

**The Medieval Pregnancy Test:
Diagnosing Pregnancy and Predicting the
Child's Sex in Later Medieval Europe**

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Declaration of Authorship

I, Zosia Edwards, hereby declare that this thesis and the work presented in it is entirely my own.
Where I have consulted the work of others, this is always clearly stated.

Signed: _____

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Abstract

This thesis challenges the assumption that pregnancy diagnosis is a modern innovation, by examining methods of pregnancy diagnosis from later medieval Europe. Medical and divinatory methods for diagnosing pregnancy and predicting the sex of the child were recorded in medical, divinatory and astrological texts, and legal procedures for diagnosis were also developed. This thesis seeks to establish whether methods of pregnancy diagnosis were important in the Middle Ages: were they ever used? By whom? Why? And in what contexts?

Methods recorded in medical texts include information about the physical signs and symptoms of pregnancy, and methods of testing women's bodies and bodily fluids for indications of pregnancy and the sex of the foetus. Astrological and divinatory texts also included means for ascertaining similar information. It is likely that these methods were used to assist potentially pregnant women and their families in establishing whether they were carrying a much-wanted child. These methods would provide certainty in the uncertain early days of pregnancy. Medical practitioners may have used these methods to guide women's care, but some texts demonstrate a more theoretical interest in signs of pregnancy.

Evidence from English legal cases involving pregnancy diagnosis is also explored, relating to pregnancy in inheritance cases, and after death sentences had been ordered. Women's claims to pregnancy had to be proven in these circumstances, but diagnostic procedures did not involve medical or divinatory practitioners. Instead, juries of women were sworn in to perform the diagnosis, selected on the basis of their social standing rather than apparent medical expertise.

The processes recorded in these texts demonstrate contemporary medical and social approaches to early pregnancy in intellectual contexts, but this focus on the uncertain days before a pregnancy was confirmed also gives new insights into women's experiences of pregnancy in the middle ages.

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Abbreviations

BHM	<i>Bulletin of the History of Medicine</i>
BL	British Library
CUL	Cambridge University Library
Green, MWMM	Monica H. Green, <i>Making Women's Medicine Masculine: The Rise of Male Authority in Pre-Modern Gynaecology</i> (Oxford: Oxford University Press, 2008)
LCL	Loeb Classical Library
NBCR	Nottingham Borough Court Rolls
SHM	<i>Social History of Medicine</i>
TC	Trinity College, Cambridge
TNA	The National Archives

Chapter 1: Introduction

Yif thou wylt knowen well & truly whether a woman be with child other none
withouten lokyng of water:

Yf a woman be with child take hir to drink mede when she shall wende to bedde and
yif she have moch woo [woe] in hir wombe it ys a signe that she is with child.¹

The above procedure for diagnosing pregnancy appeared in a recipe collection within a fifteenth-century English medical manuscript, and is one of many examples of methods of pregnancy diagnosis recorded in later medieval Europe. Methods for diagnosing pregnancy and predicting the sex of a foetus occurred in a range of contexts: practical medical texts, theoretical tracts on medicine and natural philosophy, household commonplace books, and divinatory texts could all include these sorts of instructions. Prescriptive legal texts and case records also record the legal procedures used to obtain a confirmed diagnosis of pregnancy. Evidence from this wide range of contexts suggests that methods of diagnosing pregnancy and ascertaining whether a woman was carrying a male or female child were of interest to a variety of people in the later middle ages.

In this thesis, I am defining a method of pregnancy diagnosis as any technique which could be used to attempt to tell whether a woman was pregnant or not, or to identify the sex of her unborn child. Traditional medical usage of the term 'diagnosis' usually refers to the identification of a condition by the scrutiny of signs and symptoms.² The definition employed here is slightly broader than the traditional medical usage, encompassing divinatory methods for identifying a pregnancy and its potential outcome, and legal procedures for establishing for certain whether a woman was pregnant or not, as well as the use of medical diagnostic techniques and active tests. I have also elected to categorise lists of signs and symptoms of pregnancy as an example of a method of pregnancy diagnosis, which William MacLehose refers to as information about 'the pathology of pregnancy', the

¹ London, British Library (BL), MS Sloane 249, f. 195v.

² 'The identification of the nature of an illness or other problem by examination of the symptoms', 'Diagnosis', Oxford Dictionaries, <<https://en.oxforddictionaries.com/definition/diagnosis>> [accessed 25th February 2019].

potential illnesses a mother might experience during pregnancy. It is plausible that this information was only intended for informational purposes, given strong theoretical interests in understanding the processes of conception and generation from the thirteenth-century onwards.³ But as the presence of these signs and symptoms could indicate that a woman was pregnant, these lists of signs might also serve as a diagnostic tool for conducting pregnancy diagnosis. Some of the methods for recognising the sex of the child could be classified as methods of ‘prognosis’, if viewed as attempts to predict the likely course of the medical condition of pregnancy.⁴ I have instead elected to treat these as methods of diagnosis: as the sex of the child was conceptualised as being determined from the moment of its conception, these methods can be interpreted as means of recognising a state or condition which already existed.⁵

This thesis seeks to explore the various methods of pregnancy diagnosis which were available in later medieval Europe. In so doing, it will address three broad questions about pregnancy diagnosis in the middle ages: what was the cultural significance of methods of pregnancy diagnosis, and what purposes might these methods have fulfilled in later medieval European society? Were the methods of pregnancy diagnosis recorded in manuscripts ever used, and if so by whom? And finally, what can this focus on pregnancy diagnosis tell us about pregnancy in the later middle ages: what was the role of pregnancy diagnosis in medicine and medical care, and social approaches to reproduction in later medieval society?

Medical and divinatory methods of pregnancy diagnosis, their cultural significance, and the purposes they may have fulfilled in later medieval society, have thus far received little scholarly consideration. These questions are discussed in Parts Two and Three, and the wide variety of available methods, and the diverse textual contexts in which they appear, strongly suggests a significant level of interest in pregnancy diagnosis in later medieval

³ William MacLehose, *‘A Tender Age’: Cultural Anxieties Over the Child in the Twelfth and Thirteenth Centuries* (New York: Columbia University Press, 2007), Ebook, <<http://hdl.handle.net.ezproxy01.rhul.ac.uk/2027/heb.99013.0001.001>>, [accessed 25th February 2019], Chapter 1, Paragraph 60; Monica H. Green., ‘From “Diseases of Women” to “Secrets of Women”’: The Transformation of Gynecological Literature in the Later Middle Ages’, *Journal of Medieval and Early Modern Studies* 30 (2000), 5-39 (p. 6).

⁴ Luke Demaitre, ‘The Art and Science of Prognostication in Early University Medicine’, *BHM* 77 (2003), 765-788 (p. 765).

⁵ Joan Cadden, *Meanings of Sex Difference in the Middle Ages: Medicine, Science and Culture* (Cambridge: Cambridge University Press, 1993), pp. 170-171.

Europe. Creating written texts would have taken considerable resources, in terms of the labour taken to produce copies, and the cost of writing materials.⁶ It is therefore reasonable to conclude that categories of texts which were widely circulated were valued and intended for possible use. The texts considered here promised access to valuable hidden information about pregnancy, which would have been an intriguing prospect for expectant mothers and their families, and medical practitioners tasked with caring for these women. Interest might also come from those with a strong theoretical concern with understanding the mysteries of generation, and representatives of the legal system seeking to prove a woman's claim of pregnancy. The proliferation of pregnancy diagnosis texts supports the assumption that this was a topic of considerable interest to contemporaries.

Such possible interest leads on to the next question: were the methods of pregnancy diagnosis described in the manuscripts considered here ever used, and if so, by whom? While the copying of texts strongly implies interest, it does not provide incontrovertible proof of use: this material may have been copied only because of a sense of intellectual curiosity. But within the broader context of medical, cultural, and social approaches to pregnancy in later medieval Europe, it is possible to make a case for the perceived necessity and probable use of methods of pregnancy diagnosis. Reproducing and having children was strongly encouraged in premodern societies, which would have inspired a desire to know as much as possible about a pregnancy. But the biological realities of life in the premodern world would have created uncertainty as to whether a woman in the early stages of pregnancy was pregnant or not – this uncertainty might even last until a woman gave birth, in cases of cryptic pregnancy.⁷ In these circumstances, individuals hoping for a pregnancy – and those wishing to avoid pregnancy – might wish to confirm a pregnancy using some of these methods of pregnancy diagnosis.

Given the low levels of health and nutrition amongst pre-modern populations, levels of amenorrhoea would be higher in women of reproductive age than they are today.⁸ Such an absence of menstruation in women of reproductive age is today interpreted almost

⁶ Joanne Filippone Overty, 'The Cost of Doing Scribal Business: Prices of Manuscript Books in England, 1300-1483', *Book History* 11 (2008), 1-32.

⁷ Monica Rautelin, 'Cryptic Pregnancies and their Legal Consequences in Premodern Finland', *SHM* 28 (2015), 663-685.

⁸ The ESHRE Capri Workshop Group, 'Nutrition and Reproduction in Women', *Human Reproduction Update* 12 (2006), 193-207 (p. 194).

exclusively as a sign of pregnancy, but, within medieval conceptualisations of women's health, amenorrhoea was an uncertain sign, which could also indicate a serious illness, a threat to her fertility, or even to her life. Emmenagogues – substances to bring on menstruation – are the single largest category of remedies in medieval gynaecological literature.⁹ Some have interpreted this proliferation of menstrual regulators as contraceptive and abortifacient measures in disguise: John Riddle has used these texts as evidence that abortion was widespread in ancient and medieval European societies.¹⁰ However, given the genuine concerns about menstrual health expressed in medical texts, I would argue that the stated purpose of these remedies should be taken at face value. Doubt about menstrual regularity would have encouraged the use of diagnostic methods, to attempt to confirm for certain whether women were pregnant or not.

As for who may have used this material, the evidence of the textual and manuscript contexts in which they appear offers some insights about their owners and readers. This can then be used to assess whether these sorts of people would have put methods of pregnancy diagnosis to use, or whether their interests were purely theoretical. In later medieval western Europe, learned medical practitioners were frequently involved in women's healthcare as a normal part of their practice.¹¹ They would use all available resources to facilitate a healthy pregnancy and a safe delivery for their patients, and methods of pregnancy diagnosis can be seen as one such resource, for removing any uncertainty about a potential pregnancy. This sort of material may also have appealed to ordinary lay men and women, who might make use of diagnostic techniques to manage their own, and their family members', reproductive health. Further consideration of the users of methods of pregnancy diagnosis appears in Part Two.

It is important to acknowledge that accessing written methods of pregnancy diagnosis would have been difficult for many medieval people, particularly texts written in

⁹ Monica H. Green, 'Making Motherhood in Medieval England: The Evidence from Medicine', in Conrad Leyser and Lesley Smith, eds, *Motherhood, Religion and Society in Medieval Europe, 400-1400* (Farnham: Ashgate, 2011), pp. 173-204 (p. 173).

¹⁰ John Riddle, *Contraception and Abortion from the Ancient World to the Renaissance* (Cambridge, MA: Harvard University Press, 1992), and *Idem, Eve's Herbs: A History of Contraception and Abortion in the West* (Cambridge, MA: Harvard University Press, 1999).

¹¹ Monica H. Green, *Making Women's Medicine Masculine: The Rise of Male Authority in Pre-Modern Gynaecology*, hereafter *MWMM* (Oxford: Oxford University Press, 2008), particularly Chapter Two.

Latin. In the middle ages, the majority of people would not have been able to read.¹² This was especially the case for women, who were traditionally excluded from grammar school and university education.¹³ But practices of reading in the middle ages were, in general, communal: texts were habitually read out loud, and texts in Latin might be translated or summarised in the vernacular for the benefit of listeners. This resulted in widespread 'aural literacy', and those who could not read for themselves were able to engage with quite sophisticated textual knowledge.¹⁴

From the thirteenth century onwards, the vernacular was used increasingly in the composition of even the most technical scientific and medical texts. On the basis of her work with Patricia Deery Kurtz compiling a database of medieval scientific writings in Middle English, now available online as the 'e Voigts Kurtz search Program (eVK)', Linda Voigts concluded that by 1475, English was frequently used in the composition of most scientific and medical texts in England, at the most learned level.¹⁵ This vernacularisation would have made some of this material more accessible to people who may have learned how to read in the vernacular to support their commercial or professional enterprises.¹⁶ The increasing inclusion of methods of pregnancy diagnosis in the vernacular within household remedy collections and recipe books supports this.¹⁷ Vernacular translations may have facilitated the circulation of methods of pregnancy diagnosis in oral form, but for obvious reasons it is difficult to reconstruct this sort of dissemination.¹⁸ Further consideration of the influence of vernacularisation on the circulation of this material appears in Chapter Three. Even though these texts became more accessible, it is probable that women of the lowest social classes

¹² Ralph Hanna, 'Literacy, Schooling, Universities', in *The Cambridge Companion to Medieval Culture*, ed. by Andrew Galloway (Cambridge: Cambridge University Press, 2011), pp. 172-194 (p. 174).

¹³ Hanna, 'Literacy', p. 175; Jennifer Wynne Hellwarth, "'I Wyl Wright of Women Prevy Sekenes": Imagining Female Literacy and Textual Communities in Medieval and Early Modern Midwifery Manuals', *Critical Survey* 14 (2002), 44-63 (p. 45).

¹⁴ Joyce Coleman, *Public Reading and the Reading Public in Late Medieval England and France* (Cambridge: Cambridge University Press, 1996), pp.109-147; Hanna, 'Literacy', p. 174.

¹⁵ Linda Ehsam Voigts, 'What's the Word? Bilingualism in Late-Medieval England', *Speculum*: 71 (1996), 813-826 (p. 814).

¹⁶ Armando Petrucci, *Writers and Readers in Medieval Italy: Studies in the History of Written Culture*, ed. and trans. by Charles Radding (New Haven: Yale University Press, 1995), p. 140; Daphna Oren-Magidor and Catherine Rider, 'Introduction: Infertility in Medieval and Early Modern Medicine', *SHM* 29 (2016), 211-223 (p. 220).

¹⁷ Linda Ehsam Voigts, 'Scientific and Medical Books', in *Book Production and Publishing in Britain, 1375-1475*, ed. by Jeremy Griffiths and Derek Pearsall, 2nd edn (Cambridge: Cambridge University Press, 1989/2007) pp. 345-402 (pp. 381-383).

¹⁸ Wynne Hellwarth, p. 45.

would have relied on their own observations, and the informal knowledge of their friends and relatives to recognise whether they were pregnant or not.

English legal records provide evidence of a different kind of use for methods of pregnancy diagnosis. In a legal context, it was important to establish whether claims of pregnancy were truthful or not, in circumstances where a pregnancy could secure advantage for a woman. For a recent widow, such a child might be its father's heir; and women condemned to death might have their punishments deferred if they were pregnant. Prescriptive legal texts expressed strong concerns about the possibility of fraudulent pregnancies and substituted heirs in these circumstances, and therefore legal procedures for conducting diagnosis were developed and deployed in these circumstances. Juries of laywomen were brought in to diagnose pregnancy, and contemporary case records provide evidence that these procedures were definitely put to use. This will be discussed in further detail in Chapter Ten.

The final question, of how a focus on methods of pregnancy diagnosis can offer valuable insights into broader approaches to pregnancy in medicine and society in the middle ages, will be addressed throughout this thesis. The broad arguments are as follows: from the perspective of medical history, these methods of pregnancy diagnosis provide evidence of efforts to translate complex theoretical ideas about the processes of conception and the female reproductive anatomy into useful, practical, diagnostic techniques. This created opportunities for medical theory to trickle down into vernacular practice, to be used by ordinary people. Methods of pregnancy diagnosis also offer an insight into the practices of women's healthcare: pregnancy diagnosis was one of the means by which medical practitioners affirmed their place within women's healthcare. But the evidence discussed here also demonstrates that interest in pregnancy diagnosis was not exclusive to the field of medical practice. Textual contexts demonstrate the theoretical interests of natural philosophers, and we also see evidence of individuals who were not medical practitioners being consulted on matters of pregnancy diagnosis, in the evidence of divinatory methods for ascertaining information about pregnancy, and the reliance on ordinary lay women to conduct diagnosis in legal cases. Despite the increasing involvement of medical professionals in women's reproductive health, pregnancy cannot therefore be conceptualised as a completely medical process in later medieval Europe.

Finally, this focus on pregnancy diagnosis provides insights into the general history of pregnancy in the later middle ages. Most historical literature on pregnancy focuses on the circumstances around childbirth, as these tended to leave the most significant traces in the historical record. But this study focuses primarily on the early days of a potential pregnancy, the time of ‘un-pregnancy’: before a pregnancy had been diagnosed, when it was still uncertain whether a woman was pregnant or not.¹⁹ We can gain a greater understanding of the ways in which confirmation of pregnancy might be sought, and how a woman might come to be recognised as pregnant, medically, socially, and even legally. This study demonstrates that the intervention of a medical practitioner, a divinatory practitioner, or a legally appointed jury of women, might be required to judge whether women were pregnant. The process of recognising a pregnancy was far more complex than historians have hitherto assumed.

1.1. The Historiographical Context

While a few studies of modern methods of pregnancy diagnosis have been written in recent years, this thesis will offer the first comprehensive study on the topic of pregnancy diagnosis in the middle ages.²⁰ The limited discussions of pre-modern methods of pregnancy diagnosis written in the last century were often composed by medical authors, and take a ‘progressivist’ approach to earlier material. Pre-modern examples are used to demonstrate the great achievements of modern medicine, and anything which does not fit the modern western biomedical paradigm is dismissed.

The earliest of these studies, written by Henry Bayon in the 1930s, declared its intention very clearly in its title, ‘Ancient Pregnancy Tests in the Light of Contemporary Knowledge’.²¹ Bayon described examples of methods of pregnancy diagnosis from ancient Egypt, ancient Greece and medieval Europe, and attempted to reconcile these with contemporary scientific developments. He sought precursors to modern methods of

¹⁹ The term ‘un-pregnancy’ is borrowed from the ‘Conceiving Histories’ project, funded by Birkbeck, University of London, and the Wellcome Trust, which focuses on pregnancy before the time of diagnosis. ‘About the Project’, *Conceiving Histories* <<http://www.bbk.ac.uk/conceivinghistories/sample-page/>> [accessed 25th February 2019].

²⁰ Jesse Olszynko-Gryn, ‘When Pregnancy Tests Were Toads: The *Xenopus* Test in the Early NHS’, *Wellcome History*, 51 (2013), 2-3; Sarah A. Leavitt, ‘“A Private Little Revolution”: The Home Pregnancy Test in American Culture’, *BHM* 80 (2006), 317-345.

²¹ Henry Bayon, ‘Ancient Pregnancy Tests in the Light of Contemporary Knowledge’, *Proceedings of the Royal Society of Medicine* 32 (1939), 61-72.

hormone detection in ancient Egyptian urine-based pregnancy tests and expressed frustration with tests which were not ‘easy to correlate ... with any known sign’ of pregnancy. He found it easy ‘to cast aside such prescriptions as superstitious outcomes of ignorance and credulity’.²² Even the most recent of these medical articles takes a dismissive approach to medieval methods of diagnosis – Glenn Braunstein, writing in 2014, referred to medieval medical practitioners conducting pregnancy diagnosis as mere ‘piss prophets’.²³ There have been some references to pregnancy diagnosis in other studies on medieval women's medicine: Monica H. Green makes several references to diagnosing pregnancy, and Catherine Rider referred to one method of discerning the sex of the foetus in a blog post on medieval pregnancy and fertility tests. Her subsequent research has expanded on the infertility aspect of this, rather than pregnancy diagnosis.²⁴ The intention of this study, to consider a range methods of pregnancy diagnosis in their proper social and cultural context, is therefore a novel undertaking.

