northern Europe.

To the extent that most scholars have examined twelfth-century medical images, they have primarily focused on their medical aspects, or those visual features which were believed to provide evidence of actual twelfth-century medical practices. Those illustrations that do not accord with modern conceptions of medicine have either been ignored as “merely” decorative or deemed irrelevant. Medical diagrams have likewise been neglected even though such figures represent patterns of thought and therefore could offer insight into medieval conceptual
schemes. In addition, those images that are considered ‘medical’ have been approached in isolation, that is, without looking at their placement and connection to other images and texts within a single manuscript. As a result, there are several separate academic discourses related to images in medical manuscripts that have precluded scholars from fully understanding this material.

My dissertation aims to address these gaps in the scholarship by taking a different approach to medieval medical images. It will consider heretofore neglected sources from the twelfth century as well as their associated manuscripts and will assess both as products of the twelfth-century monastery. Two major questions will be asked: what are the functions of these images and what can they tell us about how medicine was conceived in the twelfth century? It will try to answer these questions through a detailed investigation of three manuscripts containing medical images and diagrams. The first example will be based on British Library, Harley Ms. 1585 (“Harley 1585”), generally considered a medical manuscript due to its pharmacopeial texts. All of its illustrations are figurative, that is, they depict life-like human bodies, and include images of cautery, medicinal herbs, and the earliest depictions of surgical procedures. Yet there are also images of mythological creatures, an enthroned doctor, and many images with religious connotations. A very different visual strategy is pursued by Durham Cathedral Library, Hunter 100 (“Durham 100”), the basis of my second investigation. Although containing medical images and texts, it has been classified as a computus manuscript, defined by

3 Madeline Caviness, “Images of Divine Order and the Third Mode of Seeing,” Gesta 22 (1983): 99–120. A clear example of a medical diagram is the sphere of Apuleius, used to predict the outcome of whether a person would live or die.

4 This manuscript is available online: http://www.bl.uk/catalogues/illuminatedmanuscripts/record.asp?MSID=7970 and http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=Harley_MS_1585.

5 Available online at: https://iiif.durham.ac.uk/index.html?manifest=t1m2t75r801v.
a focus on the reckoning of time. It also contains a large number of diagrams, some of which are explicitly medical. A very similar manuscript, Oxford, St. John’s College Ms. 17 (the “Thorney manuscript”), has been well-studied by Faith Wallis, whose work will serve as a model for my own study of Durham 100.6 The third inquiry is based on a codex originally from a monastery in Prüfening, Germany (Munich, Bayerische Staatsbibliothek, Clm. 13002; the “Prüfening manuscript”).7 In this manuscript, two series of medical images appear in an eight-page frontispiece which is attached to non-medical texts (glossaries and biblical commentaries). While these images depict human bodies, they take an abstract approach, portraying the internal organs as geometrical objects, for example. Here we find yet a third visual strategy for depicting medical subjects.

All these manuscripts are remarkable and make striking visual statements about the nature and understanding of medicine in the twelfth century. All three were later copied for other monasteries and at least two of them held special status within their communities. The Thorney manuscript was produced at a critical time of revival for the abbey after the Norman Conquest and contains three hundred years of Abbey records in its margins.8 The Prüfening manuscript includes a list of the abbey’s treasury and library as well as a full page commemorating its founder and important leaders. A luxurious court style was used for the Harley manuscript and


the work is often compared to the Ingebourg Psalter, which was created for the wife of King Philip of France.\(^9\)

These intriguing scientific images and manuscripts have not been adequately assessed by the scholarly world. Their examination will not only help to break down the established borders of the art historical canon but will also create greater interdisciplinary ties between art history and the history of science. It will do both by critically assessing the present binary between secular “medical” images that transmit knowledge and religious images that inculcate faith.\(^10\) In addition, because these works were produced during the twelfth century’s increasingly complex system of cross-cultural exchange, my dissertation will delve into questions of the global circulation of ideas and images and provide insight into how medical knowledge from the East was transmitted, adapted or rejected, and understood in the West. Lastly, by focusing on these remarkable twelfth-century illustrations, my dissertation will augment and enrich the understanding of the medieval notions of health, disease, and cure at a time when both the scientific disciplines and the profession of medicine were just emerging.


II. Historiography

While scholars have recently been interested in the meaning and function of images in historical medical texts, most research has focused on images from the university books of the thirteenth century forward. The more puzzling medical images from the twelfth century, which include religious, geographical and philosophical illustrations, have either been ignored or approached in isolation along disciplinary lines.