Pregnancy diagnosis was considered in so many different contexts in the later middle ages, and this study must therefore intersect a number of different areas of scholarship. Amongst others, these include medical history, the history of magic and divination, and legal history. Rather than attempting to summarise scholarship in these areas here, I will address the specific historiographical frameworks as appropriate in each part of the thesis. There is currently no comprehensive scholarly work on pregnancy in this time period, although a number of studies relating to the topic have been conducted. The following two chapters therefore make some attempt to present a discussion of scholarship in these areas. Chapter Two provides a brief consideration of social and cultural approaches to pregnancy in the middle ages, from conception to parturition. This will situate methods of pregnancy diagnosis within the broader spectrum of resources available for managing pregnancy and reproduction in later medieval Europe. Chapter Three discusses the intellectual context within which methods of pregnancy diagnosis were produced. The context of medieval medicine, and women’s medicine in particular is examined, before considering the vernacularisation of this material, as it influenced the practices of ordinary people.

²² Bayon, p. 62.

²³ Glenn Braunstein, ‘The Long Gestation of the Modern Home Pregnancy Test’, *Clinical Chemistry* 60 (2014), 18-21 (p. 18). Sarah Leavitt also adopts this pejorative term: Leavitt, p. 321.

²⁴ Catherine Rider, ‘Medieval Fertility and Pregnancy Tests’, The Recipes Project (2013) <<https://recipes.hypotheses.org/2017>> [accessed 14th March 2019].

1.2. Methodology and Scope

The scope of this study is quite broad, taking into account a range of different types of methods of pregnancy diagnosis. Part One presents an assessment of the cultural and intellectual understandings of pregnancy and the female reproductive anatomy in the later middle ages. Part Two discusses the possible users of pregnancy diagnosis, and the texts in which this material appears, which presents the context for the tests and methods of diagnosis discussed in Part Three. Part Four provides a case study of English legal practices for pregnancy diagnosis – which is arguably the best documented legal system in western Europe for the period discussed. Finally, Part Five presents some conclusions. Evidence for these methods is drawn from medical texts, divinatory texts, prescriptive legal texts and legal case records. This study spans the period c.1200 to c.1525: the European medical and divinatory texts date from the period c.1300 to c.1525. The English legal material also covers the period from 1200 to c. 1500, to illustrate the development of the procedures of pregnancy diagnosis which were used in the later period.

To establish this corpus of medical and divinatory texts, I examined 105 manuscripts in total, sixty-five of which contained texts including methods of pregnancy diagnosis. Some of these were accessed via digital facsimiles, but the majority were examined in person. To identify potential manuscripts, I searched through paper library catalogues, online catalogues, and databases, to identify items including references to medical material, especially gynaecological texts and medical recipe collections. Initial use of the Voigts-Kurtz Search Program, to searching the eVK and eTK databases to identify medieval gynaecological texts, indicated the existence of a body of texts relating to pregnancy diagnosis, and methods of identifying the sex of unborn children in manuscripts from libraries across the world.²⁵ When my list was first drawn up in 2015, I assessed the accessibility of this material for a researcher primarily based in London. At this time, very little of the material in European and American libraries was available digitally, and given my location and the range of later medieval European and English manuscripts held by research

²⁵ This resource enables the user to search through two databases of over 42,000 digital records of incipits from medieval scientific and medical texts, one compiling texts in Latin (the eTK), the other in Middle English (the eVK). 'Voigts-Kurtz Search Program', University of Missouri, Kansas City <<http://cctr1.umkc.edu/cgi-bin/medievalacademy>> [accessed 14th March 2019].

libraries in the United Kingdom, I decided to focus my preliminary research on these collections.

Initial efforts concentrated on manuscript material held by the Wellcome Library. The online catalogue records some references to methods of pregnancy diagnosis, and by working my way through a range of manuscript volumes I was able to gain a sense of the types of manuscript volumes and texts which were likely to contain this sort of material. Since 2015, the Wellcome Library has been gradually digitising its collection of medical manuscripts, which has greatly facilitated access to this collection. Armed with this experience, I then moved on to consider the catalogues of the major research libraries of the United Kingdom: the British Library, the Bodleian Library, and the Cambridge University Library.

The British Library catalogues contain particularly detailed information about the medical material, thanks to a Wellcome Trust grant to catalogue medical materials in the Harley collection, conducted in 2007.²⁶ This contained few explicit references to methods of diagnosing pregnancy, but on the basis of my experience working through Wellcome Library manuscripts, I identified a range of volumes to examine which seemed most likely to contain these methods: texts characterised as gynaecological in the catalogue; uroscopy texts; diagnostic and prognostic techniques; recipe collections; and a range of more theoretical medical texts. I applied a similar set of criteria for identifying texts to the less detailed catalogues of the Bodleian Library and the Cambridge University Library.²⁷ I viewed as many of these promising looking texts as possible, in person or via digitised versions of the manuscripts wherever these were available. I was unable to view all of the volumes initially identified, given the time-consuming nature of the process of systematically working through these volumes looking for references to signs of pregnancy, tests for pregnancy,

²⁶ Laura Nuvolini, 'The Harleian Medical Manuscripts', *Electronic British Library Journal*, 2008 <<http://www.bl.uk/eblj/2008articles/article7.html>> [accessed 16th March 2016]; 'Medieval Medical Manuscripts in the Harleian Collection: A List', The British Library <<http://www.bl.uk/reshelp/pdfs/harleiancollectionlist.pdf>> [accessed 16th March 2016]; Peter Murray Jones, 'Witnesses to Medical Practice in the Harley Collection', *Electronic British Library Journal*, 2008 <<https://www.bl.uk/eblj/2008articles/pdf/ebljarticle82008.pdf>> [accessed 22nd February 2019].

²⁷ For the Bodleian, see Richard William Hunt et al., *A Summary Catalogue of Western Manuscripts in the Bodleian Library at Oxford*, 7 vols (Oxford: Clarendon Press, 1895-1953); for Cambridge University Library, see Charles Hardwick and Henry Richards Luard, *A Catalogue of the Manuscripts Preserved in the Library of the University of Cambridge. Edited for the Syndics of the University Press*, 5 vols (Cambridge: Cambridge University Press, 1856-1867).

and methods of identifying the sex of the foetus. I have, however, been able to identify a selection of manuscripts from across later medieval Europe including methods of pregnancy diagnosis, which provides the basis of the analysis in this thesis.

I then considered whether to extend this search for relevant texts beyond these major research collections. Initial examinations of catalogues of smaller manuscript collections in the United Kingdom, and larger collections in Europe suggested a range of manuscript volumes with similar characteristics to those discussed above, which might indicate the presence of methods of pregnancy diagnosis. However, the constraints of time and budget prevented me from accessing these collections for the purposes of speculative examinations. Instead, I elected to focus on the texts identified in my initial search of the Voigts-Kurtz Search Program, which I knew to contain methods of pregnancy diagnosis. Between 2015 and 2019, several European manuscript research collections were digitised and made available online, and I have therefore been able to view some digitised manuscripts in the collections of the Biblioteca Apostolica Vaticana, the Bibliothèque Nationale de France, and the Huntington Library in California, which were not available when I commenced this study. The corpus of sixty-four manuscripts offering medical or divinatory methods of pregnancy diagnosis compiled on the basis of examining 104 manuscripts in total is by no means complete or comprehensive. It is, however, sizeable enough to recognise some initial patterns and similarities amongst the material, and therefore may be representative of the range of material in circulation in later medieval Europe.

Finally, rather than tackle all the complexities of legal practice across Europe in relation to pregnancy diagnosis, I elected to conduct a case study of the English legal material, on the basis of the availability of surviving evidence. England has an unparalleled collection of legal records for the later middle ages, and I selected a range of English legal case records from the collections of The National Archives. As these medieval collections have not been well catalogued, I have benefitted greatly from the generosity of colleagues who have worked with these legal records for many years, who provided me with references to a selection of interesting cases involving procedures for pregnancy diagnosis.²⁸ These references indicated the document classes which might yield further

²⁸ Particular thanks go to Dr Hannes Kleineke, whose assistance on this matter has been invaluable.

examples of pregnancy diagnosis procedures, and I therefore surveyed a selection of records from the Chancery, the Court of King's Bench, and the Gaol Delivery Rolls. Finally, I have drawn on the limited scholarship conducted in this area, and followed up references to potentially interesting cases.²⁹ This selection of cases is by no means an exhaustive list of all instances of the use of pregnancy diagnosis in the English legal system. It has, however, provided me with sufficient material to illustrate the procedures of pregnancy diagnosis in use in later medieval England, and to draw some comparisons between legal practices, and those in operation in the medical sphere.

1.3. Thesis Outline

This thesis is divided into five parts. Part One, 'Bodies', consists of two chapters. Chapter Two, 'Pregnancy in the Middle Ages', presents an overview of social and cultural approaches to pregnancy in the later middle ages, and the recent scholarship produced in this area. This will situate the present study within the current field of scholarship on pregnancy and childbirth in the middle ages. Chapter Three, 'Conception and the Female Reproductive Anatomy in the Later Middle Ages', explores medieval intellectual approaches to conception and the female body, and the possibility that these methods circulated amongst ordinary people. This situates medieval methods of pregnancy diagnosis within contemporary medical knowledge. It also outlines contemporary medieval knowledge about the female reproductive body, demonstrating the rationale behind medical methods of pregnancy diagnosis discussed in Part Three. These chapters demonstrate the position of pregnancy diagnosis as merely one part of the many understandings and experiences of reproduction and pregnancy in the later middle ages.

Part Two, 'Uses', considers the users and the uses of methods of pregnancy diagnosis in later medieval Europe. Chapter Four, 'Users of Pregnancy Diagnosis Texts', examines the types of people who owned and perhaps used texts and manuscript volumes containing methods of pregnancy diagnosis. Chapter Five, 'Uses of Pregnancy Diagnosis Texts', outlines the types of texts which contained methods of pregnancy diagnosis, offering

²⁹ Cases were drawn from, amongst others: Thomas Forbes, 'A Jury of Matrons', *Medical History* 32 (1988), 23-33; Barbara Hanawalt, 'The Female Felon in Fourteenth-Century England', *Viator* 5 (1975), 253-268; and James Masschaele, *Jury, State, and Society in Medieval England* (Basingstoke: Palgrave Macmillan, 2008).

evidence of the sorts of people who might have taken an interest in employing methods of pregnancy diagnosis.

Part Three, 'Tests', considers the various medical, divinatory, and astrological methods of pregnancy diagnosis which circulated in later medieval manuscripts and prescriptive texts. This part consists of four chapters, each examining a different type of diagnostic method. Three of these consider medical methods of diagnosis: Chapter Six, 'Symptoms and Signs of Pregnancy'; Chapter Seven, 'Uroscopy and Pregnancy Diagnosis', and Chapter Eight, 'Diagnostic Tests for Pregnancy'. Chapter Nine, 'Prediction and Pregnancy', considers two divinatory methods for diagnosing pregnancy – onomancy and geomancy – and astrological methods of finding out more information about pregnancy.

Part Four, 'Laws', consists of a single chapter: Chapter Ten, 'Pregnancy Diagnosis and the Law'. This provides a case study of English common law, considering the legal procedures used to conduct pregnancy diagnosis in inheritance cases and criminal cases in later medieval England. These procedures differ greatly from those outlined in the prescriptive texts discussed in Part Three, but the involvement of juries of women in diagnostic actions offers a unique insight into the medical knowledge of ordinary women.

Finally, Part Five offers a Conclusion. This will draw together the divergent strands of medical, divinatory and legal discussion here, and will offer some observations about the significance of methods of pregnancy diagnosis within medieval society as a whole.

Part 1. Bodies

Part One of this thesis focuses on the body during pregnancy in later medieval Europe. It considers the bodily experience of pregnancy in later medieval society and culture, as well as medical understandings of the processes of conception and generation occurring within women's bodies during pregnancy.

In Chapter One, the social, cultural, and medical approaches to pregnancy in later medieval Europe are discussed, situating the use of methods of pregnancy diagnosis within the broader process of managing fertility, pregnancy, and childbirth. Chapter Two considers medical and intellectual understandings of the female reproductive body, and the processes occurring within during pregnancy. The dissemination of this sort of theoretical knowledge amongst ordinary people will then be discussed, with reference to the vernacularisation of medicine in the later middle ages.

These two chapters on bodies provide context for the discussions to come in the rest of this thesis. The following sections will discuss the types of people who took an interest in diagnosing and understanding pregnancy in women's bodies, and the tests they used to identify these processes.

Chapter 2: Pregnancy in the Middle Ages

This chapter situates the methods of pregnancy diagnosis explored in this thesis within their contemporary social and cultural context, through a broader discussion of pregnancy in medieval Europe. This thesis takes a narrow approach to the study of pregnancy, by considering just one aspect of this process in depth. While there was apparently a significant level of interest in methods of pregnancy diagnosis in the middle ages, it is necessary to avoid overemphasising their importance. This chapter therefore provides a broader approach to fertility, pregnancy, and childbirth as they were experienced and understood by contemporaries. No comprehensive study of pregnancy in the middle ages has been completed, although recent scholarship has focused on various aspects of the topic. The following chapter draws on some of this scholarship, alongside evidence from contemporary texts, to situate pregnancy diagnosis within the broader experience of pregnancy.

The uncertain, early part of a potential pregnancy – the time of ‘un-pregnancy’ – is the primary focus for this thesis, but this chapter will consider pregnancy up to the point of giving birth. This will situate diagnostic methods within broader processes of managing fertility and pregnancy, demonstrating their potential role in the reproductive decisions made by pregnant women and their families. This discussion will first consider the place of pregnancy in medieval society, considering the varied motivations for procreation experienced by medieval men and women at this time. It will then consider those women who never became pregnant, either as a result of various personal choices and circumstances, or infertility. Managing fertility will be discussed, with reference to possible steps which could be taken to promote or avoid conception. At this point, if conception was possible, attempts might be made to diagnose pregnancy. The methods of pregnancy diagnosis at the centre of discussion in this thesis will be introduced here.

Confirmation of a pregnancy might prompt women and their families to make further decisions about the course of a pregnancy: they might choose to end a pregnancy, or make plans to conceal the pregnancy if the child was unwanted. The possibility of infanticide is also considered. However, it is more likely that knowledge of a pregnancy would inspire actions to ensure a healthy pregnancy and avoid miscarriage, and there were

steps which might be taken for these purposes. Giving birth was dangerous for mother and child, and preparations for this might be made during pregnancy. Finally, the range of interventions which could be employed during childbirth are considered: the medical, religious, and magical resources which might be employed during labour to help secure a safe delivery. This discussion will draw on a range of modern scholarship and contemporary evidence, to provide a framework for understanding the place of pregnancy diagnosis within broader experiences of pregnancy and childbearing in the middle ages. Diagnosing pregnancy was just one of many actions which could be taken to manage fertility and secure a healthy pregnancy.

2.1. Was Procreation a Priority in the Middle Ages?

The fundamental biological imperative to reproduce affects the behaviour of all animal species. Human beings are no exception, but social and cultural factors also played a part in prioritising reproduction in premodern societies. As a result, in medieval western Europe, procreation was viewed as a 'major social obligation'.³⁰ A combination of contemporary influences contributed to this: religious motivations, material considerations, economic influences and perhaps also demographic imperatives. The following analysis explores these factors, and demonstrates the important place of pregnancy within the lives of most individuals in later medieval Europe.

I would argue that the most significant motivations for reproduction were personal and practical reasons. Parenthood was an important marker of status in later medieval society, and for both men and women, becoming a parent was a way of proving social maturity and establishing one's status as an adult.³¹ Inheritance, too, was significant: this was a patrilineal society, which emphasised the importance of fathers passing on their wealth and family interests to legitimate first born sons. These interests might include land tenure and business enterprises, and landed wealth, property and titles amongst the upper classes. Children could also play a part in strengthening alliances amongst families and social groups. Marriages arranged between children could foster alliances between their parents

³⁰ Ruth Mazo Karras, *Common Women: Prostitution and Sexuality in Medieval England* (Oxford: Oxford University Press, 1996), p. 6.

³¹ Deborah Youngs, *The Life Cycle in Western Europe, c. 1300 – c.1500* (Manchester: Manchester University Press, 2006), p. 143.

for political or economic purposes, and children might also be placed within another family's household for education or service, which helped to strengthen ties of sociability.³² Additionally, there were other practical motivations for having children, particularly amongst the lower classes: they were a potential source of labour, and could, when old enough, contribute to household and farm work, or participate in manufacturing.³³ Older children provided care for younger siblings, and might support their parents in old age.³⁴ With these social and practical advantages to having children, procreation would have been a priority for families at all levels of society.

The influence of religion was also significant. The Church exerted a strong influence on all aspects of society, and its teachings emphasised the importance of marriage and childbearing. Biblical verses supported this: given the impact of scripture in controlling social values in western European Christian society, God's directions to Adam and Eve to 'Be fruitful and multiply' in Genesis 1:28 was influential.³⁵ The early church had emphasised the importance of celibacy as a path to salvation, supported by passages in Luke's Gospel, which suggested that Jesus had discouraged marriage or sexual relations.³⁶ In the middle ages, celibacy was still required of those in holy orders, particularly after the influence of the eleventh century Church reform movement.³⁷ However, the impracticality of this ideal for ordinary people was recognised, and sexual intercourse was permitted within the confines of marriage only for the purpose of procreation.³⁸

From the twelfth century, the Church sought further powers to regulate the institution of marriage.³⁹ This was partly as a means of exerting social control, but efforts to

³² Cadden, *Sex Difference*, p. 235; Stanley Chojnacki, 'The Power of Love: Wives and Husbands in Late Medieval Venice', in *Women and Power in the Middle Ages*, ed. by Mary Erler and Maryanne Kowaleski (Athens: University of Georgia Press, 1988), pp. 126-148 (p. 129); Anthony Molho, *Marriage Alliance in Late Medieval Florence* (New Haven: Harvard University Press, 1994), p. 12.

³³ Cadden, *Sex Difference*, p. 234; Barbara Hanawalt, 'Childrearing Among the Lower Classes of Late Medieval England', *The Journal of Interdisciplinary History* 8 (1977), 1-22 (p. 8); *Eadem*, *The Ties That Bound: Peasant Families in Medieval England* (Oxford: Oxford University Press, 1986), pp. 156-157.

³⁴ Richard M. Smith, 'The Structured Dependence of the Elderly as a Recent Development: Some Sceptical Historical Thoughts', *Ageing and Society* 4 (1984), 409-428 (p. 411).

³⁵ Jeremy Cohen, "*Be Fertile and Increase, Fill the Earth and Master It*": *The Ancient and Medieval Career of a Biblical Text* (Ithaca, NY: Cornell University Press, 1989), p. 4, pp. 289-294; Peter Biller, *The Measure of Multitude: Population in Medieval Thought* (Oxford: Oxford University Press, 2000), p. 111.

³⁶ James Brundage, *Law, Sex, and Christian Society in Medieval Europe* (Chicago: University of Chicago Press 1987), p. 59.

³⁷ *Ibid*, p. 183.

³⁸ Brundage, p. 198.

³⁹ Ruth Mazo Karras, 'The Christianization of Medieval Marriage', in *Christianity and Culture in the Middle Ages: Essays to Honor John Van Engen*, ed. by David Charles Mengel and Lisa Wolverton (Notre Dame, IN:

reaffirm the place of marriage and procreation in Christianity also acted to counter the narratives of heretical groups like the Cathars, whose suspicion of the material world and emphasis on extreme asceticism led to a disgust at procreation.⁴⁰ These efforts were accompanied by an increasing emphasis on holy parenthood, with the rise of cults celebrating saints for their roles as parents, including the Virgin Mary and her mother, Saint Anne.⁴¹ The possibility of living a pious life without the need for celibacy offered scope for ordinary people to achieve salvation while living in the world. There is little evidence that these developments directly influenced reproductive choices, but they contributed to establishing a culture which viewed marriage and procreation as compatible with a Christian life.

Some historians have made a case for broad demographic motivations for procreation in later medieval society, prompted by a series of demographic crises in the fourteenth century. In this model, widespread famine in 1315-17, and the deaths of thirty to forty percent of the population during the Black Death, prompted an emphasis on having children to replace the lost population.⁴² Sophie Page also suggests that fertility levels were low in the fourteenth and fifteenth centuries, and an awareness of this created a concern for encouraging procreation. She cites this as the reason for the high proportion of fertility-related enquiries brought to the London astrological practitioner Richard Trewythian in the fifteenth century.⁴³

University of Notre Dame Press, 2014), pp. 1-25 (pp. 12-14); *Eadem, Sexuality in Medieval Europe: Doing Unto Others* (London: Routledge, 2005), pp. 68-69; Biller, *Multitude*, p. 8, pp. 21-22.

⁴⁰ Jennifer Kolpacoff Deane, *A History of Medieval Heresy and Inquisition* (Lanham: Rowman and Littlefield, 2011), p. 34.

⁴¹ Miri Rubin, *Emotion and Devotion: The Meaning of Mary in Medieval Religious Cultures* (Budapest: Central European University Press, 2009), Ebook, <<http://books.openedition.org/ceup/420>> [accessed 21st March 2019], Chapter Three; Gail McMurray Gibson, 'Saint Anne and the Religion of Childbed: Some East Anglian Texts and Talismans', in *Interpreting Cultural Symbols: Saint Anne in Late Medieval Society*, ed. by Kathleen Ashley (Athens: University of Georgia Press, 1990), pp. 95-110; Virginia Nixon, *Mary's Mother: Saint Anne in Late Medieval Europe* (University Park: University of Pennsylvania Press, 2004).

⁴² Rosemary Horrox, ed. and trans., *The Black Death* (Manchester: Manchester University Press, 1994), p. 3; Cadden, *Sex Difference*, p. 235.

⁴³ Sophie Page, 'Richard Trewythian and the Uses of Astrology in Late Medieval England', *Journal of the Warburg and Courtauld Institutes* 64 (2001), 193-228 (p. 204). This evidence for low fertility rates is based on the statistical work of Robert Gottfried, who analysed East Anglian wills in an attempt to estimate population figures and mortality rates during the Black Death. The use of data from wills to provide population statistics is somewhat problematic, and Gottfried appears to drastically overestimate the proportion of people making wills at this time. Gottfried's subsequent work on the Black Death and its impact in Europe attempted to build on this statistical work, but it was met with significant criticism: his claims of drastic social and economic change were made on the basis of generalisations, and his work must therefore be treated with caution. Robert Gottfried, *Epidemic Disease in Fifteenth Century England: The Medical Response and the Demographic*

It is difficult to substantiate the argument that demographic factors influenced individual reproductive choices. Demography was not a recognisable concept in the middle ages, but churchmen and intellectuals did discuss concepts which are now classified as 'demographic'. The size of the 'multitude', a concept more or less analogous to population size, was discussed, and some were aware of marriages and birth rates.⁴⁴ In these intellectual contexts, Biller identifies a growing interest in measures to increase the 'multitude' after the Black Death, particularly in the work of Nicholas Oresme.⁴⁵ But there is no evidence that these debates led to the encouragement of fertility amongst the population at large, and still less evidence that these anxieties were translated into action by individuals, whose motivations for procreation were probably more personal.

2.2. Childlessness and Infertility

Some women in the middle ages would have been childless, either because the circumstances of their lives or marriages did not allow for a pregnancy, or because of impediments to conception, in the form of infertility. Some of these women would have been childless because they never married, for economic, social or religious reasons: Ruth Karras estimates that around ten to fifteen percent of women in the middle ages would have remained unmarried throughout their lives, a figure which includes women in religious orders.⁴⁶ Sexual activity outside of marriage was frowned upon for women in later medieval Europe, particularly for upper class women.⁴⁷ While lower class women may have had more freedom to have sexual encounters outside of marriage, marriage would usually follow soon after.⁴⁸

Consequences (Leicester: Leicester University Press, 1978), pp. 206-207; p. 13, p. 22; Idem, *The Black Death: Natural and Human Disaster in Medieval Europe* (New York: The Free Press, 1983). For a thorough and scathing assessment of the flaws in this work, see Stuart Jenks, 'Review: The Black Death: Natural and Human Disaster in Medieval Europe. By Robert Gottfried', *The Journal of Economic History*, 46 (1986), 815-823.

⁴⁴ Biller, *Multitude*, p. 5.

⁴⁵ Peter Biller, 'The Multitude in Later Medieval Thought', in *Reproduction: Antiquity to the Present Day*, ed. by Nick Hopwood, Rebecca Flemming and Lauren Kassell (Cambridge: Cambridge University Press, 2018), pp. 141-151 (p. 147).

⁴⁶ Elizabeth L'Estrange, *Holy Motherhood: Gender, Dynasty and Visual Culture in the Later Middle Ages* (Manchester: Manchester University Press, 2008), p. 29; Karras, *Sexuality*, p. 109.

⁴⁷ Ibid, pp. 49-54; Anke Bernau et al., eds, *Medieval Virginites* (Cardiff: University of Wales Press, 2003).

⁴⁸ Karras, *Sexuality*, pp. 96-99.

Some women chose a religious life, becoming nuns and taking vows of celibacy, thereby avoiding conception.⁴⁹ Certain secular women also took vows of chastity, making a choice to emulate the female virgin saints and martyrs, from a sense of religious calling.⁵⁰ Biller links a renewed celebration of celibacy in the thirteenth century to awareness of high population levels.⁵¹ But most women would have been unable to participate in a life of chastity for familial, social or economic reasons, and others would have been uninterested in such an existence. Certain women did take vows of chastity in widowhood, and some married couples took vows of chastity together. This may have occurred after a marriage had already led to children, as in the case of Margery Kempe.⁵² In other circumstances, women may not have become pregnant during marriage because their husbands died before they could conceive.⁵³

There was also the conceptual category of infertility, or sterility, which characterised those who were unable to conceive, despite being sexually capable.⁵⁴ In the middle ages, this was recognised as distinct from impotence, the inability to engage in sexual intercourse, which was grounds to annul a marriage under canon law.⁵⁵ The consequences of infertility were significant in a society which valorised procreation, but evidence is rare for women other than those of the nobility and royalty. Cecily Neville (1415-1495) and Richard Plantagenet, Duke of York (1411-1460), were married for ten years before she gave birth to a child, and contemporary chroniclers were not shy of commenting on her 'longe bareynesse'.⁵⁶ Although she was not a queen, Cecily was the mother of two future English kings, Edward IV and Richard III, and in retrospect these chroniclers realised that her fertility had significant implications for the future of the kingdom. For queens who struggled with infertility, the consequences were even more significant: if a king died without an heir,

⁴⁹ Karras, *Sexuality*, pp. 29-30.

⁵⁰ Karras, *Common Women*, p. 104. Biller, *Multitude*, p. 111.

⁵¹ *Ibid*, p. 111.

⁵² Dyan Elliott, *Spiritual Marriage: Sexual Abstinence in Medieval Wedlock* (Princeton, NJ/Chichester UK: Princeton University Press, 1993), p. 3; Karras, *Sexuality*, pp. 48-49, p. 86.

⁵³ Brand, "'Deserving" and "Undeserving" Wives: Earning and Forfeiting Dower in Medieval England', *Journal of Legal History* 22 (2001), 1-20 (p. 2).

⁵⁴ A recent special issue of the journal *Social History of Medicine* focused on infertility in medieval and early modern Europe. The introduction to this issue provides an excellent summary of current scholarship on this topic. Daphna Oren Magidor and Catherine Rider, 'Introduction: Infertility in Medieval and Early Modern Medicine', *SHM* 29 (2016), 211-223 (pp. 211-213).

⁵⁵ Catherine Rider, 'Men and Infertility in Late Medieval English Medicine', *SHM* 29 (2016), 245-266 (p. 247).

⁵⁶ Joanna Laynesmith, *Cecily Duchess of York* (London: Bloomsbury, 2017), pp. 35-36.

potential political effects might include factional infighting, civil war, or even international conflict. Charlotte of Savoy, second wife of King Louis XI of France (1423-1483), faced intense pressure to provide the King with a male heir. His first marriage had ended without issue, and their first son had died. The King and Queen made offerings to Saint Anne, and undertook pilgrimages before and after the conception of their second son, Charles.⁵⁷ The fertility of these women was consequential, but other women, at least amongst the upper classes, probably faced similar levels of pressure to overcome perceived infertility in the middle ages.

As these examples might suggest, there was more social scrutiny of women's fertility than men's, perhaps because of the central role of women's bodies during pregnancy. However, in medical and intellectual understandings of the concept, both men and women could be infertile.⁵⁸ Explanations for infertility were varied: irregular menstruation or defects of the womb in women, or an excessive sexual appetite in men.⁵⁹ Other theories associated this condition with a poor complexion, imbalances of the hot and cold qualities of the body, incompatibility of the two partners, or faults with their generative contributions.⁶⁰

Most individuals suffering from infertility would have been more concerned with cures than causes, and practical medical literature provided a range of resources for dealing with infertility. They might begin with an attempt to identify which partner was responsible for a lack of conception. One frequently copied test for finding out who was 'at fault' or 'in default' appeared in one of the twelfth-century gynaecological texts attributed to a female physician named Trota or Trotula, the *Conditions of Women* text.⁶¹ It involved placing grains in two pots. The man's urine would then be placed in one, and the woman's would be placed in the other. If worms and a foul smell were discovered in either or both pots, this would indicate which partner was responsible for the lack of conception:

For to wet wheder it is defaute of man or woman that sche berys note take ij small new pottis of erthe & do a lytyll bran in ather & lat the man stale [urine] in the tane

⁵⁷ L'Estrange, p. 44.

⁵⁸ Rider, 'Men and Infertility', p. 245.

⁵⁹ Helen Lemay, 'The Stars and Human Sexuality: Some Medieval Scientific Views', *Isis* 71 (1980), 127-137 (p. 132).

⁶⁰ Cadden, *Sex Difference*, p. 136.

⁶¹ *The Trotula: A Medieval Compendium of Women's Medicine*, ed. and trans. by Monica H. Green (Philadelphia: University of Pennsylvania Press, 2001), pp. 94-95.

the woman in the tother & lat tham stand ix days or xiiij & if the faute be in the man than sall yu fynde in his pott lyk wormes & it sall stynke & if thou fynd the same in the womans pote than is it defaute als of hir & if thou fynde no tokynyng in nether water than may men helpe tham tto have chylder.⁶²

The results of this test suggest a conceptual distinction between a more permanent state of infertility, and cases in which 'men' may 'helpe' in overcoming infertility by medical means. Tracts on curing infertility circulated widely in the fourteenth and fifteenth centuries, like the *Tractatus de conceptu*, attributed to Pierre Nadille, a physician associated with Montpellier.⁶³ Magical and medical remedies to promote conception circulated in recipe collections, and could have been used to overcome infertility, as well as to encourage conception – these will be discussed further in section 2.3.

Infertility which could not be cured by medical intervention might be healed with a miraculous cure. In the Christian tradition, biblical stories of women conceiving and giving birth late in life – such as Sarah, wife of Abraham, and Elizabeth, the mother of John the Baptist, along with apocryphal stories about Saint Anne's conceiving the Virgin Mary in old age – were treated as aspirational models for women hoping to conceive.⁶⁴ The Virgin Mary was also a focus. Kristen Geaman's study of the fertility struggles of Anne of Bohemia, wife of Richard II of England, considers the efforts of English queens seeking to secure fertility through religious devotion. They sought to use prayer, pilgrimages to sites associated with fertility, and donations to saints' shrines and charitable institutions as a means of securing God's assistance to overcome infertility.⁶⁵

⁶² Oxford, Bodleian Library (hereafter Bodleian), MS Add A. 106, f. 136v. This apparently descends from an ancient Egyptian method of identifying pregnancy. Bayon, 'Pregnancy Tests', p. 62.

⁶³ Pedro Conde Parrado et al., *Tractatus de Conceptu, Tractatus de Sterilitate Mulierum*, *Lingüística y Philología* 37 (Valladolid: Secretariado de Publicaciones e Intercambio Editorial, Universidad De Valladolid, 1999), pp. 48-89.

⁶⁴ Kathleen Ashley and Pamela Sheingorn, 'Introduction', in *Interpreting Cultural Symbols: Saint Anne in Late Medieval Society*, ed. by Kathleen Ashley and Pamela Sheingorn (Athens: The University of Georgia Press, 1990), pp. 1-69 (pp. 48-49); L'Estrange, p. 12.

⁶⁵ Kristen Geaman, 'Anne of Bohemia and Her Struggle to Conceive', *SHM* 29 (2016), 224-244 (pp. 227-228, 235-238); Carole Hill, 'St Anne and Her Walsingham Daughter', in *Walsingham in Literature and Culture from the Middle Ages to Modernity*, ed. by Dominic James and Gary Waller (Farnham: Ashgate, 2010), pp. 99-111 (p. 111).

2.3. Promoting Conception

A wide range of methods for promoting conception circulated in the middle ages, in response to concerns about infertility, and to assist any couple hoping to conceive. Some of these methods sought to influence the sex of the foetus – particularly to promote the conception of a male child. This is perhaps unsurprising for a patrilineal society which valued sons over daughters. Many of these methods reflect the habitual medieval mingling of techniques and genres: some appear in medical texts and reflect the norms of medical practice. Others rely on magic words and ritual actions for their efficacy and could be categorised as charms. Some also include religious formulae. The categories of charm, prayer, and medical recipe are difficult to apply to this sort of material, and contemporaries would have been less concerned with categorising these formulae than with finding something which worked.⁶⁶ These types of texts are often referred to as *experimenta* – procedures which had been proven to work by experience, but which might not have an identifiable cause.⁶⁷

Some *experimenta* to promote conception derive from the works of ancient authorities. For example, in his first century A.D. *Natural History*, Pliny the Elder recommended various parts of the hare as useful in fertility, to influence the sex of the foetus:

If the uterus of the hare is taken in food, it is believed that males are conceived; that the same result is obtained by eating its testicles and rennet.⁶⁸

This idea appeared in a variety of forms in later medieval texts: the Trotula *Conditions of Women* text recommended women consume the womb and vagina of a hare to help

⁶⁶ For more on difficulties of categorisation, see Peter Murray Jones, and Lea T. Olsan, 'Performative Rituals for Conception and Childbirth in England, 900–1500', *BHM* 89 (2015), 406-433 (p. 410-411); Peter Murray Jones and Lea T. Olsan, 'Medicine and Magic', in *The Routledge History of Medieval Magic*, ed. by Sophie Page and Catherine Rider (Abingdon: Routledge, 2019), pp. 299-311 (p. 299).

⁶⁷ Jones and Olsan, 'Performative Rituals', p. 422; Lea T. Olsan, 'Charms and Prayers in Medieval Medical Theory and Practice', *SHM* 16 (2003), 343-366 (pp. 347-348); Katharine Park, *Secrets of Women: Gender, Generation, and the Origins of Human Dissection* (New York: Zone Books, 2006), pp. 83-84; Laura Mitchell, 'Cultural Uses of Magic in Fifteenth-Century England' (unpublished doctoral thesis, University of Toronto, 2011), pp. 138-139.

⁶⁸ 'Si vulva leporum in cibis sumatur, mares concipi putant, hoc et testiculis eorum et coagulo profici', Pliny the Elder, *Natural History*, Vol. 8: Books 28-32, trans. by W. H. S. Jones, Loeb Classical Library (LCL) 418 (Harvard: Harvard University Press, 1963), pp. 166-167.

conceive a male child.⁶⁹ Variations suggested the sexual organs of other animals: the *Conditions of Women* text also recommended consuming the liver and testicles of a small pig to assist both men and women who could not conceive.⁷⁰ A related version appears in a fifteenth-century text in Oxford, Bodleian, MS Bodley 591:

For to gete a childe take the balloke of An old cocke or else of a yong pygge that sockythe on the moder & brenne hem & make poudre there of & do this poudrys to geder & yefe him to ete & take the moder of an hare & make poudyr ther of & do this poudrys to geder & yef the woman & lett her go to bedde to geder in the name of gode.⁷¹

Elsewhere in the manuscript, boar testicles are recommended as an effective means to promote fertility.⁷² These recommendations to consume animals' sexual organs to promote fertility was probably linked to the role of these organs in generation, but it is difficult to access the exact rationale for these recommendations.

Other aids to conception drew on plant substances which could regulate menstrual health, thereby encouraging fertility. MS Bodley 591 recommended the use of mugwort as a means of promoting conception:

Mugwort & modyr wort is all on, it is hott & drye in 3 degre & that holpith to ~~conceyve~~ conceyve childe and clensythe the modyr & doth the woman to have her flouris whan she hathe loste hem.⁷³

Mugwort is an emmenagogue, a substance known for its capacity to stimulate blood flow to the uterus and thereby induce a menstrual period. Its use in this procedure demonstrates the connection between menstrual irregularity and conception, and suggests that the wide

⁶⁹ 'Si uult masculum concipere, uir eius accipiat matricem et uuluam lepiris et faciat desiccare, et puluerem reducantur, et detur in potu masculino qui non potest generare et hic generabit, uel mulieri et hec concipiet', 'if she wishes to conceive a male, let her husband take the womb and the vagina of a hare and let him dry them, and let him mix the powder with wine and drink it', Green, *Trotula*, pp. 94-95.

⁷⁰ 'Accipiat mulier epar et testiculos parui porci quen solum scropha ediderit, et desiccentur, et in puluerem reducantur, et detur in potu masculino qui non potest generare et hic generabit, uel mulieri et hec concipiet', 'let the woman take the liver and testicles of a small pig which is the only one a sow has borne, and let these be dried and reduced to a powder, and let it be given in a potion to a male who is not able to generate and he will generate, or to a woman and she will conceive', Green, *Trotula*, pp. 94-95.

⁷¹ Bodleian, MS Bodley 591, f. 94v. See also Sophie Page, *Magic in the Cloister: Pious Motives, Illicit Interests, and Occult Approaches to the Medieval Universe* (University Park: Pennsylvania State University Press, 2013), pp. 41-42.

⁷² MS Bodley 591, f. 144r.

⁷³ *Ibid*, f. 149r.

range of remedies for regular menstruation in circulation in medical texts could also be conceptualised as means of encouraging conception.

Overtly magical charms for promoting fertility were also available.⁷⁴ Often these formulae required the recitation or writing of certain words or formulae, for no scientific or religious reason – actions were recommended because they were known to be effective, even if no reason for this efficacy was given.⁷⁵ One method of promoting fertility in MS Bodley 591 involved writing letters on a piece of lead and giving this to the woman:

So that a woman conceives, if God might wish it. So that a child might be conceived, write these letters on lead and give to the woman, so that her husband does not know, thenceforth. d . g . v . c . g . cc . j . t . o . v . g . a . v . p . And if you wish to prove its power hang it in a tree which has never borne fruit, and it will bear abundantly as luck would have it.⁷⁶

A conceptual parallel between women's fertility and the growth of fruit in trees is drawn here, suggesting that this procedure did not draw on conventional medical theory.

These instructions are typical of other magical procedures, which relied on the influence of powerful words for their efficacy. The author has added a religious caveat: the woman will only conceive 'if God might wish it'. Perhaps this is intended as a defence: should the remedy not work, this was the will of God. Alternatively, it might be an attempt to assert the legitimacy of a questionable method for aiding in conception, by attributing its efficacy to God's will.