The earliest scholars to examine medical illustrations were such distinguished historians of science as Karl Sudhoff, Charles Singer, and Loren MacKinney. All produced works that compiled medical images created throughout the Middle Ages and sorted them by types of instruction or by procedures. These books provide a wealth of images, as well as many Latin transcriptions and translations, however not one offers a satisfactory account of the odd compilations of images found within manuscripts, nor do they speculate on the non-medical connotations included in individual images. More recently two historians of science, Peter Murray Jones and Faith Wallis, have begun to address these concerns. Jones produced two


compilations of medical illustrations and, in a recent article, noted the important religious iconography found in certain twelfth-century medical illustrations. Yet, he did not speculate on the meaning of such combinations for medicine.14 Wallis wrote her dissertation on the Thorney manuscript which, like Durham 100, includes medical diagrams. Placing the manuscript within the *computus* genre, she has since analyzed its medical connotations, but from a textual rather than image-based perspective.15 Twelfth-century medical works have also received increased attention since 2011, when a group of historians of science, organized by medical historian Monica Green, began compiling a list of all medical manuscripts from the twelfth century and noting those with illustrations.16 Again, their work is centered primarily on medical texts, and so my research on images will complement their work.

Art historians have only recently begun looking at medical images and generally only those from the Later Middle Ages. The exceptions include Minta Collins, who has produced a formal analysis of herbals from Late Antiquity through the high Middle Ages. She has also analyzed the Harley manuscript, identifying its creator as the well-known patron and abbot, Wibald of Stavelot (c.1098–1158).17 The anatomical images in the Prüfening manuscript have also been considered by several art historians. The images were featured in a catalogue associated with The Metropolitan Museum of Art’s exhibition, “Pen and Parchment: Drawing in


the Middle Ages” and Elisabeth Klemm and Adam Cohen have examined its illustrations in the context of monastic meditatio and spirituality. While both Klemm and Cohen reach important conclusions that will guide my work, neither directly addressed the images from the perspective of medicine, the topic of this dissertation.

III. Methodology

It is safe to say that art historians have neglected twelfth-century medical images. Instead, they have been approached largely through the methodologies of the history of science. Thus, some of the most basic art historical questions have not been asked about these images. The limited number of art historical investigations of these materials offers a major opportunity and I will proceed in my dissertation by turning to the methodologies employed by recent art historians who have focused on twelfth-century art.

I will begin my research by subjecting all the images in my chosen manuscripts to a detailed formal analysis, as well as identifying and interpreting iconographical choices within their cultural contexts. I will also examine the manuscripts from a codicological perspective, looking closely at the relationship between the images, the words on the page (in some cases, newly translated medical writings, or medical instructions) and the texts throughout each manuscript. Because the designers of medieval manuscripts linked image and text in multiple and complex layers, my analysis will need to consider their potential multivalent meanings.

I will also examine images in the context of the monastery and monastic thought. The work of Mary Carruthers, who approached early monastic images as vehicles of (religious) knowledge generation and transmission, will be central for this analysis. The most recent methodological approach to twelfth-century monastic images has analyzed more specific features—diagrams and diagrammatic elements—within the medieval intellectual context. Diagrams, it is claimed, functioned as cognitive mechanisms; that is, they helped viewers and creators think, organize and generate data, ideas and theories, and better understand their world. My supervisor, Adam Cohen, was recently a member of a scholarly research group based in Jerusalem which focused on the visualization of knowledge via diagrams. This group will soon release a book that develops methods for examining these forms of visual images and I will use its theoretical approaches to consider medical diagrams and diagrammatic images.

Rather than being dedicated to a single work or topic, each of the manuscripts in my case studies are miscellanies. Due to their seemingly arbitrary contents and organization, this class of book has often been avoided. Only recently have scholars developed methods to approach the book as an intentionally designed, integrated whole.19 I will use their strategies to approach each manuscript with the presumption that the order and contents would potentially create meaning for the original makers and users of these books.

IV. Chapter Overview

Introduction:

This chapter will provide a general history of medieval medicine in the West up to the twelfth century, distinguishing between the practice of medicine and medical learning in books. Medical practice at this time varied widely with great diversity among its practitioners. There were doctors, healers, herbalists, wise women, magicians, barber-surgeons, midwives and monks. Practices ranged from cautery, bloodletting, plant-based remedies, and regimes for lifestyle and diet to magical incantations, amulets, and religious healings. Before the thirteenth century, knowledge of practical treatments was acquired largely through apprenticeships.

Medical books and book learning, however, were primarily the domain of the monastery. Monks borrowed, copied and stored medical manuscripts from at least the age of Cassiodorus (c. 485–c. 585), the statesman and later abbot who recommended that such texts be read by monks. In the Early Middle Ages, these books were mostly practical, with remedies, recipes and images of cautery, plants and a fetus in utero. Due to a lack of extant manuscripts, it is unclear if ancient medical works contained illustrations and provided models for medieval images. Yet, from the Late Roman era, illustrations are known to have been included in herbals and presently can be found in early copies of Dioscorides’ (first century A.D.) large

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22 See for example, Florence, Laurentian Library, cod. Plut. 73, 41 and London, Wellcome Library, Wellcome Apocalypse, MS 49.
pharmacological work, *Materia medica*. With the exception of local remedies, no medical works were written during this period. The books consisted largely of abstracts from ancient Greek and Roman works. However, with a few exceptions, all lacked the theoretical principles developed during the Classical period.