The proliferation of remedies for promoting conception was influenced by the growth of fertility medicine from the fifteenth century, amongst educated medical practitioners operating in urban contexts – particularly in Italy.⁷⁷ Practitioners like Michele Savonarola and Anthonius Guainerius promoted their services to a wealthy clientele by

⁷⁴ By magic, I am referring to any practice which seeks to draw upon 'occult virtues', powers hidden within nature, for its efficacy. The practices discussed here can be classified as 'natural magic', rather than 'demonic magic', as they do not explicitly claim to be drawing on the power of demons for their efficacy. Richard Kieckhefer, *Magic in the Middle Ages* (Cambridge: Cambridge University Press, 2000), pp. 8-17.

⁷⁵ *Ibid*, p. 3.

⁷⁶ 'Ut mulier concipiat si deus voluerit si fuerit concipiendum scribe has litteras in plumbo et da mulieri igitur vir suus nesciat inde . d . g . v . c . g . cc . j . t . o . v . g . a . v . p . et si vis probare suspende in arborem quae numquam fructum attulit est forte habundantes', MS Bodley 591, f. 148v.

⁷⁷ Green, *MWMM*, pp. 85-91.

writing extended theoretical tracts on fertility and women's medicine.⁷⁸ These practitioners were competing against others offering similar services, as can be seen from Guainerius's attacks on the incompetent remedies of uneducated women, and other lay healers.⁷⁹ It is difficult to reconstruct the practice of these sorts of unqualified lay practitioners. One legal case, from Manosque in Provence, involved a practitioner who promised to ensure a woman would conceive in three days, and was prosecuted because his methods were thought to be ineffective.⁸⁰ In England, Margery Jourdemayne, accused of witchcraft and treason alongside Eleanor of Cobham, Duchess of Gloucester in 1441, had a reputation for fertility magic: this is apparently how she encountered Eleanor.⁸¹ While not all women would have been able to access such resources, these texts, and the activities of various medical practitioners, demonstrate a significant interest in overcoming infertility and promoting conception in the later middle ages.

2.4. Avoiding Conception

Despite the valorisation of procreation, there was an awareness in the later middle ages that sexual relations did not necessarily lead to conception, either coincidentally, or as a result of deliberate action.⁸² It has been suggested that some women may have used contraceptive methods to avoid pregnancy, particularly sex workers, and those in extramarital or premarital relationships.⁸³ Contraception was morally ambiguous, and was condemned from a religious perspective – its use contravened the directive in Genesis 1:28,

⁷⁸ Savonarola wrote a tract on gynaecology and obstetrics, addressed to the women of Ferrara in around 1460, and Anthonius Guainerius composed the *'Tractatus de matricibus'* in around 1440, to promote his mastery of medicine. This treatise was dedicated to the Duke of Milan, and appealed to the Duke's desire for offspring. Helen Lemay, 'Anthonius Guainerius and Medieval Gynecology,' in *Women of the Medieval World*, ed. Julius Krushner and Suzanne Wemple (London: Blackwell, 1985) pp. 317-336 (pp. 319-320); Green, *MWMM*, pp. 253, 267.

⁷⁹ Lemay, 'Guainerius', pp. 327-328.

⁸⁰ Joseph Shatzmiller, *Médecine et justice en Provence médiévale: Documents de Manosque, 1262-1348* (Aix-en-Provence: Publications de l'Université de Provence, 1989), pp. 176-183.

⁸¹ Jessica Freeman, 'Sorcery at Court and Manor: Margery Jourdemayne, the Witch of Eye next Westminster', *Journal of Medieval History* 30 (2004), 343-357 (p. 346).

⁸² Russell Brown explores this in his study of illicit extra-marital affairs in romance literature. Tales featuring the chivalric trope of relationships between married women and men other than their husbands so rarely result in pregnancies that Brown quips: 'it is as if being featured in a medieval literary text functioned as a perfect birth-control device'. Russell Brown, 'Pregnancy in Classical and Medieval Literature', *Neophilologus* 75 (1999), 321-326 (pp. 321-322).

⁸³ Etienne van de Walle, "'Marvellous Secrets": Birth Control in European Short Fiction, 1150-1650', *Population Studies* 54 (2000), 321-330 (p. 323); Karras, *Sexuality*, p. 107.

to 'Be fruitful and multiply'.⁸⁴ While methods of promoting fertility may have been more appealing to medieval people than methods of limiting it, contraceptive methods have received far more scholarly attention in recent years.⁸⁵ This perhaps reflects contemporary concerns about women's reproductive rights in the twentieth and twenty first centuries.

John Riddle has studied 'antifertility agents' in the ancient and medieval world, and argues that there was a high level of awareness of various forms of contraceptive measures. These included the use of *materia medica* – medicinal substances – applied to the womb or ingested, as well as charms.⁸⁶ But, as mentioned in Chapter One, some of the measures which Riddle categorises as contraceptives are identified in medieval texts as methods for regulating menstruation. Emmenagogic herbs like rue and mugwort are often included in these recipes, and there is a fine line between emmenagogues and abortifacients: if a woman is already pregnant, these substances could induce an abortion. But, in the middle ages, early pregnancy was difficult to recognise, and Riddle does not seem to be aware of the methods of pregnancy diagnosis discussed here. He argues that emmenagogic herbs were used on a precautionary basis, like the modern morning after pill, and this should therefore be viewed as a method of contraception.

However, menstrual regularity was important in its own right, as a prerequisite for female health and fertility. It is therefore probable that methods for inducing menstruation were indeed intended for their stated purpose. This is supported by directions included alongside some of these emmenagogues to ensure that women were not pregnant before use. One remedy in MS Sloane 284 is preceded by the following:

Ffor to mak a woman have her flourys when they byth destroyed: the medecyn
falyeth never but lok that she be not with child.⁸⁷

This direction could be a veiled reference to the remedy's potential use as an abortifacient, or a genuine warning about the dangers of this drug for pregnant women. Given the importance of regular menstruation, my interpretation would be the latter.

Other texts were explicitly intended for the avoidance of conception, including a set of remedies in Oxford, Bodleian MS Bodley 591. This included directions 'to make a woman

⁸⁴ Karras, *Sexuality*, p. 73.

⁸⁵ Oren-Magidor and Rider, p. 213.

⁸⁶ Riddle, *Contraception and Abortion*, p. 26.

⁸⁷ London, British Library, MS Sloane 284, f. 167v. A similar direction appears in Bodleian, MS Selden Supra 73, f. 40r.

nat to conceyve' and recommended using various items as 'amulets', to be bound to the woman's body or carried about her person, as a semi-magical means of preventing conception. These items included peony seeds, but also the womb of a goat that had never conceived.⁸⁸ Some evidence that antifertility amulets were actually used in practice comes from inquisitorial records investigating heresy in Montailou in Southern France, in the fourteenth century. In the testimony of Béatrice Planissoles, a noble woman who had an affair with a Cathar priest named Pierre Clergue, Béatrice recounts how Pierre employed a herb tied on a string around his neck to prevent conception. During sexual intercourse, he would put the string over her neck too.⁸⁹ As the herb was not to be ingested, this procedure relied only on the herb's presence for its efficacy, just as other amuletic antifertility agents did. Contraceptive measures were apparently used and recommended in the later middle ages, despite ecclesiastical prohibitions. Medical authors and practitioners would advise on contraceptive methods, and people may also have drawn on orally circulated knowledge of how to prevent conception.⁹⁰ Whether these methods were effective or not, conception was not seen as an inevitable outcome of sexual intercourse, but most married people would have been more concerned with promoting fertility than with limiting it.⁹¹

2.5. Diagnosing a Pregnancy

When pregnancy was possible, confirming it was a significant step. Many women would probably have worked out for themselves that they were pregnant. They would have perceived changes in their own bodies, or experienced nausea, and the more obvious signs later in a pregnancy such as foetal movement would have confirmed suspicions. It is possible that some women and their families may have monitored their fertility in the middle ages, although I have only encountered early modern evidence of this. The letters of Catalina Micaela (1567-97), Duchess of Savoy, have been studied by Magdalena Sánchez. Catalina's letters to her husband and family demonstrate her awareness of the signs of

⁸⁸ 'Let he bere upon her the matryce of a goote that hadde never zeuyd & she shalt never conseyve', MS Bodley 591, f. 81v.

⁸⁹ 'Béatrice of Planissoles (1320)', in *Other Middle Ages: Witnesses at the Margins of Medieval Society*, ed. by Michael Goodich (Philadelphia: University of Pennsylvania Press, 1998), pp. 201-214 (p. 213).

⁹⁰ Vivian Nutton, 'Medicine in Medieval Western Europe, 1000-1500', in *The Western Medical Tradition 800 BC to AD 1800*, ed. by Lawrence Conrad, et al. (Cambridge: Cambridge University Press, 2011), pp. 139-205 (p. 169).

⁹¹ Karras, *Sexuality*, p. 74.

conception.⁹² Deborah Harkness has also uncovered evidence that the sixteenth century English astrological magical practitioner, John Dee, meticulously recorded his wife's menstrual cycles.⁹³

Even if monitoring occurred in the later middle ages, widespread menstrual irregularity and the possibility of impediments to conception could have created doubt as to whether a woman had conceived or not. It was apparently easy to mistake other, potentially fatal, conditions for a pregnancy: conditions like suffocation of the womb, and windiness in the womb might engender similar symptoms, including cessation of menstruation, and inflation of the belly. Valesco de Tarenta was a Portuguese physician, active in the early fifteenth century at the court of Foix. According to Elizabeth L'Estrange, 'in the late fourteenth century, the counts of Foix were beset by inheritance problems', as successive counts died without children – perhaps these concerns influenced Valesco's involvement in fertility medicine.⁹⁴ He noted in his *Philonium* that women sometimes mistake a condition called 'windiness of the womb' for pregnancy:

Women, having windiness of the womb, because the belly has grown and perhaps the menses have been retained, therefore at first, for that reason, believe themselves to be pregnant.⁹⁵

This was potentially fatal, and Valesco recommended that women consult a physician for a proper diagnosis, when pregnancy was suspected.⁹⁶ In response to this potential for doubt about conception, a variety of techniques for diagnosing pregnancy were developed. These are the primary focus for this thesis. Medical and divinatory techniques were employed in attempts to confirm pregnancy, and legal procedures were established to prove women's claims to be pregnant. Medical and divinatory texts also purported to be able to offer information about the sex of an unborn child.

These diagnostic techniques would have been an attractive prospect for potentially pregnant women and their families. Early confirmation of a pregnancy would have allowed

⁹² Magdalena Sánchez, "'I would not feel the pain if I were with you": Catalina Micaela and the Cycle of Pregnancy at the Court of Turin, 1585-1597', *SHM* 28 (2015), 445-464 (pp. 449-451).

⁹³ Deborah Harkness, 'Managing an Experimental Household: The Dees of Mortlake and the Practice of Natural Philosophy', *Isis* 88 (1997), 247-262 (p. 250).

⁹⁴ L'Estrange, pp. 49-51.

⁹⁵ 'Mulieres habentes ventositatem matricis a principio propterea quia venter crescit forte menstrua retinentur credunt esse pregnantes', Valesco de Tarenta, *Practica Valesci de Tharanta, quae alias Philonium dicitur* (Lyons: Impressum per Nicolaus Wolff, 1500/01), cap. 16, f. 286v.

⁹⁶ Green, *MWMM*, pp. 260-261.

them to stop pursuing any fertility promoting practices they may have been using, and make choices about how to manage the pregnancy. They could choose to alter their diet and regimen to conserve the health of the foetus, or take steps to end the pregnancy. It would also allow them to prepare for childbirth. Methods of pregnancy diagnosis offered the prospect of confirming much-wanted pregnancies, but they also promised to reveal the unknown mysteries of the female reproductive body, an attractive prospect for the intellectually curious in the later middle ages. A detailed consideration of the functioning of these methods and the potential benefits offered follows in the rest of this thesis.

2.6. Terminating a Pregnancy

If a woman knew she was pregnant, she could take action to end the pregnancy if desired. However, evidence for deliberate abortion in the later middle ages is scarce. This was a taboo topic: like contraception, abortion was condemned by the Church. There were additional difficulties which came with terminating the life of an unborn child, and this act could be categorised as homicide if the child was considered to have a soul.⁹⁷ Deliberate abortion was a crime in most of western Europe, but there are very few cases of individuals being prosecuted. Prosecutions for abortion by assault, where an injury to the mother caused a miscarriage, were more common.⁹⁸ Deliberate abortions probably did take place, however, and early knowledge of an unwanted pregnancy would have made termination easier. There is little indication that late stage surgical abortions were carried out: these procedures would have been dangerous, and very difficult to perform.⁹⁹ The use of herbal emmenagogues for this purpose would have been safer, and more effective in the earlier stages of a pregnancy. Early knowledge of conception would therefore be valuable for women who did not wish to carry a pregnancy to term.

Women facing an unwanted pregnancy may have tried to conceal it and give birth in secret. Etienne van de Walle cites a number of fictional examples of this: one involved a widow woman who became pregnant, and worked with her servant to conceal the birth by pretending she had been ill. After giving birth, they wrapped the woman's belly with cloths,

⁹⁷ Wolfgang Müller, *The Criminalization of Abortion in the West: Its Origins in Medieval Law* (Ithaca, NY: Cornell University Press, 2012), pp. 51-52.

⁹⁸ Sara M. Butler, 'Abortion by Assault: Violence against Pregnant Women in Thirteenth-and Fourteenth-Century England', *Journal of Women's History* 17 (2005), 9-31.

⁹⁹ Riddle, *Contraception and Abortion*, p. 10.

and removed them one at a time to give the appearance of swelling gradually reducing as she recovered.¹⁰⁰ Given the strong social condemnation of abortion and infanticide, it is plausible that women and their families may have elected to conceal a pregnancy, rather than commit a crime in pursuing an abortion.

The methods for identifying the sex of the child – however inaccurate they may have been – could have been used in decisions to perform sex-selective abortions or infanticides. However, we have no evidence that this was the case. Some scholars studying infanticide in medieval Europe have suggested that sex-selective infanticide, favouring males, may have been performed.¹⁰¹ These claims are made on the basis of evidence of sex ratios showing higher numbers of male than female children. As a child's sex was presumed unknowable until the moment of birth, this is used to support claims of sex-selective infanticide.¹⁰² Methods of identifying the sex of a foetus are not taken into account in this narrative, and it is theoretically possible that these methods might have encouraged people to perform sex-selective abortions. However, aside from the inaccuracy of these methods, the assumption that sex ratios were unnaturally skewed in favour of males is probably false – where historians have been able to estimate medieval sex ratios, these have been fairly consistent with those of societies which do not practice systematic sex-selective infanticide.¹⁰³ In the absence of sex-selective infanticide, it is unlikely that sex-selective abortion was attempted using these methods of predicting the sex of the child.

2.7. Maintaining Health and Preventing Miscarriage

A more likely reaction to knowledge of a pregnancy would be taking steps to ensure a healthy pregnancy. Bringing a pregnancy to full term in the middle ages would not necessarily have been easy. There is no data available about miscarriage rates or stillbirths at this time, but it is clear that these were well known and dreaded possibilities.¹⁰⁴ A

¹⁰⁰ van de Walle, p. 323.

¹⁰¹ For a consideration of medieval ideas relating to what we would now call sex ratios, see Biller, *Multitude*, Chapter Four. For sex ratios in medieval populations, see Sandy Bardsley, 'Missing Women: Sex Ratios in England, 1000-1500', *Journal of British Studies* 53 (2014), 273-309; Riddle, *Contraception and Abortion*, pp. 11-13.

¹⁰² *Ibid*, p. 11.

¹⁰³ *Ibid*, p. 12; Bardsley, p. 278.

¹⁰⁴ MacLehose, *Tender Age*, Chapter One, Para. 102; Robert Woods, *Death Before Birth: Fetal Health & Mortality in Historical Perspective* (Oxford: Oxford University Press, 2009).

diagnosis of pregnancy might instil a sense of fear for the safety of the foetus, creating an incentive to take measures to preserve the health of the mother and the foetus.

To counter these fears, texts offered various methods of preserving the foetus, and preventing miscarriage. *Materia medica* could be used for this purpose. MS Bodley 591 recommends the use of a pregnant hare with her 'laverottes' (leverets, young hares) in her womb, as a means of preserving a pregnancy:

Also to kepe well that she hathe conceyvyd take an ~~han~~ hare with her laverottes in her wombe and zeve a woman to drynke fastynd after that she hathe conceyved & she shall kepe well Also that the childe be nat loste ne caste owte or the tym come Take ^an^ hare withe kyndill & clene he wythe a knyfe & take the grece in the body & zeve it the woman for drynke boylid with wyne & hit shall save the childe & the woman from all maner of perellis and mys temynge.¹⁰⁵

The body of a pregnant hare was seen as having particular power to prevent harm to an unborn foetus, which is reminiscent of efforts to promote fertility using the generative organs of this animal.

It was also thought necessary to record methods of identifying the death of a foetus, which, like a pregnancy, would not have been immediately apparent in a time before foetal heart rate monitors and ultrasound. These methods sometimes appear alongside methods of pregnancy diagnosis. Uroscopy texts, including the *Urina mulieris* text, describe heavy, lead coloured urine as a sign that the child was dead within the womb, and other texts discuss bodily signs of foetal death:

And if the childe be dead in the mothers wombe her hands scyvreth and she hath great payne also about her navill.¹⁰⁶

The circulation of these signs suggests a strong level of concern about the possibility of miscarriages and stillbirth.

A dead child in the womb could harm or even kill the mother. Other remedies therefore offered means of expelling a dead foetus. Some recommended the ingestion of *materia medica*: the fifteenth-century *Fasciculus medicinae* of Johannes De Ketham

¹⁰⁵ MS Bodley 591, f. 81v.

¹⁰⁶ MS Selden Supra 73, f. 111r; Cambridge, Trinity College (TC), MS O. 1.57, f. 125r.

recommended oil mixed with another woman's milk to bring out a dead child, and Cambridge, Trinity College MS O.1.57 recommended a mixture of sheep's milk and honey:

for women that have a dead childe within them: to make them to avoyde it: make them to drinke milke of a yew with hony and with wine and so they shall sone be delyvered with the grace of gode.¹⁰⁷

Quasi-magical methods for expelling a dead foetus were also recommended. Some involved binding powerful items to the body, as in the amuletic contraceptive methods discussed above. The Trotula *Conditions of Women* text recommended using a snakeskin as a girdle, and Bodleian MS Add A. 106 recommended tying on the leaves of leeks.¹⁰⁸ A text in Wellcome MS 517, a Dutch magico-medical compilation, recommended writing out powerful words on parchment, and tying this to the woman's body:

If a child is dead in the womb or has twisted, write these letters on parchment that in this way are said. 'Gay Gayzon Anuzon fiazon' of the blood that you bring forth from a horse and of a hen, and tie to the left thigh with a string and immediately she will give birth, and after birth you should quickly loosen it, and throw it outside the house, and put it in a fire to burn it.¹⁰⁹

The need to remove the charm from the body as soon as possible might reflect the perceived strength of the attractive power of these items, which could be powerful enough to draw out the womb or other internal organs.¹¹⁰

A more theoretically grounded approach to maintaining the health of mother and child during pregnancy involved regulating the woman's regimen. Regimen literature was popular in the middle ages, and offered advice for preserving health through diet and lifestyle.¹¹¹ The idea that one could preserve health in this way originated in antiquity, and

¹⁰⁷ 'Lac alterius mulieris cum oleo bibitum fetum mortuum educit', 'the milk of another woman, mixed with oil, draws out a dead foetus', Johannes de Ketham, *Fasciculus Medicinae* (Venice: G. de Gregoriis, 1513), p. 24; TC, MS O.1.57, f. 76v.

¹⁰⁸ 'Cingatur mulier de spolio serpentis de quo serpens exiuit', 'Likewise, let the woman be girded with a snake's skin from which the snake has emerged', Green, *Trotula*, pp. 102-103; 'Take leke bladdis & seth it & bynd to the navyll of the woman & it sall cast oute the chylde', Bodleian, MS Add A. 106, f. 115r.

¹⁰⁹ 'Si infans mortuus est in utero vel versatus scribe has letteras in membrana qua ita dicuntur. Gay. Gayzon Anuzon . fiazon. de sanguine alicuius fer vel equi vel galline et liga ad sinistram coxam cum una liga et confestim pariet et post partum fac citius absolvere. et foras de domo proicere et in ignem mittere ut ardeat', London, Wellcome Library (hereafter Wellcome) MS 517, f. 125v.

¹¹⁰ Jones and Olsan, 'Medicine and Magic', p. 305.

¹¹¹ Pedro Gil Sotres, 'The Regimens of Health', in *Western Medical Thought: From Antiquity to the Middle Ages*, ed. by Mirko Grmek (Cambridge, MA: Harvard University Press, 1998), pp. 291-318 (p. 300).

was developed in the works of the Hippocratic authors and Galen.¹¹² By the middle ages, the concept of the six non-naturals had developed: these were the accepted factors which could influence health: air/environment, exercise/rest, food/beverages, sleeping/waking, evacuation/repletion, and the passions/emotions.¹¹³ Within the genre of regimen literature, advice would be tailored according to an individual's complexion, or to their phase of life.¹¹⁴

The principles of regulating the regimen were incorporated in texts on managing pregnant women's health, and that of the child. The overriding concern was with food and drink. Warnings against consuming too little or too much food during pregnancy appeared in the Hippocratic texts, and Pliny's *Natural History* cautioned against eating too much salt during pregnancy lest the child be born with no fingernails.¹¹⁵ More specific advice on the sorts of foods pregnant women should eat or avoid was developed by earlier medieval Arabic authors, including Rhazes and Avicenna, and their ideas were adopted by later European medical authorities. The Trotula *Conditions of Women* text recommended eating 'hens cooked in pastry, fresh fish cooked in vinegar, and barley bread' to preserve health during pregnancy.¹¹⁶ The thirteenth-century physician Aldobrandino of Siena's advice, based on the writings of Avicenna, encouraged women to eat tender meats and poultry and followed Pliny in recommending the avoidance of salty foods.¹¹⁷ This dietary advice would counter the harmful digestive effects of pregnancy, but the food recommended was often quite expensive, only accessible to the wealthiest women.¹¹⁸ Other dietary advice related to cravings during pregnancy, for substances ranging from vegetables, to earth and coal. Several texts refer to these as signs of pregnancy, but they could be harmful, particularly if women could not have the things they craved.¹¹⁹ The Trotula *Conditions of Women* text

¹¹² Sotres, pp. 291-294.

¹¹³ Ibid, p. 295.

¹¹⁴ Ibid, pp. 300-301.

¹¹⁵ Pliny, *Natural History*, pp. 534-535.

¹¹⁶ 'Comedat coctas gallinas in pane, pisces recentes in aceto conctos, panem ordeaceum', Green, *Trotula*, pp. 82-83.

¹¹⁷ Melitta Weiss Amer, 'Medieval Women's Guides to Food During Pregnancy: Origins, Texts, and Traditions', *Canadian Bulletin of Medical History* 10 (1993), 5-23 (p. 17).

¹¹⁸ Sotres, p. 309.

¹¹⁹ 'Si aliqua cibaria concupiscit sicut terram vel carbones: signum est conceptionis', 'If she desires things other than those suitable for food, such as earth or coal: it is a sign of conception', Johannes de Ketham, *Fasciculus*, p. 22.

therefore recommends that no foods should be mentioned to pregnant women, in case they developed a craving for them.¹²⁰

Other advice for preserving health during pregnancy related to the passions or the emotions, given the influence of the soul over the health of the body.¹²¹ The female imagination was thought by some to have the power to influence the foetus: if a woman looked at images of animals or monsters, her child might resemble the creature seen.¹²² This idea originated in ancient medicine, and Galen recommended the mother should not be upset during pregnancy for this reason: she should be encouraged to look at pleasant images so that the foetus would not be shaped into a monster.¹²³ Other authors offered advice regarding medical treatment during pregnancy. John of Saint Paul, a twelfth- and early thirteenth-century physician, recommended avoiding 'phlebotomy and pharmacy' during pregnancy, because bloodletting and drugs might harm the foetus. He also recommended baths, an effective means of regulating health, close to the time of birth.¹²⁴ Regimen advice literature circulated widely, but methods of health preservation were probably difficult to access for most women beyond those of the upper classes, given their written nature and the expense of their recommendations. These texts therefore offered a level of reassurance which only the wealthy could afford.

2.8. Planning for Birth

When a pregnancy was confirmed, plans could be made for the birth, by women, their families, and their female social networks. The most well documented preparations were made by women of the royalty and nobility, for whom childbirth could be elaborate, given their social status. They would follow the practice of 'lying in', retreating from their normal lives at the end of pregnancy, until forty days after they had given birth. A bed chamber was decorated to create a calming environment in which to rest and give birth,

¹²⁰ 'Nota quod quando mulier incipit inpregnari, cauendum est ne nominetur coram ipsi hoc quod non possit haberi, quod si postulauerit et non detur ei, dat occasionem aborciendi', 'note that when a woman is in the beginning of her pregnancy, care ought to be taken that nothing is named in front of her which she is not able to have, because if she sets her mind on it and it is not given to her, this occasions miscarriage', Green, *Trotula*, pp. 94-97.

¹²¹ Sotres, p. 313.

¹²² Valeria Finucci, *The Manly Masquerade: Masculinity, Paternity, and Castration in the Italian Renaissance*. (Durham, NC: Duke University Press, 2003), pp. 122-140.

¹²³ Ibid, p. 135.

¹²⁴ 'Et flebotomia et farmacia pregnantes abstineant', 'and pregnant women should avoid phlebotomy and pharmacy', John of Saint Paul, *Breviarium medicinae*, Bodleian, MS Bodley 361, p. 295.

attended by female kin and servants.¹²⁵ The *Ryalle Book*, a fifteenth-century English court etiquette guide, describes the ceremonial entry of a queen into her lying in chamber, and the expensive, dark coloured cloth used to decorate it.¹²⁶ A private altar might be set up, and saints' relics could be acquired to give assistance during birth. Elizabeth of York, wife of Henry VII, borrowed a girdle of the Virgin Mary from the monks at Westminster when preparing to give birth in 1502, but she died soon after she was delivered.¹²⁷ Elaborate, expensive preparations could not prevent the dangers of childbirth.

The practices of the non-elites mirrored those of the wealthy: Katherine French's study of the wills and inventories of London's middle classes demonstrates evidence of birth preparations. Bed linens and drapes acquired for giving birth would be stored for future use, loaned to neighbours, relatives and friends, and were bequeathed to female kin in women's wills.¹²⁸ Such items might be left to parish churches, for the use of poorer women.¹²⁹ Preparations were driven by practical needs, but clearly mirror the practices of the upper classes. There was also a ritual, communal nature to these preparations, allowing women to participate within a community of reproductive women during the dangers of childbirth.

2.9. Giving Birth

Giving birth was a difficult and dangerous process in the middle ages: loss of life for mother and child was possible.¹³⁰ A range of techniques – medical, religious, and magical – were used to support and protect the parturient woman during childbirth. For most women of most social classes, childbirth would have taken place at home, probably in a bedchamber, with the assistance of ordinary laywomen: relatives, friends, neighbours, and servants.¹³¹ Medical practitioners might also assist: professional midwives were increasingly

¹²⁵ L'Estrange, pp. 82-87.

¹²⁶ Ibid, p. 88; Laynesmith, *Cecily*, p. 37; *Eadem, The Last Medieval Queens: English Queenship 1445-1503* (Oxford: Oxford University Press, 2004), p. 72.

¹²⁷ Monica H. Green, 'Childbirth and Infancy' in *Dictionary of the Middle Ages*, Supplement I, ed. by William C. Jordan (New York: Charles Scribner, 2004), pp. 108-113 (p. 110); Nicholas Harris Nicolas, ed., *Privy Purse Expenses of Elizabeth of York: Wardrobe Accounts of Edward the Fourth. With a Memoir of Elizabeth of York, and Notes* (London: William Pickering, 1830), p. 78.

¹²⁸ Katherine French, 'The Material Culture of Childbirth in Late Medieval London', *Journal of Women's History* 28 (2016), 126-148 (pp. 131-132).

¹²⁹ Sue Niebrzydowski, 'From Bedroom to Courtroom: Home and the Memory of Childbirth in a Fourteenth-Century Marriage Dispute', *Home Cultures* 6 (2009), 123-134 (p. 128).

¹³⁰ Bardsley, p. 301.

¹³¹ Katharine Park, 'Managing Childbirth and Fertility in Medieval Europe', in *Reproduction*, ed. by Hopwood et al., pp. 153-166 (p. 156).

involved in childbirth from the later middle ages, helping to draw out the child, administering medication or performing minor surgeries.¹³² In antiquity, trained female practitioners known as *'obstetrices'* worked as birth assistants, drawing on some knowledge of medical theory.¹³³ This system did not survive the contraction of urban centres after the fall of the Roman Empire – early medieval birth attendants were unlikely to be educated specialists. Specialised midwives came to prominence again from the fourteenth century. This may be related to the growth of the medical profession and the increasing involvement of physicians in women's medicine. Direct contact between male practitioner and female patient was still taboo, however, so specialised midwives may have filled the gap by acting as birth attendants. English royal financial accounts record payments made to midwives like Alice Massy, who attended Elizabeth of York's first childbirth in 1486.¹³⁴ Church authorities were concerned about the role of these women, including their performance of baptisms when a child's life was in danger. Professional midwives had to register with local bishops, to prove they were of respectable character and capable of fulfilling these duties.¹³⁵

Male involvement in childbirth was minimal: learned male medical practitioners would only have attended if something went wrong during the delivery, and if the patient was wealthy. A physician or surgeon may have performed a procedure to excise a child from the womb, but it is not clear how frequently this would have actually taken place.¹³⁶ Priests may also have intervened: Thomas of Cantimpré's *On the Nature of Things* instructed clerics in how to assist 'when a midwife knowledgeable in the science of obstetrics cannot be found'.¹³⁷

¹³² Park, 'Managing Childbirth', p. 159; Monica H. Green and Daniel Lord Smail, 'The Trial of Floreta d'Ays (1403): Jews, Christians, and Obstetrics in Later Medieval Marseille', *Journal of Medieval History*, 34 (2008), 185-211 (p. 209 fn. 105).

¹³³ Monica H. Green, 'Caring for Gendered Bodies', in *Oxford Handbook of Women and Gender in Medieval Europe*, ed. by Judith Bennett and Ruth Mazo Karras (Oxford: Oxford University Press, 2013), pp. 345-361 (p. 348).

¹³⁴ Nicholas Orme, *Medieval Children* (New Haven: Yale University Press, 2001), p. 19.

¹³⁵ For evidence of the Church regulation of midwives, see Tiffany Vann Sprecher and Ruth Mazo Karras, 'The Midwife and the Church: Ecclesiastical Regulation of the Midwives in Brie, 1499-1504', *BHM* 85 (2011), 171-192 (p. 173); Annie Saunier, 'Le visiteur, les femmes et les "obstetrices" des paroisses de l'archidiaconé de Josas de 1458 à 1470', in *Santé, médecine et assistance au moyen âge* (Paris: Editions du C.T.H.S, 1987), pp. 43-62.

¹³⁶ Renate Blumenfeld-Kosinski, *Not of Woman Born: Representations of Caesarean Birth in Medieval And Renaissance Culture* (Ithaca, NY: Cornell University Press, 1990); Green, 'Gendered Bodies', pp. 350-354.

¹³⁷ 'Sciendum autem est, ut, si obstetrix gnara obstetricandi inventa non fuerit', Thomas of Cantimpré, *Liber de natura rerum*, p. 76, trans. by Monica H. Green, in 'Gendered Bodies', p. 349.

Religious resources used during labour might include relics placed on the woman's body to secure a safe delivery, like the girdle borrowed by Elizabeth of York, discussed in section 2.8.¹³⁸ Relics associated with Saint Anne, the Virgin Mary, and Saint Margaret, patron saint of pregnancy and childbirth, were valued.¹³⁹ Oral and written prayers to these saints might also be used.¹⁴⁰ The *Peperit* charm, a prayer formula to aid women in childbirth, circulated widely, but the line between religion and magic is sometimes difficult to distinguish with these sorts of texts and practices. The *Peperit* charm featured references to biblical mothers – Mary bearing Jesus, Anna bearing Mary – and an exhortation to the child to come out of the womb.¹⁴¹ This was supplemented with biblical and liturgical materials, powerful magical words, and even extracts from literary texts such as Vergil's *Aeneid*.¹⁴² The text could be recited over the woman's body, or spoken at the threshold of a house in which a woman was giving birth.¹⁴³ The text might be written down on parchment placed on the body, or written on food stuffs for a labouring woman to eat.¹⁴⁴ Religious words, combined with ritual actions, make it difficult to discern whether these practices were religious or magical.

Prayer rolls might also be used. These were long rolls of parchment sheets, featuring prayers, charms and 'amuletic images' of religious significance, used to protect women in childbirth and to heal other medical conditions.¹⁴⁵ An example in Wellcome MS 632 includes the following directions:

¹³⁸ French, 'Material Culture', p. 130.

¹³⁹ Allison Adair Alberts, 'Spiritual Suffering and Physical Protection in Childbirth in the South English Legendary Lives of Saint Margaret', *Journal of Medieval and Early Modern Studies* 46 (2016), 289-314 (pp. 289, 294); Youngs, p. 144; L'Estrange, p. 48.

¹⁴⁰ *Ibid.*, pp. 55-60.

¹⁴¹ Elsackers cites a simple 13th century version, from Vienna Hofsbibliothek, CVP 1064, f. 17: 'Pro dolore partus dic ad mulierem: Anna Peperit Samuelem, Elisabet genuit Iohannem, Anna genuit Mariam, Maria genuit Christum. Infans, sive masculus sive femina, exi foras, Te vocat salvator ad lucem. Sancta Maria peperit salvatorem, peperit sine dolore, Christus natus est de virgine. Christus te vocat, ut nascaris, Exinanite. Exinanite. Exinanite. Postea ter Pater noster', Marianne Elsackers, 'In Pain You Shall Bear Children (Gen 3:16): Medieval Prayer for a Safe Delivery', in *Women and Miracle Stories: A Multidisciplinary Exploration*, ed. by Anne-Marie Korte (Leiden: Brill, 2000), pp. 179-210 (p. 183).

¹⁴² *Ibid.*, pp. 191-194.

¹⁴³ *Ibid.*, pp. 197, 199; 'Ffor a woman that travaileth of child When you comyst to the house that woman is in set thy fot on the threshfold & mak a signe of the crosse & sey...', BL, MS Sloane 783 B, ff. 178r-v.

¹⁴⁴ Green, *Trotula*, pp. 100-101; Elsackers, p. 194; L'Estrange, p. 49; Jones and Olsan, 'Performative Rituals', pp. 408-409.

¹⁴⁵ Katherine Storm Hindley, "'Yf a Woman Travell Wyth Chylde Gyrdes Thys Mesure Abowte Hyr Wombe": Reconsidering the English Birth Girdle Tradition', due to appear in Jack Hartnell, ed., *Continuous Page: Scrolls and Scrolling from Papyrus to Hypertext* (London: Courtauld Books, forthcoming), p. 14; Elsackers, p. 196;

And yf a woman travell wyth chylde gyrdes thys mesure abowte hyr wombe and she shall be safe delyvyrd wythowte pabelle and the chylde shall have crystendome and the mother puryfycatyon.¹⁴⁶

This roll is in very delicate condition, probably because it was used as the text here directed. It promised the preservation of both mother and child, so that the child would survive to be christened and baptised, and the mother would be purified, in the conventional ceremony of 'churching'.

2.10. Conclusion

In the middle ages, procreation was valorised in contemporary culture, and yet pregnancy and childbirth presented a significant danger to mother and child. Pregnancy was of interest to medical practitioners and ordinary people alike, and most women would have experienced pregnancy at some point in their lives. Consequently, significant resources were directed towards managing this process. Methods of pregnancy diagnosis were just one of the many resources available for those wishing to maintain and monitor a woman's reproductive health. But they could also have played a more specific role in efforts to manage fertility, prompting a transition from measures to promote or limit fertility, towards managing or ending a pregnancy.

The certainty offered by diagnostic methods would have allowed women to prepare for the potential dangers of childbirth, and to ensure they were doing as much as possible to preserve the health of mother and child. This desire for confirmation and certainty was strong, as suggested by the variety of different methods employed for identifying a pregnancy and predicting the sex of a foetus. Perhaps these methods were developed and circulated as a response to the known dangers of this process, mitigating potential harms by seeking as much knowledge as possible about the pregnancy. The following analysis of these methods therefore provides a contribution to historical knowledge about the uncertain early days of a pregnancy, a period which has left little trace in the historical record. We have considered the role these methods may have played in managing a pregnancy, and the

Jones and Olsan, 'Performative Rituals', pp. 424-427; Joseph Gwara and Mary Morse, 'A Birth Girdle Printed by Wynkyn de Worde', *Library* 13 (2012), 33-63.

¹⁴⁶ Hindley, p. 12; Lea T. Olsan, 'Wellcome MS. 632: Heavenly Protection During Childbirth in Late Medieval England', Wellcome Library Blog, 22nd October 2015 <<http://blog.wellcomelibrary.org/2015/10/wellcome-ms-632-heavenly-protection-during-childbirth-in-late-medieval-england/>> [Accessed 5th November 2018].

following analysis will provide a more in-depth exposition on how they functioned, and the people who used them. In turn, this discussion helps to contextualise the actions of those who used methods of pregnancy diagnosis to manage a pregnancy in the later middle ages.

Chapter 3: Conception and the Female Reproductive Anatomy in the Later Middle Ages

Modern science recognises the significant impact of pregnancy on the functioning of the female body, and the complex processes involved in conception and reproduction. This biological reality has not altered over the last five hundred years, but, in the later middle ages, these changes were conceptualised within contemporary frameworks of knowledge about the female body and reproduction. Intellectual explanations for conception and the anatomical changes of pregnancy had been developed amongst university educated physicians and natural philosophers from the twelfth century onwards, incorporating the ideas of ancient authorities such as Galen and Aristotle, and the encyclopaedic works of earlier medieval Arabic authors. This theoretical knowledge was used by later medieval medical authors, to devise the practical methods of diagnosing pregnancy which are discussed in this thesis. This chapter explores this intellectual context, considering the landscape of medicine in the later middle ages, and discussing theoretical understandings of the anatomical processes of pregnancy in women's bodies which explain the functioning of medical methods of diagnosing pregnancy examined elsewhere in this thesis.

The theoretical ideas about pregnancy which underlie these methods were the products of a learned, literate, male intellectual elite. This chapter therefore also discusses the vernacularisation of medicine: the extent to which medical learning was made available to ordinary people, through the translation of Latin texts into vernacular languages, and the dissemination of complex learned ideas in forms more accessible to lay people. This included the form of *experimenta*, practical techniques for healing, or in this case diagnosing, which circulated with no theoretical explanation for their functioning, yet were thought to be effective and useful.¹⁴⁷ This discussion will assess how widely learned medical

¹⁴⁷ Peter Murray Jones, 'Generation Between Script and Print', in *Reproduction*, ed. by Hopwood et al., pp. 181-193 (p. 182); *Idem*, 'Complexio and Experimentum: Tensions in Late Medieval Medical Practice', in *The*

concepts relating to anatomical processes and bodily complexions were disseminated in the later middle ages, and whether theoretical knowledge about pregnancy was available to ordinary people at this time. Were the texts and ideas contained within the new Galen, and the translations of Aristotle's works, available outside the context of the universities? In what forms might they have been accessible to ordinary lay people? And how might this dissemination of knowledge have influenced the development and use of methods of pregnancy diagnosis? Monica Green suggests that in the later middle ages, complicated theoretical explanations for the causes of medical conditions and the functioning of their cures rarely appeared in practical medical texts, suggesting that medical theory and practice were disconnected, even in literate medicine.¹⁴⁸ Texts offering methods of pregnancy diagnosis reflect this pattern: few of these methods appeared with theoretical explanations of the functioning of conception, and none of the texts I have examined contained detailed explanations for why these tests would work, or why signs of conception might occur.