Yet, theoretical medicine was maintained in the Greek East. Beginning in the ninth century, Greek medical works were translated into Arabic, revised, and augmented for the great intellectual centers of the Islamic world. It was during the twelfth century, with the import of newly-translated Arabic texts, that medical theory and new medical practices, texts and illustrations began to appear in the West—and in the context of the Christian monastery.

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24 Faith Wallis, “The Experience of the Book: Manuscripts, Texts, and the Role of Epistemology in Early Medieval Medicine,” in *Knowledge and the Scholarly Medical Traditions*, ed. Don Bates (Cambridge: Cambridge University Press, 1995), 101–126. The abstraction and compilation process for medical works began during the Roman era. For examples of these works see Oribasius (Greek, fourth century A.D.) Aetius of Amida (Greek, sixth century), Isidore of Seville (Latin, d.636), and Paul of Aegina (Greek, seventh century). The abstracted works that were translated into Latin during the Early Middle Ages include: the gynecological work of Soranus, a synopsis of Oribasius, a small group of Galenic and Hippocratic writings, Dioscorides’ *materia medica*, and some collections of remedies. Siraisi, *Medieval and Early Renaissance Medicine*, 5–6.


three manuscripts studied in my dissertation were created during this century of burgeoning exchange of ideas and Chapter 1 will situate the three examples into the vibrant setting. In addition, this chapter will relate the recent scholarship on the dissemination of medical texts throughout Europe and the debate surrounding origins of the images that first appear in the twelfth century. 27

The introduction will then provide a general historiography of twelfth-century medical images beginning with Karl Sudhoff in the early twentieth century, noting the gaps in the research and explaining the place of my dissertation within the scholarship. It will then explain my plan for detailed studies of three twelfth-century manuscripts that include medical images. Each study will include a traditional art historical analysis of the images as well as new approaches for understanding any geometrical elements; and each manuscript will be treated as a structured unity. I will argue that this form of inquiry can provide insight into the function of twelfth-century medical images and a window into this century’s dynamic conception of medicine.

75; Anna Akasoy, Charles Burnett, and Ronit Yoeli-Tlalim. Astro-medicine: Astrology and Medicine, East and West (Florence, Italy: Sismel, 2008).

Chapter 1: Medical Images: Conveyors of Knowledge, Vehicles for Thinking, and Guides to the Divine

Today illustrations in scientific books usually function as explanatory devices meant to clarify or reinforce a nearby associated text. Like texts, they communicate scientific knowledge, but in a different and complementary way. Yet, the function of twelfth-century medical images—with their religious references and often appearing without accompanying medical texts—has been considered ambiguous at best. Their confusing relationship to what we today consider medical knowledge and its transmission is one of the main reasons why these illustrations have been disregarded by scholars.

For many years, the scholarly understanding of medieval medicine was part of a larger narrative of decline, in this case, the decline of ancient scientific knowledge. "Dark Age" medicine was considered just that—dark and full of magic and superstition. Only recently have scholars begun to dismantle this theory by focusing on the continuities of learning between the two eras and by pointing out the religious aspects of ancient medicine. At the same time, they

28 According to Charles Singer, images in early medieval herbals would not have been used for teaching purposes because in most cases, “the plant is unrecognizable, even by a modern botanist,” “The Herbal in Antiquity,” 33. Other scholars have noted that images of surgery do not provide enough information to teach the procedures despite having titles such as “Polyps are cut from the nose thus.” MacKinney, Medical Illustrations, 70 (referring to Oxford, Bodley MS Ashmole 1462, f.10). Only the naturalistic images appearing in the Early Modern period, which closely imitate the object or procedure represented, have been viewed as transmitters of knowledge. See Sachiko Kusukawa, Picturing the Book of Nature: Image, Text and Argument in Sixteenth-Century Human Anatomy and Medical Botany (Chicago & London: University of Chicago Press, 2011); Brian Baigrie, ed., Picturing Knowledge: Historical and Philosophical Problems Concerning the Use of Art in Science (Toronto: University of Toronto Press, 1996). See also Monica Green’s assessment in “'Habeo istos libros phisicales'” (forthcoming).


have focused predominantly on medical texts. The old view of many medical images remains active. According to Bert Hall, “[f]or the most part, [medieval medical] images remain an unusual subject, peripheral to the mainstream of investigations and still largely unexplained in respect to their broader cultural significance.” While Hall wrote this over twenty years ago and images have increasingly been considered by historians of science, words are still considered to be the main vehicle for twelfth-century medical knowledge.