The following consideration of the vernacularisation of knowledge about pregnancy and pregnancy diagnosis seeks to build on these observations, to consider whether theoretical information about pregnancy, and methods of diagnosing pregnancy, could have been available to ordinary people: the less educated, and perhaps even the illiterate. Women's knowledge of medicine and pregnancy will be addressed, along with the possibility that a separate culture of knowledge about pregnancy may have existed amongst women in the later middle ages. Even if women could access learned medical texts in the vernacular, or if texts were read aloud to those who could not read, the theoretical ideas about pregnancy which inform most of the methods discussed in this thesis may have been of limited interest to most women. Traces of available evidence suggest an alternative model of experiential knowledge, as women learned from personal and communal experience how to recognise a pregnancy. This informal knowledge apparently operated parallel to textual methods of pregnancy diagnosis, and while textual methods may have influenced women's informal practices, women's practices do not seem to have influenced textual knowledge.

Body in Balance: Humoral Medicines in Practice, ed. by Peregrine Horden and Elisabeth Hsu (New York: Berghahn Books, 2015), pp. 107-128 (p. 110).

¹⁴⁸ Monica H. Green, 'Flowers, Poisons and Men: Menstruation in Medieval Western Europe', in *Menstruation: A Cultural History*, ed. by Andrew Shail and Gillian Howie (London: Palgrave, 2005), pp. 51-64 (pp. 57-58).

Reproduction and conception in medieval thought has long been of interest to intellectual and medical historians. A recently published composite volume *Reproduction: Antiquity to the Present Day*, edited by Hopwood, Flemming and Kassell, provides a survey of centuries of thought on reproductive matters.¹⁴⁹ This includes useful insights into the origins of medieval ideas about the female reproductive anatomy in the middle ages.¹⁵⁰ The works of Katharine Park and Joan Cadden are also invaluable: Cadden's work on sex difference demonstrates the ways in which understandings of the female reproductive anatomy were influenced by ancient ideas on the subject, and how the differences between male and female bodies were conceptualised.¹⁵¹ This is complemented by Park's depiction of the active investigative interest in the female anatomy amongst physicians in the later middle ages.¹⁵² Finally, the works of Monica Green have shaped historical understandings of medieval women's medicine, and how the female reproductive body was conceptualised in theory and cared for in practice.¹⁵³ Green's particular interest lies in the efforts of male practitioners to assert their role in women's medicine, partly by devaluing women's expertise in reproductive matters. The following discussion of vernacularisation will consider the interplay between these two groups to present some observations of the knowledge exchange between them, and will draw on a range of scholarship considering vernacularisation of learned ideas, and access to written knowledge in the later middle ages.

3.1 Women's Medicine in the Later Middle Ages

In the period discussed in this thesis – the fourteenth and fifteenth centuries – the field of learned medicine in the medieval west had just experienced a significant transformation. The translation movements of the eleventh and twelfth centuries had made the ideas of ancient medical authors such as Galen and the Hippocratics available in Latin –

¹⁴⁹ *Reproduction: Antiquity to the Present Day*, ed. by Nick Hopwood, et al. (Cambridge: Cambridge University Press, 2018).

¹⁵⁰ Rebecca Flemming, 'Galen's Generations of Seeds', pp. 95-108; Park, 'Managing Childbirth'; Jones, 'Generation'; and Gianna Pomata, 'Innate Heat, Radical Moisture and Generation', pp. 195-208; all in *Reproduction: Antiquity to the Present Day*, ed. by Hopwood et al. (Cambridge: Cambridge University Press, 2018).

¹⁵¹ Cadden, *Sex Difference*.

¹⁵² Park, *Secrets*.

¹⁵³ Green, *MWMM*; *Eadem*, 'Gendered Bodies'; *Eadem*, 'Making Motherhood'; *Eadem*, 'Obstetrical and Gynecological Texts in Middle English', *Studies in the Age of Chaucer* 14 (1992), 53-88.

through translations of both the original Greek texts, and, to a much greater extent, adaptations and translations created by Arabic medical authors.¹⁵⁴ These Arabic works contributed to the development of the teachings of Galen into an organised system known as 'Galenism'.¹⁵⁵ The natural philosophical works of Aristotle were also translated into Latin in the thirteenth century.¹⁵⁶ These texts were assimilated into the curricula of the schools and universities, to be studied by theologians and natural philosophers, and in the new university medical faculties, which were established across southern and western Europe from the thirteenth century onwards.¹⁵⁷ These developments provided the institutional framework necessary for the establishment of a well-educated medical profession, equipped with extensive medical knowledge grounded in theory. These learned practitioners were almost exclusively male, because women were excluded from study at the universities.

Within this context of institutional and intellectual development, educated medical authors and practitioners were taking an interest in the medical conditions particular to the female body, as authors compiled specialised works on women's medicine. The composition of these texts was part of a broader process, as university educated medical practitioners established their superiority over less educated practitioners, on the basis of their mastery of theoretical knowledge about the body.¹⁵⁸ The informal, experiential, knowledge of less learned practitioners, including most female medical practitioners, was promoted by the learned as less effective. Educated male practitioners therefore came to dominate the field of women's medicine between the twelfth and fifteenth centuries. Green conceptualises this phenomenon as the 'masculinization of women's medicine'.¹⁵⁹

¹⁵⁴ Danielle Jacquart, 'Medical Scholasticism', in *Western Medical Thought From Antiquity to the Middle Ages*, ed. by Mirko Grmek (Cambridge, MA: Harvard University Press, 1998), pp. 197-240 (p. 215); Luke Demaitre, 'Theory and Practice in Medical Education at the University of Montpellier in the Thirteenth and Fourteenth Centuries', *Journal of the History of Medicine and Allied Sciences* 30 (1975), 103-123 (p. 104); Carole Rawcliffe, *Medicine and Society in Later Medieval England* (Stroud: Sutton Publishing, 1997), pp. 49-50.

¹⁵⁵ Nahyan Fancy, 'Generation in Medieval Islamic Medicine', in *Reproduction*, ed. by Hopwood et al., pp. 129-140 (p. 129); Jacquart, 'Scholasticism', pp. 202, 215; Alain Touwaide, 'The Legacy of Classical Antiquity in Byzantium and the West', in *Health and Healing from the Medieval Garden*, ed. by Peter Dendle and Alain Touwaide (Woodbridge: Boydell, 2008), pp. 15-28 (p. 15); Cadden, *Sex Difference*, p. 107.

¹⁵⁶ Jacquart, 'Scholasticism', p. 216; MacLehose, '*Tender Age*', Chapter One, Para. 48.

¹⁵⁷ Monica Green, *The Trotula: An English Translation of the Medieval Compendium of Women's Medicine* (Philadelphia: University of Pennsylvania Press, 2001), pp. 9-14; Nutton, 'Medicine', p. 154.

¹⁵⁸ Katharine Park, *Doctors and Medicine in Early Renaissance Florence* (Princeton: Princeton University Press, 1985), pp. 46-48.

¹⁵⁹ Green, *MWMM*, p. ix.

Social taboos against physical contact between men and women caused some concern over male physicians caring for women, but the valorisation of theoretical medicine outweighed these taboos. According to Park, by the later middle ages ‘even patrician women had little reticence about being treated or examined by male doctors’.¹⁶⁰ To circumvent the taboo, some male medical practitioners would preside over the woman’s treatment, while drawing on the assistance of female attendants to conduct direct examinations.¹⁶¹ As we have seen in the previous chapter, female attendants were still customary during childbirth, and these developments would have had limited influence for those unable to afford the services of an educated practitioner. But during the later middle ages, male practitioners were treating female patients as an ordinary part of their medical practice. Women’s health was certainly not ‘women’s business’ alone.¹⁶²

Medical care for women was formulated on the basis of contemporary medical theories, which conceptualised women as being essentially different from men. This was both in terms of their physical anatomy and their fundamental nature. These views were based on ancient understandings of sex difference, and were shaped by contemporary medieval understandings of gendered social roles and stereotypical views of male and female natures.¹⁶³ Beyond the obvious external anatomical differences, significant physiological differences between the sexes were conceptualised. This medical system placed a great deal of emphasis on the concept of complexion – the balance between qualities of hot, cold, moist and dry, which contributed to the formation and functioning of the human body. Male and female complexions were thought to differ: from the moment of conception, female bodies were characterised by their cool, moist natures, whereas male bodies were dominated by heat and dryness.¹⁶⁴ In this system, heat was a positive quality – it was seen as essential to life and various vital processes, including digestion. The assumption that male bodies possessed additional heat contributed to the idea of males as more nearly perfect than female bodies.

Additionally, men’s bodies were dominated by the heart, the most important of the higher organs, whereas women’s bodies were dominated by the uterus. This meant that a

¹⁶⁰ Park, *Doctors*, p. 53.

¹⁶¹ Green, *MWMM*, p. 26.

¹⁶² *Ibid*, p. 19.

¹⁶³ Cadden, *Sex Difference*, p. 169.

¹⁶⁴ *Ibid*, pp. 170-171.

woman's reproductive health could influence her overall wellbeing, and her bodily state would fluctuate over the course of the menstrual cycle.¹⁶⁵ A great deal of theoretical women's medicine was therefore directed towards understanding and treating various reproductive disorders, which was not the case in medicine for men. This produced a proliferation of treatments for managing female fertility and reproductive health – as discussed in the previous chapter. Understandings of fundamental physiological differences between the sexes are at the heart of medieval medical approaches to male and female bodies, and the medical methods of pregnancy diagnosis discussed in this thesis can be seen as products of this central emphasis on the female reproductive role as a way of conceptualising the general health of the female body.

3.2. The Female Reproductive Anatomy

Given the fundamental differences between male and female bodies, understanding the particularities of the female anatomy was a source of great interest in the later middle ages. Attention came from physicians actively involved in caring for women in reproductive matters, as well as theologians and natural philosophers motivated by a theoretical interest in understanding the entirety of God's creation, and the wonders of conception. As Katharine Park states, the processes of heterosexual intercourse, conception, and pregnancy all took place within women's bodies, hidden from scrutiny because of the fundamental interiority of the female reproductive anatomy. The male genitalia could be easily seen, but the uterus was 'frustratingly inaccessible' – even for those physicians who were able to participate directly in treating female patients.¹⁶⁶

The hidden nature of the female reproductive anatomy motivated interest, but also inspired fears about the potential dangers these hidden processes might present. There were particular concerns about menstruation, which was conceptualised as both a primary category of difference between men and women, and the most easily disrupted aspect of women's reproductive health.¹⁶⁷ It was also apparently a taboo topic – Green claims there are almost no medieval references to menstruation outside the contexts of medical and

¹⁶⁵ Cadden, *Sex Difference*, p. 55; Park, *Secrets*, p. 103.

¹⁶⁶ *Ibid*, pp. 92, 102-103.

¹⁶⁷ Bettina Bildhauer, 'The *Secrets of Women* (c. 1300): A Medieval Perspective on Menstruation', in *Menstruation: A Cultural History*, ed. by Gillian Howie and Andrew Shail (Basingstoke: Palgrave Macmillan, 2005), pp. 65-75 (p. 72).

natural philosophical writings, not even in humorous literature.¹⁶⁸ This suggests that menstruation was managed as a private, practical concern by women, without creating a significant trace in contemporary literature. Women were thought to menstruate because of their cooler complexions. Men's hotter bodies were better able to digest nourishment than women's, and consequently a superfluity of undigested waste was left over. This was emitted in the form of menstrual blood.¹⁶⁹ Menstrual blood was viewed as harmful, particularly after the thirteenth century, when Plinian and Aristotelian ideas about its toxic nature came to dominate.¹⁷⁰ Understanding the female reproductive anatomy would allow physicians and natural philosophers to develop a more detailed view of the dangers presented by menstruation, both to women's bodies and their reproductive health, and to men during sexual intercourse.¹⁷¹ But despite this perceived harm, menstrual blood was also thought to play a critical role in reproduction: most theorists saw menstrual blood as crucial in nourishing the unborn foetus, and forming the breastmilk to feed the child after birth.¹⁷² In the Aristotelian model of conception, which was influential in medieval western Europe from its reintroduction in the thirteenth century, menstrual blood was also seen as providing the female contribution to conception, in the form of matter shaped into the foetus by the male seed.

Maintaining regular menstruation was essential for preserving women's health and their reproductive potential. Otherwise, this toxic substance would be retained within the body, and could cause harmful illnesses and damage fertility if not expelled – but if it was entirely absent, her body would be unable to nourish a developing foetus in the womb.¹⁷³ Consequently, methods of regulating menstruation proliferate in texts on women's medicine. A variety of techniques were recommended, to restore interrupted menstruation, or to prevent excessive menstruation. These involved the application of *materia medica*, in the form of potions or drinks, therapeutic baths, and medicated pessaries.¹⁷⁴ For medieval

¹⁶⁸ Green, 'Menstruation', pp. 61-62.

¹⁶⁹ Cadden, *Sex Difference*, pp. 60-61.

¹⁷⁰ Green, 'Menstruation', p. 58; Katharine Park, 'Medicine and Natural Philosophy: Naturalistic Traditions', in *The Oxford Handbook of Women and Gender in Medieval Europe*, ed. by Judith Bennett and Ruth Karras (Oxford: Oxford University Press, 2013), pp. 84-98 (p. 95).

¹⁷¹ Bildhauer, p. 71.

¹⁷² Joyce Salisbury, 'Gendered Sexuality', in *Handbook of Medieval Sexuality*, ed. by Vern Bullough and James Brundage (Abingdon: Routledge, 2010), pp. 81-102 (p. 89).

¹⁷³ Bildhauer, p. 66.

¹⁷⁴ Green, *Trotula*, pp. 78-79.

medical authors, understanding menstruation was crucial to understanding women's imperfect bodies, as the cause of many of their sex-specific ailments, and a fundamental marker of their difference from men. But, as an essential factor in the processes of reproduction, menstruation also played a role in many of the signs of pregnancy discussed in the following, and understanding menstruation within the female reproductive anatomy was therefore vital.

The works of earlier medical authorities – Galen, Hippocrates, Aristotle, and the Arabic medical authors – influenced later medieval understandings of the female anatomy, but there was a sense, according to Park, that these works were inadequate for understanding the processes of pregnancy and the pregnant female uterus.¹⁷⁵ She suggests that this perceived inadequacy, along with the reception of Galen's writings on the importance of anatomical investigation, led to a renewed interest in anatomical investigation at the end of the fifteenth century.¹⁷⁶ Dissections of animals, miscarried fetuses and human female bodies were carried out for the purpose of understanding the female reproductive anatomy at the later medieval universities, particularly those in Italy.

Public dissections of human bodies – mainly male – were carried out regularly at the Italian universities for the purposes of medical education, but accessing corpses for dissection was not easy. Anatomists could only dissect the bodies of foreign criminals executed in the winter months, given the difficulty of preserving a body in hot summer weather. Few of these condemned criminals would have been women.¹⁷⁷ As the execution of pregnant women was prohibited, anatomical investigation of the pregnant female body would have been even more problematic, and the very few investigations carried out into the pregnant female anatomy were probably carried out on the bodies of poor women who had died in city hospitals.¹⁷⁸ Park also refers to a number of 'domestic' anatomies, in which some patients of private medical practitioners volunteered to have their bodies dissected after their deaths, to identify the cause of death.¹⁷⁹ At least one of these involved the

¹⁷⁵ Park, *Secrets*, p. 105.

¹⁷⁶ Nutton, 'Medicine', p. 176; Jacquart, 'Scholasticism', pp. 226-228; Park, *Secrets*, p. 90.

¹⁷⁷ *Ibid*, p. 123.

¹⁷⁸ *Ibid*, p. 109.

¹⁷⁹ *Ibid*, pp. 122-124.

dissection of a woman who had died after giving birth in 1477 – Fiametta di Donato Adimari.¹⁸⁰

Obtaining female cadavers for dissection would have been difficult, but from the evidence of anatomical illustrations and medical texts, the information obtained was valuable in informing understandings of the anatomical makeup of the female body, with a central focus on the uterus or womb. The uterus was seen as having an influence on the overall health of women's bodies, and given its reproductive role it was of great interest to later medieval medical theorists. This was an organ which could only be viewed and understood by anatomical exploration, and the uterus was the first organ to be represented in an illustrated Italian medical work on the basis of personal anatomical observation, in the *Fasciculus medicinae*, attributed to Johannes de Ketham, first printed in 1494.¹⁸¹ From the late fifteenth century, more detailed anatomical investigations of this organ were recorded, and images based on these observations were widely distributed in printed texts.¹⁸² As a result of these investigations, knowledge about the female anatomy and its reproductive functions was developed at the later medieval universities, and this interest in the anatomical processes of the female reproductive body may have influenced the dissemination of methods of diagnosing pregnancy in circulation at this time. These methods relied on making visible the anatomical processes of pregnancy, which are discussed in section 3.3, and through these diagnostic procedures, ordinary people and less learned practitioners may have gained access to some part of this knowledge about the mysterious processes hidden within the female body.

3.3. The Anatomical Changes of Pregnancy

The intellectual context of learned medicine shaped understandings of women's reproductive bodies and the effects of pregnancy on the female anatomy. The idea that the processes of pregnancy had perceptible effects on the body led to the development of a range of methods for diagnosing pregnancy. The most important bodily changes discussed here include changes to the womb brought about by conception and the presence of the foetus, the processes of foetal growth, the nourishment of the foetus, and the production of

¹⁸⁰ Park, *Secrets*, pp. 121-122.

¹⁸¹ *Ibid*, p. 108.

¹⁸² *Ibid*, p. 104.

breastmilk. As part of this discussion, references to the explanations of this process in William of Conches' *Dragmaticon* will be included to demonstrate the complexities of learned theory on this topic.¹⁸³ Conches was an influential Norman natural philosopher, writing in the twelfth century, and in his explanations of the processes of conception he articulates many of the underlying concepts that informed the development of medical methods of pregnancy diagnosis.¹⁸⁴

These underlying physical changes must be understood to make sense of methods of pregnancy diagnosis, even when these changes are not explained or rationalised when they appear in medieval medical texts. The absence of explanations in some simplified texts suggests the vernacularisation of some of this material: simplified texts appearing without theoretical information might indicate the transmission of learned ideas to less learned audiences, particularly if those texts are in the vernacular.¹⁸⁵ It might even indicate textual production by amateur scribes or lay practitioners: those with less advanced theoretical knowledge.¹⁸⁶ In turn, texts without theoretical explanations would have allowed the least learned to adopt these practices, thereby contributing further to the vernacularisation of medicine in the later middle ages. This discussion of the processes of pregnancy is therefore followed by a consideration of the vernacularisation of medicine more generally in the later middle ages.

3.3.1. The Womb

As the site of foetal formation, it was recognised that the womb would undergo significant changes during pregnancy. Initially, its role was to receive the seed: the contributions of the man, and, in Hippocratic and Galenic models of the process, also the woman, to conception. After the seed was emitted during coitus, the powerful appetitive forces of the womb would draw it upwards because the womb was thought to actively desire seed.¹⁸⁷ The womb would then close itself off, and begin shaping the seed into the foetus.¹⁸⁸ Galen claimed that the womb played the most important role in shaping the

¹⁸³ Guillelmi de Conchis [William of Conches], *Dragmaticon philosophiae*, ed. by Italo Ronca, *Guillelmi de Conchis Opera Omnia*, vol. 1, Corpus Christianorum Continuatio Mediaevalis, CLII (Turnholt: Brepolis, 1997).

¹⁸⁴ Joan Cadden, 'Science and Rhetoric in the Middle Ages: The Natural Philosophy of William of Conches', *Journal of the History of Ideas* 56 (1995), 1-24 (p. 3).

¹⁸⁵ Sotres, p. 301.

¹⁸⁶ Jones, 'Generation', p. 187.

¹⁸⁷ Cadden, *Sex Difference*, p. 178.

¹⁸⁸ 'After the sperm has entered the womb, the inferior [inner] mouth of the womb closes to prevent any residue mixing with the fetus and damaging it', 'cum sperma matricem intraverit, clauditur inferius os matricis,

foetus, given the length of time it spent within. Heat was integral to foetal formation: inside the womb, heating and thickening would occur, driven by the 'digestive virtue', and causing the seminal matter to come together and form into the foetus.¹⁸⁹ This heat would be drawn from elsewhere within the woman's body, from that which was usually required to drive digestion – the process by which foods were dissolved and absorbed into the body.¹⁹⁰ As a result of this redistribution of heat, digestion would be disrupted by pregnancy: signs of ineffective digestion, and changes to appetite could therefore be used to identify a pregnancy.

3.3.2. Sex Differentiation

Levels of heat within the body and in the womb could also influence the sex of the foetus, depending on the side of the womb on which the seminal matter came together.¹⁹¹ Galen and the Hippocratics had referred to the division of the uterus into two chambers or horns, an idea which reflected extrapolations from the investigation of animal anatomy, rather than human.¹⁹² However, this idea was widely accepted in the middle ages, and was elaborated further to suggest that the uterus was in fact divided into seven cells: three on each side, and one in the middle.¹⁹³

ne superfluitates, commiscentes se conceptui, ipsum corrumpant', William of Conches, *Dragmaticon*, VI. ix. 1 (Ronca, p. 212).

¹⁸⁹ 'The digestive virtue starts working upon it and thickening it by a process of boiling', 'incipit virtus digestive in eo operari atque per ebullitionem spissare', William of Conches, *Dragmaticon*, VI. ix. 4 (Ronca, p. 213); MacLehose, *Tender Age*, Chapter 1, Para. 42; Flemming, 'Galen's Generations', p. 103.

¹⁹⁰ Jacquart, 'Scholasticism', p. 209.

¹⁹¹ Lesley Dean-Jones, *Women's Bodies in Classical Greek Science* (Oxford: Oxford University Press, 1994), p. 65. A number of other factors were believed to have an influence on the sex of the child, but as these did not have a direct effect on the woman's body, they had little impact on methods of pregnancy diagnosis. These factors included the respective strengths of the male and female seeds; the quantity of male seed versus the female seed; which testicle the male seed came from; astrological factors; the complexion of the menstrual blood; the position of the couple during sexual intercourse when the child was conceived; and even the imaginative power of the parents during sexual intercourse, and of the mother during the pregnancy. This discussion focuses on the influence of the left or right side of the womb because this was a process which occurred within the woman's body during pregnancy, and which was thought to have a direct anatomical impact on her body during the pregnancy. As the ensuing medical methods of pregnancy diagnosis will demonstrate, this anatomical impact was thought to be perceptible to the woman herself, as well as through direct bodily examination and methods of testing. Other factors had less perceptible effect on the female body, and are therefore excluded from this discussion. For further discussion of other means by which the sex of the child might be influenced, see Cadden, *Sex Difference*, p. 197; MacLehose, *Tender Age*, Chapter 1, Para. 41.

¹⁹² Fridolf Kudlien, 'The Seven Cells of the Uterus: The Doctrine and its Roots', *BHM* 39 (1965), 415-423 (p. 415); Guigonis de Caulhiaco (Guy de Chauliac), *Inventarium sive Chirurgia Magna: Volume 2: Commentary*, ed. by Michael McVaugh and Margaret Ogden (Leiden: Brill, 1997), p. 48.

¹⁹³ MacLehose, *Tender Age*, Chapter 1, Para. 59; Kudlien, p. 415.

Within this model, it was thought that if the seed came together in one of the three chambers on the left side of the womb, a female child would develop. If it came together in one of the chambers on the right, a male would develop. The central chamber was thought to form hermaphrodites.¹⁹⁴ This differentiation is once again related to heat – the right side of the womb was next to the liver, and therefore hotter than the left, which was next to the cold and dry spleen.¹⁹⁵ Higher levels of heat were thought to create males as the heat was necessary to form their hotter complexions – a male foetus would also generate more heat within the woman's body during pregnancy.¹⁹⁶ The idea that children of different sexes would develop on different sides of the uterus was thought to alter the pregnant woman's anatomy on that side of the body. This is reflected in a range of methods for recognising the sex of an unborn child, which draw attention to the way in which different sides of the woman's body are affected during pregnancy. The additional levels of heat generated by a male foetus would also have an effect, and could alter the woman's physical appearance in perceptible ways.

3.3.3. The Presence of a Foetus

The presence of a growing foetus within the uterus causes the most obvious and significant anatomical changes of pregnancy, as the belly expands and the breasts grow. Modern science recognises a number of disruptive effects on the body caused by the presence of the foetus – for instance, the foetus disrupts the flow of urine, causing the kidneys to increase in size.¹⁹⁷ Within medieval understandings of the female anatomy, the uterus was connected to the whole body as the dominant organ.¹⁹⁸ The presence of the foetus in the womb was therefore thought to have significant effects on the whole body. Corresponding with ancient Greek understandings of anatomy, there seems to have been some continuation of the belief in an interior 'passageway' within the female body, rising up from the womb to reach the higher organs, and eventually the head. This connection was the means by which the womb was thought to wander, leading to serious health problems,

¹⁹⁴ Cadden, *Sex Difference*, p. 198.

¹⁹⁵ Kudlien, p. 417.

¹⁹⁶ Salisbury, 'Gendered Sexuality', p. 91.

¹⁹⁷ Sheba Jarvis and Catherine Nelson-Piercy, 'Common Symptoms and Signs During Pregnancy' *Obstetrics, Gynaecology & Reproductive Medicine* 24 (2014), 245-249 (p. 247).

¹⁹⁸ Park, *Secrets*, p. 103; Cadden, *Sex Difference*, p. 55.

including suffocation caused by the womb.¹⁹⁹ The fifteenth-century *Syknesse of Wymmen* text conceptualised the motion of an ‘evil fume’ coming from the uterus, which ‘goes up by the backbone into the back part of the head or by the breast to the front part of the head’.²⁰⁰ This was a dangerous condition for the affected women, but this conceptual connection between the womb and the rest of the body was also the means by which the menstrual blood moved from the womb to the breasts during pregnancy to become breast milk.²⁰¹ There was awareness of the ancient condition of ‘suffocation of the womb’ in the middle ages: remedies for it are included in the Trotula *Conditions of Women* and *Treatments of Women* texts, and the repeated use of fumigation in medieval gynaecological practice reflects a continued belief in the presence of this passage.²⁰²

This internal passageway would be affected by a pregnancy, as a growing foetus in the womb would apparently block it. Several methods of pregnancy diagnosis involved attempts to detect such a blockage, involving the application of substances to the mouth or to the vagina, to assess whether tastes or smells could pass freely between the two. If a foetus was present, this transference could not occur, hence a lack of smell or taste as an indication of pregnancy. This concept of an anatomical connection between the face, mouth and nose and the womb is integral to understanding the functioning of these tests, and signs of pregnancy relating to the eyes and the face, but is never articulated explicitly in the later medieval examples discussed in this thesis.

3.3.4. Foetal Nourishment

Foetal nourishment during pregnancy also caused significant and perceptible anatomical changes. It was widely agreed that the foetus derived nourishment from blood within the womb, and most medieval models held this to be menstrual blood, based on ancient ideas about this process.²⁰³ The idea that the foetus might depend on this substance, widely understood to be harmful and poisonous, caused some anxiety in the later middle ages, and prompted contemplation of the capacity of the mother’s body to

¹⁹⁹ Rebecca Flemming, *Medicine and the Making of Roman Women: Gender, Nature, and Authority from Celsus to Galen* (Oxford: Oxford University Press, 2000), p. 117.

²⁰⁰ ‘Gothe up to the hed otherwhile by the riggebone [backbone] into her hinder partie of the hede, otherwhile be the brest into the ferther parte of the heed’, Beryl Rowland, *Medieval Woman’s Guide to Health: The First English Gynecological Handbook* (London: Croom Helm, 1981), pp. 86-87.

²⁰¹ Helen King, *Hippocrates’ Woman: Reading the Female Body in Ancient Greece* (London: Routledge, 1998), p. 143.

²⁰² Cadden, *Sex Difference*, p. 52; Green, *Trotula*, pp. 112-113, 116-117; Lemay, ‘Guainerius’, p.323.

²⁰³ Salisbury, ‘Gendered Sexuality’, p. 89.

harm the foetus carried hidden within it.²⁰⁴ William of Conches sought to alleviate concern by identifying other possible sources of foetal nutrition: he suggested that pure blood from the liver was the source, and that even this had to be refined by heating before nourishing the foetus.²⁰⁵

Whatever the source of the blood, the process of nourishing the foetus would have had a disruptive effect on the female anatomy, as menstruation ceased and heat from elsewhere in the body was diverted to refine the blood into food in the womb, and then into milk in the breasts. The effects of these changes would have been perceptible to the woman, and other observers, and appear to form the basis of many of the signs of pregnancy to be discussed in Chapters Six, Seven, and Eight.

3.3.5. Breast Milk

Finally, lactation was a very obvious and perceptible anatomical change caused by pregnancy. Many of the signs of pregnancy directed attention towards the breasts and their visual appearance, but the breast milk was also a very conspicuous focus for scrutiny. This excretion was conceptualised as almost exclusive to pregnant and post-partum bodies, and could provide indications of the processes ongoing within the pregnant body.²⁰⁶ Breast milk was thought to be formed from menstrual blood: given its role in nourishing the foetus during pregnancy, it was logical to conclude that this would continue to play a nutritional role after birth.²⁰⁷ This was again an idea with classical origins: according to Galen, the breasts and the womb were linked by a series of veins and arteries, and as a pregnancy progressed, menstrual blood travelled up to the breasts where it was converted into milk through concoction -heating – and refinement.²⁰⁸ This occurred through heat in the woman's body, and different levels of heat might result in different qualities of breast milk: as a general principal, more heat would apparently lead to more concoction, and a thicker

²⁰⁴ Bildhauer, p. 66; MacLehose, *'Tender Age'*, Chapter 1, Para. 44, Para. 56.

²⁰⁵ 'Certain nerves are in its navel, to which the womb is attached just as an apple is attached to a tree by its stem. Through these nerves blood descends from the mother's liver, by which the fetus is fed and grows', 'quidam nervi sunt in umbilico illius, quibus matrici adhaeret quemadmodum pomum cauda sua arbori. Per hos nervos sanguis ab hepate matris descendit, quo partus nutritur et crescit', William of Conches, *Dragmaticon*, VI. ix. 7 (Ronca, p. 214); MacLehose, *'Tender Age'*, Chapter 1, Para. 50.

²⁰⁶ There are some accounts of lactation occurring outside the context of pregnancy in the middle ages, usually in miracle narratives. Anke Passenier, 'The Life of Christina Mirabilis: Miracles and the Construction of Marginality', in *Women and Miracle Stories: A Multidisciplinary Exploration*, ed. by Anne-Marie Korte (Leiden: Brill, 2004), pp. 145-178 (pp. 170-171); Nutton, 'Medicine', p. 175.

²⁰⁷ King, *Hippocrates' Woman*, p. 34.

²⁰⁸ Green, *MWMM*, p. 100; Salisbury, 'Gendered Sexuality', p. 89; Rosemary Buck, 'Woman's Milk in Anglo-Saxon and Later Medieval Medical Texts', *Neophilologus* 96 (2012), 467-485 (p. 476).

consistency of the breast milk. The level of heat within the body was influenced by the sex of the foetus: a male would generate more heat than a female, which would alter the quality of the breast milk. It would be more concocted if the child was male, and less concocted if the child was female: thicker milk during pregnancy indicated a male child, and thinner milk indicated a female child.

3.3.6. Conclusion: Changes to the Body

This discussion of changes to the body experienced by women during pregnancy demonstrates the way this condition would manifest itself in women's bodies, according to contemporary later medieval medical theory. These concepts underlie most medical texts on the topic of pregnancy: those which deal with treatments for sterility or illnesses in pregnant women, those which explain foetal formation or nourishment, and those which offer methods of diagnosing pregnancy. A learned, theoretically trained medical practitioner operating in the later middle ages would have some grasp of these concepts, which were included in the theoretical medical texts taught at the universities, and attempts to diagnose pregnancy would be informed by these concepts.

For the purpose of this thesis, the discussion of these theoretical concepts serves to situate methods of pregnancy diagnosis within legitimate, licit medical practice, and helps to explain the operation of the medical methods of diagnosis discussed in Chapters Six, Seven, and Eight. And yet, in most of the later medieval medical texts discussed here, complex ideas about the structures and processes of women's bodies during pregnancy were not explained in this level of detail, and the rationale behind the various procedures for diagnosing pregnancy was rarely explained. Procedures and practices initially described in complex learned medical texts were stripped of theory, and appeared in simplified forms. While a learned physician reading these less complex texts may have been able to situate them within the broader framework of learned medical theory, it is entirely possible – if not probable – that most of the people reading these texts would not have possessed this sort of knowledge. Even without a grasp on this complex theory, these medical texts setting out methods for diagnosing pregnancy could still be useful to anyone with access to them – the efficacy of these tests did not depend on the user's grasp of theory. This process relates to the concept of the vernacularisation of medicine in the later middle ages, explored in the following section of this chapter. By examining these methods of pregnancy diagnosis in terms of their underlying theory, and the likely conditions of their circulation and use, it is

possible to gain some sense of the complex and sometimes contradictory ways this information may have been put into practice.

3.4. The Vernacularisation of Medieval Medicine

The process of the vernacularisation of medicine is key to understanding whether medical knowledge of pregnancy and pregnancy diagnosis was of interest beyond the intellectual elite in the later middle ages, and the ways in which these ideas and practices may have been used and understood by uneducated medical practitioners and ordinary lay people. In its most limited definition, vernacularisation refers to ‘the transposition of texts from a high status language, usually Latin, into a vernacular language that typically has lower prestige as a written language’ – in other words, making texts available in languages which ordinary people could understand.²⁰⁹ This term can also be used to refer to a broader process of cultural exchange between elite and popular cultures, usually in a top-down model, as the ideas of the learned elite were thought to ‘filter down’ the social scale.²¹⁰ These definitions are somewhat problematic, in their reliance on the assumption that there was a distinct separation between elite and popular culture, and that the two intellectual worlds were completely separate from one another before the processes of vernacularisation took place.²¹¹ In this model the ideas of the intellectual elite were sometimes valorised by historians, whereas those of ordinary lay people were dismissed as mere ‘folklore’ and ‘superstition’. Historians now recognise that distinctions were not as clear cut as once thought: the ideas of the elite were often available to ordinary people, and vice versa, with influences travelling both ways.²¹²

In medieval medicine, vernacularisation manifested itself in several different ways. Firstly, in the most literal interpretation, theoretical medical texts were made available in

²⁰⁹ William Crossgrove, ‘The Vernacularization of Science, Medicine, and Technology in Late Medieval Europe: Broadening Our Perspectives’, *Early Science and Medicine* 5 (2000), 47-63 (p. 47).

²¹⁰ Susanna Niiraanen, ‘Mental Disorders in Remedy Collections: A Comparison of Occitan and Swedish Material’, in *Mental (Dis)Order in Later Medieval Europe*, ed. by Sari Katajala-Peltomaa and Susanna Niiraanen (Leiden: Brill, 2014), pp. 151-176 (p. 154, fn. 11).

²¹¹ Crossgrove, p. 50.

²¹² For instance, Peter Brown’s re-evaluation of his own work on elite and popular religion: in the preface to the 2015 edition of his book on the cult of the saints, he re-evaluates his previous discussion of ‘popular superstition’ in direct contrast to the religion of the elites. He now suggests that the development of Christian religion was not dominated from the top by the clergy and the aristocracy as he had once argued, but was instead the result of dialogue between the upper and lower classes. Peter Brown, *The Cult of the Saints: Its Rise and Function in Latin Christianity*, 2nd edn (Chicago: University of Chicago Press, 2015), pp. xvi-xxiv.

vernacular languages across Europe, from the end of the fourteenth century.²¹³ Monica Green has explored this process with reference to the Trotula texts, which were available in English, French, German, Irish, and Italian by the end of the middle ages.²¹⁴ Henry Daniel, a Dominican friar operating in England in the fourteenth century worked to translate his own *Liber uricrisiarum*, the 'Book About Judgements of Urine', from Latin into English – in the process he made a significant contribution to the range of medical vocabulary available in English, facilitating later translations of medical texts.²¹⁵

Secondly, in the later fourteenth and fifteenth century, there was a change in the format of medical texts. Medicine had long been considered both an art and a science, and even the most theoretical of university medical texts sought to present medical knowledge as a balance between practical skills and theoretical knowledge. Existing alongside these theoretical texts was a more practical genre of medical literature, which sought to offer guidance on treating patients in practical terms: advice about diagnosis, preventative medicine, and the application of appropriate medicines and *materia medica*.²¹⁶ This included the circulation of *experimenta*, procedures for the treatment or diagnosis of medical conditions which might not be explicable to the copyist, but which they knew to be effective from personal experience or the recommendation of other trusted individuals.²¹⁷ Some of these procedures can be traced back to their origins in learned medical theory, or explained in terms of learned, complexional medicine – this is the case for many of the diagnostic tests for pregnancy, discussed in Chapter Eight of this thesis.²¹⁸ Peter Murray Jones identifies a shift in the balance between theoretical medical texts, and practical medical texts in the later fourteenth century: after 1375, there was a decline in the number

²¹³ Irma Taavitsainen and Päivi Pahta, 'Vernacularization of Medical Writing in English: A Corpus Based Study of Scholasticism', *Early Science and Medicine* 3 (1998), 157-185 (p. 157).

²¹⁴ Monica H. Green, 'A Handlist of the Latin and Vernacular Manuscripts of the So-Called Trotula Texts. Part II: The Vernacular Translations and Latin Rewritings,' *Scriptorium* 51 (1997), 80-104; Green, *MWMM*, pp. 165-167.

²¹⁵ 'Daniel's English', The Henry Daniel Project <<https://henrydaniel.utoronto.ca/daniel/daniels-english/>> [accessed 12th March 2019]; Ralph Hanna, 'Henry Daniel's Liber Uricrisiarum (Excerpt)', in *Popular and Practical Science of Medieval England*, ed. by Lister Matheson (East Lansing: Colleagues Press, 1994), pp. 185-218.

²¹⁶ Peter Murray Jones, 'Medicine and Science', in *The Cambridge History of the Book in Britain, Volume III: 1400-1557*, ed. by Lotte Hellinga and J. B. Trapp (Cambridge: Cambridge University Press, 1999), pp. 433-448 (p. 433).

²¹⁷ Jones, 'Complexio', pp. 114-115

²¹⁸ *Ibid*, p. 124.

of theoretical texts in production, as practical medical texts came to dominate.²¹⁹ Jones associates these developments with an increasing interest in medicine beyond the walls of the university, as texts were translated, adapted, and given a more practical focus, to suit the needs of those who were not well versed in theory, but were nonetheless increasingly interested in medical practice.