I will not attempt in this chapter to dispel historians’ concerns regarding the value of medieval medicine. I will, however, reevaluate the role of twelfth-century medical images in the context in which they were produced. First, I will offer general observations on the pedagogical and intellectual context of the monastery and the role of images within this world. Was their purpose to transmit knowledge? What does ‘transmission’ and ‘knowledge’ mean in this context? Second, it will consider the monastic images within a narrower field, the twelfth-century phenomenon of classical revival and the increasing distribution of newly translated medical texts from the Islamic world. How did the monastic images reflect the incorporation or rejection of these secular and non-Christian ideas? Lastly, it will focus on political issues, namely the conciliar rules limiting the practice of monastic medicine. Did images reflect the tensions surrounding such rules? My goal in this chapter is to provide a framework for the

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discussion of specific manuscript images in later chapters and to broaden the types of information that can be communicated through medical images.

Because all three manuscripts were produced in monasteries, the chapter will consider the role of illustrations in the monastic intellectual world. Mary Carruthers’ book, *The Craft of Thought*, will provide the starting point for the discussion. Her work focuses on the acquisition, adaptation, and visualization of medieval monastic knowledge through *meditatio*, which is both a pedagogical technique and the characteristic monastic pattern of thought. It involves a type of associational thinking in which images are essential and, through images, many layers of interrelated knowledge are gathered and harmonized. Illustrations are thus representative gathering spaces—embodying multiple layers of ideas and interpretation, often more effectively than words—and creative tools, generating additional associations and knowledge. Many visual strategies, such as geometrical elements and titles, were incorporated during the twelfth century to aid, shape, or even limit this process. Combinations of images and texts within manuscripts add even more associations and limitations.

Medical images were not immune to this phenomenon, but they were hampered by concerns regarding their secular, pagan, and possibly Islamic derivation. In other contexts, the


35 For the relevance of *meditatio* to medical images, see Cohen, “Making Memories.” For concerns surrounding the use of secular knowledge and, in particular medicine, see Isidore of Seville, who linked medicine to philosophy, and Ambrose (c.337–c.397), who claimed that “no one can see Christ who has assumed the garment of philosophy or, specifically, the dress of secular wisdom” *Etymologies*, Bk. 4, ch. 13:1–5, trans. William D. Sharpe, *Isidore of Seville: The Medical Writings*, Transactions of the American Philosophical Society, new series 54, pr. 2 (Philadelphia: American Philosophical Society, 1964), 55–64, and *De virginitate*, 92, ed. and trans. Granco Gori in *Verginità, e, Vedovanza*, Sancti Ambrosii episcopi
misuse of pagan knowledge resulted in trials and condemnations. Bernard of Clairvaux, in particular, denounced such learning as irrelevant to the task of the monk. For Hugh of St. Victor, however, both sacred and secular knowledge could guide a learner to salvation, which was, after all, the goal of the religious life.

Even monastic religious images, however, did not always or only function to impart or generate knowledge. One of the virtues of monastic images was their ability to associate many different ideas, create multiple meanings, and function in many different ways, all at the same time. For example, an image can be a vehicle to aid the memory, which is to say, it has the potential to organize information in such a way as to make it more retainable, a more specific function than knowledge transmission. Anthropomorphized star charts, tree-shaped genealogical diagrams, and even maps could represent (along with their other possible functions) examples of this role. Monks also used images as a gathering space for linked ideas relating to the creation or enforcement of a communal identity. The Prüfening manuscript includes a page


with illustrations of the community’s founder, leaders, and patron saints surrounding a text of the monastery’s treasury. Images also acted as a guide or model to encourage a moral life. Since Socrates, knowledge has been linked to virtue, but in the twelfth century new forms of this connection arose. In addition, at least two of my example manuscripts were created after a period of monastic reform, and one links the suffering patient with the suffering saint. Monks further used images as political tools or to make intellectual arguments, and, because the ability of monks to practice medicine had been challenged during the twelfth century, it may be that the illustrations in the example manuscripts are a response to this challenge.

40 For examples of images used as a guide to a holy life, see Morgan Powell, “Paradisum speculatorium in picturam ponere: Developing a Picture Program as the ‘Mirror of Virgins,’” in Diagramm und Text: Diagrammatische Strukturen und die Dynamisierung von Wissen und Erfahrung, ed. E. Lutz (Wiesbaden: Reichert, 2014), 123–56 and Cynthia J. Hahn, Portrayed on the Heart: Narrative Effect in Pictorial Lives of the Saints from the Tenth through the Thirteenth Century (Berkeley: University of California Press, 2001). Ian Wei notes that often scholars have separated the moral and philosophical/theological writings of medieval writers and discounted the former. However, this approach misses the importance placed on ethics by medieval theologians themselves and the institutional significance of pastoral care. Intellectual Culture in Medieval Paris: Theologians and the University, c. 1100–1330 (Cambridge: Cambridge University Press, 2012), 1–2.


42 It is clear from the decrees of the Second Lateran Council of 1139 and the 1163 Council of Tours that monks practiced medicine, possibly charging fees to laypersons, and were leaving the confines of the monastery to study at regional centers. Canon 8 from the Council of 1163 attributes this to the devil who enticed monks to the study of medicine. “On this account so that, by the pursuit of knowledge, spiritual men be not entangled again in the affairs of this world and be not lacking in things of the soul, believing themselves thereby to provide for others in external matters, we decree with the consent of the present council that no one at all is permitted to depart for the purpose of studying medicine or secular law after having taken the vow and profession of religion in any religious place.” Medieval Medicine: A Reader, ed. Faith Wallis, Readings in Medieval Civilizations and Cultures: XV (Toronto: University of Toronto Press, 2010), 363–364. In his Memoirs, John of Salisbury also associates the study of medicine with the desire for a greater income or career; Memoirs of the Papal Court, trans. Marjorie Chibnall (London & New York: Nelson, 1956). For other examples of the argumentative use of images, see Marcia Kupfer, The Art of Healing (University Park, PA: Penn State University Press, 2003); and Anne-Marie Bouché and Jeffrey Hamburger, eds. The Mind’s Eye: Art and Theological Argument in the Middle Ages (Princeton, NJ: Princeton University Press, 2005).
One of my goals in this chapter, and in the dissertation as a whole, is to ascertain what other associations and functions these images held for a monastic audience and thereby broaden our understanding of medieval medicine. Limiting the value of medical images to knowledge transmission, while in itself important, diminishes our understanding of twelfth-century medicine. In later chapters, I will highlight the specific visual strategies used and attempt to tease out the multiple, contextual reasons for such use. The monastic employment of and dependence upon images was complex, and this chapter will stress their multifaceted use in the monastic world.

Chapter 2: Figurative Medical Images: Visualizing the ‘Theory’ of Disease and Cure

New kinds of medical images containing human figures began to appear in the late eleventh and twelfth centuries. Fully painted doctors and patients are depicted both independently and together in therapeutic contexts. The earliest modern scholarship linked these classically styled figures to the twelfth-century recovery of ancient knowledge. The new medical images were deemed mere copies of classical models and any variations or oddities were the mistakes of ignorant medieval artists. I will begin this chapter by situating these new fully figured medical images within this discourse, but with the perspective that stylistic qualities are often chosen rather than copied. The reasons for these and other medical and non-medical

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iconographical choices are worthy of study in their own right, and the new figural images should be examined and explained in the historical and artistic contexts in which they were created. Because this context included the influx of new medical texts and possibly images from the East, the images should provide information on the transmission of this knowledge to the West.

My approach will be to provide a detailed examination of the Harley manuscript created in the late twelfth century, most likely in Northern France or the Meuse Valley (Figs. 1–6). Previous scholarship has focused on the new surgical procedures depicted in the manuscript and, with one exception, has disregarded the Christian and mythological aspects of the images. My argument will focus on the possible meanings of these curious elements within a medical image. How do the images relate to Late Antique or contemporary Islamic medical models? Likewise, how do they relate to Christian religious images? How did artistic choices help to articulate these relationships and help to uncover the function of the images? What can the conjunction of Christian, mythological and medical elements tell us about the contemporary conception of illness, healing and the sick?

To address these questions, the chapter will focus on visual parallels between medical images and other non-medical types of figurative illustrations that were prevalent during the twelfth century. For example, I will compare images of cures to those of the martyrdom of saints, which appear in the increasing numbers of hagiographical books during this period.45 Many depictions of the torture of saints are remarkably similar to those of patients undergoing surgical and cautery procedures. How do illustrations of religious healing relate to those of medical healing? Works from such scholars as Cynthia Hahn, Herbert Kessler and Marcia Kupfer will be

45 Hahn, Portrayed on the Heart.
important for this analysis. The depictions of enthroned and haloed doctors will be compared to royal and evangelist portraits and the inclusion of mythological figures will be assessed in relation to other contemporary works. Additionally, I will evaluate the relationship between medical images of the sick and the new twelfth-century visual and theological emphasis on the suffering body. This will include the suffering body of Christ and images of the deformed and diseased body in the illustration of miracles.

Lastly, I will consider the implications of the ordering of the images and texts within the Harley manuscript. A thorough codicological analysis will be required in situ. What additional insights into twelfth-century medical concepts does this structure reveal? What do changes to the order or the imagery in later copies imply?

Chapter 3: The Diagram: Visualizing “Temporal” Medical Knowledge

The focus of this chapter will be on medical images of an entirely different character—those that are purely diagrams. Diagrams have only recently been considered in art historical scholarship and their relevance to art history is still debated. The prevalence of the diagram in


48 For example, the recent Visualization of Knowledge in Medieval and Early Modern Europe Conference in Jerusalem, June 6–9, 2016. See also, Eric Ramírez-Weaver, “William of Conches, Philosophical
medieval medical contexts, however, is clear. While medical diagrams are found in a number of types of manuscripts, I will focus on their inclusion in two *computus* manuscripts, a genre that brings together charts, diagrams and texts that assist in determining the date of Easter.

Both *computus* manuscripts were created in English monasteries during the early twelfth century. The first, the Thorney manuscript, is composed entirely of diagrams and texts. Medical texts flank the work and medical and other diagrams are included in the interior (Figs. 7–12). Faith Wallis has performed a thorough textual and codicological examination of the manuscript for her Ph.D. dissertation, which she has supplemented with subsequent articles and a website dedicated to the codex. Yet, despite the prominent place of medicine at the beginning and end of the manuscript, she asserts that the *computus* materials are the “core” of the manuscript and the medical materials are “satellite.” She has since softened this distinction by considering a medical understanding of the work and has made important connections between medieval


50 Wallis, “MS Oxford St. John’s College 17.”
medicine and notions of time.51 The second subject of this chapter, Durham 100, presents another example of the relationship between medicine and time (Figs. 13–18). Here, there are medical diagrams and figural images of cautery procedures, personified constellations, and other astronomical and *computus* diagrams. The astronomical aspects of time are emphasized and linked to medicine. Historians at the University of Durham and Dr. Wallis are currently involved in a project to establish the historical context of the work and the sources of its texts. Their conclusions will be vital to my work.

Because much research has been performed on the codicological, textual, and historical elements of the manuscripts, my contribution will be limited to three areas. First, I will focus on the nature and function of diagrams as visual strategies to contain and direct interpretation and what their use says about the conception of medieval medicine. The chapter will consider the earliest examples of diagrams in medical prognosis and their relationships to time; for example, the sphere of Apuleius (which foretold life or death on a numerological basis) and charts of Egyptian days that were considered unfavorable for medical procedures.52 Traditional art historical models of formalism will be considered as well as Charles Peirce’s theories on the role of the diagram. 53 I will also examine recent anthropological scholarship, and epistemological


52 Some of the earliest extant depictions of the Sphere of Apuleius are in chart form and from the ninth century. Bruce Eastwood, *Ordering the Heavens: Roman Astronomy and Cosmology in the Carolingian Renaissance* (Leiden & Boston: Brill, 2007), 269. By the twelfth century, the Sphere is often drawn as a circle. The first evidence of the written text of the Egyptian Days occurs in 354 in the calendar, *Fasti Philocoliani* and then again in text and chart/calendar form from the ninth century. Sándor Chardonnens, *Anglo-Saxon Prognostics, 900–1100: Study and Texts* (Leiden & Boston: Brill, 2007), 331.

approaches to form will also be discussed. Developing a clear understanding of medical diagrams will also be important for the following chapter where we will see them combined with and transformed by figural imagery to create new kinds of medical images. Second, I will put more emphasis on the monastic context of the manuscripts’ production. What might this tell us about the nature of the diagram and its meaning and function within the manuscript? The third issue concerns the inclusion of medical diagrams in *computus* material. How did the influx of new astronomical images from the Islamic lands during the late eleventh and twelfth centuries affect the images within and rhetoric of these manuscripts? What can the images and their order tell us about the transmission and adaptation of medical knowledge from the East?

**Chapter 4: The Diagrammatical Image: Visualizing the Cosmological and Human Body**

Beginning in the Carolingian era and dramatically increasing in the twelfth century, medieval artists began to combine diagrams and figural images to create “diagrammatical images.” This is yet a third visual strategy used in medical illustrations. While scholars have called these types of images different names, they have most often been considered under the aegis of religious art. Madeline Caviness has argued that the order provided by diagrammatical elements in illustrations relates to the divine order and contrasts with the more chaotic earthly

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54 This scholarship argues that diagrams use geometrical elements not merely as borders meant to separate individual images or scenes. Instead, the purpose of the geometry is to relate different ideas, concepts, materials. Adam Cohen, *The Uta Codex: Art, Philosophy and Reform in Eleventh-Century Germany* (University Park, Pennsylvania State University Press, 2000).

55 Adam Cohen coined this term in a paper given at the Visualization of Knowledge Conference, Jerusalem, June 2016.
realm. Anna Esmeijer claimed that these types of images offer a type of religious visual exegesis. Harry Bober links the geometrical elements in religious art to Late Antique pedagogical images with scientific subjects; and Bianca Kühnel connects the religious use of Late Antique diagrams to monastic concerns and the dual production of religious and scientific images within the monastic scriptorium. Despite these differences in approach, in all of the above analyses, scholars have shown how diagrammatic elements were meant to help lead the viewer to knowledge of the divine. What about similar diagrammatic images within medical art?

This chapter will focus on the Prüfening manuscript, created in 1165 by the monks at the monastery of St. George in Prüfening, Germany (Figs. 19–23). The manuscript begins with eight full-page illustrations, two of which are clearly medical. The first presents a series of cautery procedures, each containing an image of an ancient medical writer acting as the practitioner. The second contains the earliest anatomical men and the first copies of newly translated summaries of Galen. Each anatomical image includes a classically styled, life-like head (similar to the Harley manuscript) and a contrasting schematic body with geometrical internal organs connected by lines (closer to diagrams and maps). Likewise, the burn marks on the bodies of cautery patients, who have similar life-like heads, here seem akin to anthropomorphic constellations charts. These

56 “Images of Divine Order.”
57 Divina quaternitas.
images are thus examples of the diagrammatic images produced in the twelfth century, but do they have medical, astronomical or religious meaning? What are the consequences for the medieval conception of medicine?

As the manuscript presents itself today, the first set of images in the frontispiece contains cautery procedures, followed by the anatomical men. According to the most recent codicological review by Klemm, however, this was not the original order.60 An image of man as microcosm originally opened the series followed by the cautery images, the anatomical men, a two-page spread of the virtues and vices, a map of Jerusalem, a list of the abbey’s treasury and a library inventory. These images were subsequently attached to a series of texts including two glossaries of Greek words and biblical commentaries. If the order of the images and texts provides essential information as to meaning, why did the monks place a microcosm first? How do the medical images integrate into this larger structure of texts and images, and what does that say about the medieval conception of the body and of medicine? I will need to consider the relationships between these images and ideas of order and chaos, Christ’s dual nature, cosmological relationships between the body and the universe, the relationship between physical and spiritual health, and even contemporary events involving the contrast between the heavenly and worldly Jerusalem.

Chapter 5: Conclusion

Twelfth-century monks did not create medical illustrations solely as means to explain or support an adjacent scientific text. Instead, their reasons were more complex and involved many other issues of monastic and medieval life, both ideological and practical. My dissertation will show that monastic illustrations were a vehicle for knowledge transmission and generation, but a

60 “Die Regensburger Buchmalerei,” 40–41, 50. See also Cohen, “Making Memories in a Medieval Miscellany,” who refines Klemm’s original findings.
vehicle suited to the monastic mind. Through these illustrations, monks could receive non-Christian learning and adapt it into a monastic religious worldview. It will also show that there were many other local reasons for medical-illustration production and use in specific manuscripts. These include political strife over the monastic practice of medicine, issues of monastic identity, new views on the body, debates in religious theology, and as spiritual means to better understand and come closer to God. Thus, monastic medical images were not merely visual instructions for procedures nor were they religious interpretations of cure. Instead, they are both and more, containing multiple ideas and attempting to understand illness, cure, and the role of the practitioner (whoever that may be) within the larger context of the cosmos as well as the smaller context of their local and everyday lives.

All monastic images included in this dissertation incorporate multiple ideas and, using varying visual strategies, organize, shape and limit these ideas in an attempt to harmonize them within a divine context. The Harley manuscript will show how the monks integrated doctors, patients, and medical procedures (surgery) with ideas of sanctity, and perhaps even rituals of sanctity. The diagrams from Durham 100 present monastic methods to place the body and illness within an eternal framework. My dissertation will show how notions of medicine and concern for the body became more important for the emerging medieval sciences than the idea of time—for theories of optics, perspective, and the body as both lens and subject begin to be the frame through which scientific theories were expressed. Lastly, the images in the Prüfening manuscript, with their combination of both diagram and figural imagery, theory and practice, and religion and science, present issues that will shape medical debate for centuries. Together, all three manuscripts show that the ‘curious’ Northern European works, far from the major centers
of translation in the South, may have contributed more to the growing medical and scientific knowledge of the twelfth century than has been previously thought.

Medicine and medical beliefs are always constructed and medical knowledge claims are always vulnerable to the needs and desires of a culture. Instead of viewing these medical images through the lens of modern day ideas of medicine, my dissertation aims to describe these illustrations in the historical, cultural and intellectual context of the monastery in which they were created. It aims to sway art historians to reexamine scientific images, historians of science to broaden their approach to images, and scientists to recognize the importance of the “soft sciences” – the humanist scholarly approaches that evaluate images, language and context. The result will be a richer conception of medicine, the medieval past, and our own humanity.
V. Selected Manuscript List

* Refers to the central manuscripts studied in the dissertation

**Austria**
Vienna, Österreichische Nationalbibliothek, lat.VI 12600 (humours, Prüfening)

**Belgium**
Brussels, Royal Lib. Cod. 3701–3714 (embryo)

**Denmark**
Copenhagen, Royal Library, Thottske Saml. No. 190 (embryo)

**England**
Cambridge, Gonville and Caius College, Cambridge University, MS. 190/233, f. 2r-6r (anatomical men)
* Durham Cod. Hunter 100 (96) (cautery, computus, other medical texts)
Eton, Eton College Library MS 204 (herbal)
Hereford, *Mappa Mundi*, Hereford Cathedral, England
London, British Library, Cotton MS Vitellius C III, ff. 19r (Aesculapius, Plato, & Chiron)
London, British Library, Cotton Tiberius C.1 & Harley 3667 (computus, medical texts)
London, British Library, Harley 647 (Aratus manuscript)
* London, British Library, Harley MS 1585 (surgery, herbal)
London, British Library, Harley MS 4986 (herbal)
London, British Library, Harley MS 5294 (herbal)
* London, British Library, Sloane MS 1975 (surgery, herbal)
London, British Library, Sloane MS 2839 (cautery)
London, British Library, Cotton MS Tiberius C VI, f.6v (sphere of life and death)
London, India Office Library MS no. 2296 (anatomical men)
London, Wellcome Library, Wellcome Apocolypse, MS 49 (pregnant woman with fetus)
* Oxford, Bodleian Library, Ashmole MS. 399, f.13v–24r (anatomical men, dissection, infant in utero, medical procedures, chiromancy)
Oxford, Bodleian Library, Ashmole MS. 1431 (herbal)
* Oxford, Bodleian Library, Ashmole MS. 1462 (herbal, surgery)
Oxford, Bodleian Library, MS Bodl. 310 (herbal)
Oxford, Bodleian Library, MS Bodl. 352, f.13 (map, Jerusalem)
Oxford, Bodleian Library, MS Digby 83 (computus, astronomical images)
* Oxford, St. John’s College, MS 17 (computus, medical texts)

**France**
*Dijon, Bibl. Publique 448 (computus, medical texts and diagrams)
Paris, Bibliothèque Nationale, cod. Suppl.gr. 247 (herbal)
Paris, Bibliothèque Nationale, Lat. 5239 (computus, prognostics)
Paris, Bibliothèque Nationale, Lat. 5543 (computus, medical texts)
Paris, Bibliothèque Nationale, Lat. 7028 (cautery)
Lyon, Palais des Arts, ms. 22, f. 1r (personification of medicine)

**Germany**
Berlin, MS lat. qu. 198 (enthroned doctors, pharmacology, herbal, Wunderheilungen)
Munich, Bayerische Staatsbibliothek, Clm. 337 (Dioscorides)
Munich, Bayerische Staatsbibliothek, Clm. 13002, f.1v–7v (anatomy, cautery, microcosm)
Munich, Bayerische Staatsbibliothek, Clm. 14436 (computus)
Munich, Bayerische Staatsbibliothek, Clm. 14456 (computus)
Munich, Bayerische Staatsbibliothek, Clm. 14725 (computus, also prognostics)
Munich, Bayerische Staatsbibliothek, Clm. 17403, f.1–7v (based on Clm. 13002)
Stuttgart, Württembergische Landesbibliothek, MS bibl. 2–56, f.135r (Jerusalem)
Wiesbaden, Hessische Landesbibliothek, MS 1 f. 12 (Hildegard macro/microcosm)

Italy
Anagni, Crypt Wall, Anagni Church (Galen and Hippocrates, cosmology)
Florence, Biblioteca Medicea Laurenziana, MS. Laur. Plut 12.17, f. 2v (map Jerusalem)
Florence, Laurentian Library cod. Plut. 73, 41 (earliest cautery)
Lucca, Biblioteca Statale di Lucca, MS 1942, ff. 9r, 28v, 38r (Hildegard macro/microcosm)
Milan, Biblioteca Ambrosiana, MS D 2 inf. (cautery)
Rome, Vatican Library, Pal. Lat.1158 (harmony between ancient medical theory and practice)

Switzerland
Basel, University of Basel, Library, MS D.II.11, ff. 169v–171v (anatomy)

United States
Baltimore, Walters Art Gallery, MS W.73, ff. 1r–9r.
Duke University Medical Center Library, Trent Collection, Mansur Manuscript, f.1r–44v (anatomy)
Los Angeles, J. Paul Getty Museum Ludwig XII.5 (computus with medicine)
New Haven, Yale University, Harvey Cushing/ John Hay Whitney Medical Library, MS 10 (Bamberg Surgery)

Other
Microcosm, Hortus Deliciarum, f. 16v (in Rosalie Green, Hortus Deliciarum, pl. 9)
VI. Schedule

My plan will be to begin by researching materials for the Harley manuscript in Chapter 2 and to plan an overseas research travel to view manuscripts based in England. I will begin writing during the late Fall of 2017. I will travel to England in the summer of 2018, visiting the libraries in London, Oxford, Cambridge and Durham. There I will complete the research for Chapter 2 and begin the research for Chapter 3. I will try to complete this chapter by early Spring, 2019 and begin the research for Chapter 4. This research will also entail travel to Germany to view manuscripts and the monastic sites of production. I will then return to Chapter 1 and will rely on the library resources at the University of Toronto where theoretical questions come to the fore. Lastly, I will complete the Introduction and Conclusion.

VII. Images

[in a separate document]
VIII. Bibliography

**General**

**Primary Sources**


Secondary Sources


Wickersheimer, Ernest. Figures médico-astrologiques des IXe, Xe et XIe siècles. E. Brill, 1914.