The availability of texts like these in simplified forms and vernacular languages facilitated broader cultural exchange: people of varying levels of education copied extracts of texts into their own commonplace books, making selections according to perceived utility and personal interests. This included some of the material relating to fertility and conception discussed in the previous chapter, as well as material on pregnancy diagnosis. Some examples of this practice will be discussed in Chapter Four.²²⁰ Sometimes the people copying this material did not understand what they were copying – including Robert Thornton, a landowner and manuscript compiler active in the fifteenth century. He copied some medical texts into his manuscripts, but his frequent scribal errors indicate a lack of familiarity with the medical terms he was copying, leading to a great deal of confusion in the text.²²¹ These errors may have been a result of a desire to possess medical knowledge because of its perceived potential utility, rather than any understanding of the texts themselves. We will see examples of scribal error in some of the methods of diagnosis discussed in Chapters Six and Seven, and particularly Chapter Eight – perhaps the sources of these errors were similarly uninformed copyists.

There is some evidence of this sort of material being put into practice, as in the case of John Crophill, a bailiff living in Wix in Essex in the fifteenth century. Crophill possessed a commonplace book, now British Library, MS Harley 1735, which included various medical texts, and his interest in medicine demonstrates the engagement of ordinary people with medical ideas in the later middle ages.²²² Crophill's interest extended beyond simple, practical medical remedies: in his commonplace book he recorded information about astrology, the four complexions, and uroscopy, demonstrating his engagement with the

²¹⁹ Jones, 'Medicine and Science' pp. 433-434.

²²⁰ Taavitsainen and Pahta, p. 160; Jones, 'Generation', pp. 182-183, p. 187.

²²¹ Julie Orlemanski, 'Thornton's Remedies and the Practices of Medical Reading', in *Robert Thornton and His Books: Essays on the Lincoln and London Thornton Manuscripts*, ed. by Susanna Fein and Michael Johnston (York: York Medieval Press, 2014), pp. 235-255 (p. 237).

²²² Mitchell, 'Cultural Uses of Magic', pp. 171-172; Lois Jean Ayoub, *John Crophill's Book: An Edition of British Library MS Harley 1735* (Toronto: University of Toronto Press, 1994).

concepts and techniques of scholarly, learned medicine, albeit via simplified texts.²²³

Crophill was actively engaged in treating patients in his local area, and it is possible that his involvement in medicine included treatments of women – a version of the ‘peperit’ charm to help women in childbirth is included in his commonplace book.²²⁴ The development of printing technology in the later fifteenth century enabled the broader dissemination of medical material, accelerating the processes of vernacularisation of medicine even further.²²⁵

Theoretical concepts of learned medicine were assimilated into the understandings of ordinary people: the vernacular regimen literature of the fifteenth century allowed ordinary lay people to gain a basic understanding of the concepts of the four qualities, the humours, and differences in individuals’ complexions, and the sorts of actions which could be taken to promote good health.²²⁶ This literature might have been of particular interest to those in charge of food preparation in a household, given the importance of diet in regulating health. Consequently, regimen texts might sometimes appear in conjunction with culinary collections, in volumes which may have been owned by cooks in noble households.²²⁷ Medical remedies in the vernacular were a common manuscript form in the later middle ages, and were compiled into recipe collections by different categories of people: physicians and surgeons, and ordinary lay men and women engaged in managing the health of a household.²²⁸ Interest in compiling personal collections of this sort of material continued after the development of printing techniques in the fifteenth century.²²⁹ Historians have sometimes interpreted commonplace books and recipe collections as the products of ‘folk wisdom’, but more recent scholarship has demonstrated that the influence of oral culture on these works has been overstated: instead, their contents can often be

²²³ BL, MS Harley 1735, ff. 31r-33r; ff. 34r-34v; ff. 34v-35v.

²²⁴ *Ibid.*, f. 40r.

²²⁵ Jones, ‘Generation’, p. 188.

²²⁶ Sotres, p. 301.

²²⁷ Laura Mitchell cites John Crophill’s book, MS Harley, 1735, and San Marino, Huntingdon Library MS HM 1336 as containing information relating to regimen and culinary recipes. Mitchell, ‘Cultural Uses of Magic’, p. 172.

²²⁸ Taavitsainen and Pahta, p. 160; Linda Ehrsam Voigts and Ann Payne, ‘Medicine for a Great Household (CA. 1500): Berkeley Castle Muniments Select Book 89’, in *Studies in Medieval and Renaissance History*, 3rd ser., vol. 22, ed. by Cynthia Kosso and Anne Marie Scott (New York: AMS Press, 2016), pp. 87-271 (pp. 100-102).

²²⁹ Jones, ‘Generation’, p. 187.

traced to Latin sources, as is the case for much of the material relating to pregnancy diagnosis discussed in this thesis.²³⁰

High rates of illiteracy have often been presented as a barrier to accessing written information in the middle ages. But as discussed in the Introduction to this thesis, even those who were not able to read might access written texts, as other literate individuals would read them aloud.²³¹ Communal reading was quite common in the later middle ages, and it is likely that this practice extended to medical texts too: while their contents may not have been as entertaining as romances, the information contained within was recognised as useful and therefore worth being shared within a reading community.²³² Women, who were less likely to be able to read than men, might gain access to Latin obstetrical texts via the mediation of reader-translators, and several medieval texts on obstetrics include explicit directions for this. The gynaecological section of Thomas of Cantimpré's *On the Nature of Things* included a suggestion to his clerical readers – 'those who are ordained to counsel souls subject to free will' – that they should:

Call together some more discreet midwives and instruct them privately, and through them others might more easily be instructed.²³³

It might be possible to interpret this as part of the church's increasing involvement in licensing midwives in the later middle ages – although there were no literacy requirements for midwives until the sixteenth century, it is feasible that they were still expected to engage with written knowledge on assisting women during childbirth, even if they could not read it for themselves.²³⁴ Jennifer Wynne Hellwarth speculates that by the later middle ages, this sort of communal reading might occur amongst female 'textual communities', a concept she borrows from Brian Stock – he applied this to a group of people who derive knowledge of a text from one person who has mastery of it, not necessarily through direct reading.²³⁵

²³⁰ Taavitsainen and Pahta, p. 158.

²³¹ Hanna, 'Literacy', p. 194.

²³² Coleman, pp. 1, 109-147; Jones, 'Complexio', p. 117.

²³³ 'Omnes illi, qui debent consulere animabus sub libero arbitrio positus... Suademus ergo et volumus, ut discretiores aliquas convocent obstetrices et eas secretius instruant atque per eas et alie commodius instruantur,' Thomas of Cantimpré, *Liber de natura rerum*, book 1 (Berlin: W. de Gruyter, 1973), p. 76; Green, 'Gendered Bodies', p. 349.

²³⁴ Green, *MWMM*, p. 140.

²³⁵ Brian Stock, 'Textual Communities', in *The Implications of Literacy: Written Language and Models of Interpretation in the Eleventh and Twelfth Centuries*, ed. by Brian Stock (Princeton: Princeton University Press, 1983), pp. 88-240 (p. 90).

Hellwarth suggests that these practices may have allowed groups of women to come together to learn about midwifery and gynaecology from women who had learned this material, which might also have involved reading texts out loud to the group.²³⁶ The availability of texts in the vernacular would have facilitated these processes of oral communication, which would have enabled even those who could not read to absorb the concepts of theoretical, learned medicine.

We see some evidence of lay practitioners demonstrating their awareness of the concepts and techniques of learned medical culture in medical texts, and in legal records. Michael McVaugh discusses the case of Gueraula de Codines, from near Barcelona, who was arraigned by the bishop for 'irregular medical practice' in 1304. Not only was Gueraula diagnosing her patients' conditions by examining their urine, adopting the learned diagnostic technique of uroscopy, she was also able to demonstrate an awareness of the technical language associated with this diagnostic technique. She stated that '*citrine* urine indicates a continued fever, *vermeyla* a tercian fever, *rubia* the first stages of a quartan fever', using some of the increasingly standardised descriptions of the colours of urine, and differentiating between conceptually different types of fevers.²³⁷ Gueraula explained that she had been taught these techniques by a 'certain foreign doctor' (*quodam medico extraneo*), suggesting a process of dissemination not unlike the scenario suggested by Cantimpré's text.

Some physicians were apparently not entirely happy about the particularities of learned medical practice being disseminated amongst lay practitioners – particularly amongst women. Anthonius Guainerius, in his *Tractatus de matricibus*, referred to 'common women' (*vulgares*) who were 'learned' (*docte*) in how to treat suffocation of the womb by applying foul smelling substances to the nose – for this, they would burn feathers, dog hair, goat hair, hooves and horns.²³⁸ This was in accordance with the Hippocratic treatment for this condition, which sought to repel the womb downwards by apply disgusting odours at

²³⁶ Wynne Hellwarth, p.45.

²³⁷ Michael McVaugh, *Medicine Before the Plague: Practitioners and their Patients in the Crown of Aragon, 1285-1345* (Cambridge: Cambridge University Press, 1993), p. 140.

²³⁸ 'And thus women, by whatsoever means learned in these things, apply foul smelling things to the nose immediately, that are from the outside of an animal, and stretched feathers and as aforesaid particularly human hair and also dog hair, and felt from a male goat. Also the skin if it pleases, and the horns likewise, and the hoofs too', 'et sic mulieres docte in his omnis que cumque fetida naribus applicant statim ut finium animalium & tensas plumas & predictis maxime hominis capillos canis quoque pilos, ac irci filtrum Etiam ac corium quaelibet & ungulas pariter ac cornu quaecumque', Wellcome MS 557, f. 52r.

the nose, and tried to attract it back to its proper place by suffumigating the woman with sweet smelling smoke.²³⁹ Guainerius himself clearly does not disagree with their methodology, and recommends the same procedure for treating this condition. However, he encouraged his readers to create 'some difference' between themselves and these vulgar lay healers by using other, more expensive substances, like asafoetida, castoreum, and ammonia.²⁴⁰ This may have given the procedure the appearance of a more prestigious treatment, perhaps justifying the fees charged by a learned physician to do something which 'common women' were also capable of doing.²⁴¹

Despite his dismissiveness, Guainerius's awareness of the practice of these women does demonstrate a level of interest in lay knowledge on the part of medical practitioners, raising the possibility that learned medicine could be influenced by vernacular knowledge too. For instance, in his discussion of uterine mole, Guainerius recorded a conversation with 'the peasants of Apulia', about a woman who once gave birth to a toad alongside her child.²⁴² Despite his desire to distinguish his own practice from lay techniques, he is still willing to address lay knowledge and the experience of ordinary people in his writings. Other physicians were perhaps more comfortable absorbing aspects of less learned medicine in their practice. Linda Ehram Voigts cites the example of the physician John Argentine, Provost of King's College Cambridge in the fifteenth century. He is known to have owned a manuscript containing a mixture of types of writing, including a vernacular recipe collection, texts on bloodletting, an almanac and calendrical information. These are apparently more reflective of the interests of lay people than an educated physician, demonstrating the absence of a clear-cut separation between learned and lay medicine in the later middle ages.²⁴³ There is evidence of a shared culture of medical knowledge, as lay people absorbed the ideas of the medical elite, who in turn adopted some aspects of popular practice.

²³⁹ Dean-Jones, p. 73.

²⁴⁰ 'But that you might put some difference between you and the common people, exchange these for asafoetida, castoreum, galbanum, fir, ammonia, and such similar things', 'Sed ut inter te et vulgares diferentiam ponas aliquam Verte assafetida castoreo galbano sapino armoniaco & similibus', Wellcome MS 557, f. 52r.

²⁴¹ Lemay, 'Guainerius', p. 327.

²⁴² Ibid, p. 327.

²⁴³ Voigts, 'Books', p. 383.

Did this culture of the exchange of medical knowledge extend to include the experiential knowledge of later medieval women, about pregnancy, childbirth, and gynaecological health? It is very likely that many later medieval women would have gained some insight into these matters through personal experience of pregnancy, by assisting other women during childbirth, or conversing with other women about their health. Some women seem to have developed particular expertise in these areas, and came to specialise as birth attendants or midwives. This sort of informal, experiential knowledge and communal assistance is likely to have been the norm for most women in the later middle ages, who had no access to written texts, and could not afford the fees of a professional medical practitioner. This kind of knowledge leaves little historical evidence, although we will see some evidence of its assumed existence in the English legal cases discussed in Chapter Ten of this thesis. The systematic reliance on juries of ordinary women to pronounce a judgement of pregnancy suggests an assumption that most women would possess the knowledge to be able to do this, and hints at a broader culture of knowledge amongst women than later medieval medical texts seem to suggest.

These medical texts demonstrate little evidence of the knowledge of contemporary women: while the Hippocratic texts and the writings of Aristotle may have been informed by the knowledge of contemporary 'wise women', medieval authors were apparently reluctant to engage with the knowledge of ordinary women.²⁴⁴ There are some traces of the practices of contemporary women being acknowledged or valorised by the authors of learned gynaecological texts – Michele Savonarola referred to his own mother's knowledge on the topic of uterine mole, and recognised that he needed the support of female medical attendants to support his patients suffering from gynaecological problems.²⁴⁵ But many of the major gynaecological works of the later middle ages make no reference to women's knowledge of gynaecological matters, and Monica Green suggests that this was because professional, highly educated male physicians did not believe that women could have any claim to 'authoritative knowledge'. Instead, these men relied on the knowledge of earlier medical authorities and their own observations to inform their works.²⁴⁶ As a result, later medieval medical texts rarely refer to the knowledge of contemporary women. Where

²⁴⁴ Dean-Jones, pp. 27-31.

²⁴⁵ Green, *MWMM*, p. 292.

²⁴⁶ *Ibid*, pp. 298-299.

women are named as authorities, they are often mythologised figures, such as Trotula, or the Egyptian Queen Cleopatra – this is characteristic of the deference for authority in medieval knowledge creation, rather than a particular interest in contemporary women’s experiential knowledge.²⁴⁷

Sometimes women’s knowledge is referenced to demonstrate their fundamentally untrustworthy nature. The ‘Secrets of Women’ texts, a genre of texts about women’s bodies and generation which can be characterised by their misogynistic tone, refer to women’s knowledge of these matters. However, this is generally in reference to their knowledge of illicit practices, such as ‘crafty women’ who know how to falsify virginity.²⁴⁸ The women are never named, and are frequently referred to as ‘prostitutes’ to emphasise their untrustworthiness.²⁴⁹ It is possible that these figures were fabricated by the authors of these texts for rhetorical purposes, to reinforce the idea of a need for distance between respectable and knowledgeable men, and the illicit, inept practices of women discussed by Guainerius. Contemporary women’s knowledge was not particularly valued by male physicians in the later middle ages.

With this in mind, the body of texts relating to methods of pregnancy diagnosis discussed here probably does not reflect the full extent of the practices or interests of ordinary medieval women in diagnosing pregnancy. Despite the transference of learned ideas on the subject of women’s medicine into the vernacular, the possible existence of female textual communities and the interconnections between learned medicine and lay practice, it is probably fair to assume that most medieval women would not have made use of these methods of pregnancy diagnosis. There is some evidence of alternative practices of pregnancy diagnosis: Valesco de Tarenta’s reference to ‘foolish women’ assuming they are pregnant when they were actually suffering from a morbid condition can be interpreted as evidence that many women would recognise a pregnancy for themselves, without relying on

²⁴⁷ Green, *MWMM*, p. 239.

²⁴⁸ The secrets of women text follows a list of signs of chastity with the following statement: ‘Sed quedam ita astute inveniuntur quod omnibus istis obviare sciunt, et tunc homo debet se convertere ad urinam, ubi nichil palliare sciunt’, ‘But to certain crafty women these things are known, so that they know how to resist detection by all of these signs, and therefore man should turn to urine, which they know nothing about hiding’, *El De Secretis Mulierum Attribuido a Alberto Magno. Estudio, Edición Crítica y Traducción, Textes et Études Du Moyen Age*, 63 (Porto: Fédération Internationale des Instituts d’Études Médiévales, 2012, ed. by Barragán-Nieto, P. 446.

²⁴⁹ ‘Et ideo meretrices et alie mulieres docte in hoc nequitia’, ‘and therefore whores and other women learned in this wickedness’, *ibid*, p. 446; Green, *MWMM*, p. 222.

the assistance of a medical practitioner – his statement seems to be an attempt to demonstrate the authoritative knowledge of medical practitioners, as well as concern for these women.²⁵⁰ The reliance of the English legal system on juries of matrons to confirm a claim of pregnancy perhaps demonstrates a separate category of knowledge about diagnosing pregnancy which ordinary lay women were assumed to possess.²⁵¹ Despite developments in the vernacularisation of learned medicine, it is unlikely that most women would have been able to access the methods of pregnancy diagnosis discussed in this thesis.

3.5. Conclusion

Medieval understandings of female anatomy and the changes brought about by pregnancy were influenced by the wide range of sources from which they derived: the works of ancient medical authorities and the cultural assumptions of philosophers and theologians, supported by the investigations of contemporary anatomists. These conclusions came together to shape understandings of the female reproductive body, and the theoretical ideas discussed in this chapter had a distinctive influence on the development of textual methods of diagnosing pregnancy. By the later middle ages, the theoretically informed ideas of medieval medicine were vernacularised, and increasingly became available beyond the medical establishment. Ordinary people gained access to simplified medical texts, and incorporated some of these ideas into managing their own health and that of their families. However, the ideas of theoretical medicine apparently did not pervade all levels of medieval society, and the theories discussed here do not represent a comprehensive picture of all understandings of the female anatomy and pregnancy in the later middle ages. While these pregnancy diagnosis texts are representative of the knowledge which influenced understandings of conception and the female reproductive body amongst the medical elites and some ordinary people, it is likely that many people would have used these techniques of diagnosis without knowing their rationale, and that most women would have relied on their own informal and experiential knowledge of their bodies to identify and manage a pregnancy.

²⁵⁰ Valesco de Tarenta, *Philonium*, f. 286v.

²⁵¹ These practices will be discussed further in Chapter Seven.

Part 2. Uses

Part Two of this thesis considers the ways in which methods of diagnosing pregnancy and predicting the sex of the child were used in later medieval Europe, by examining the people who may have used them, and the texts in which they appeared.

Chapter Four uses evidence from manuscripts containing references to pregnancy diagnosis to reconstruct the groups of people who took an interest in this material: medical practitioners, clerics, and members of the gentry, nobility, and mercantile classes.

Chapter Five considers the types of texts in which methods of pregnancy diagnosis appeared, offering some insight into the context of their use. This discussion provides further evidence of the types of people who were interested in pregnancy diagnosis, and helps to contextualise the methods of pregnancy diagnosis discussed in Part Three of this thesis.

Chapter 4: Users of Pregnancy Diagnosis

Texts

Various methods of diagnosing pregnancy and predicting the sex of the foetus were available in the later middle ages: those which could be explained within contemporary medical theory, as well as divinatory and astrological methods. This chapter addresses the question of whether these methods of pregnancy diagnosis were ever used, assessing a range of later medieval manuscripts and texts to establish levels of interest in this material, and offering some insights into the sorts of people who may have used these methods of pregnancy diagnosis. This chapter will assess the difficulties of finding out information about the users of medieval manuscripts, before considering three different groups of later medieval people who may have owned, read, and used medical texts containing the methods of pregnancy diagnosis discussed in the later middle ages. These groups include medical practitioners, clerical owners, and householders, and the methods they may have used will be discussed in Chapters Six, Seven, and Eight. The users of divinatory and astrological texts and techniques will then be assessed, with reference to the predictive methods of diagnosing pregnancy and recognising the sex of the unborn child discussed in Chapter Nine.

When considering prescriptive texts like these, it is difficult to know for certain that this material was ever read, engaged with, or actively put to use. Compilers may have recorded this information from a sense of curiosity, or a vague idea that it might be of interest at some point in the future, while having no real expectation that it would be used. Purchasers or inheritors of manuscript volumes may never have intended to use all the texts within them. I have tried to bear this in mind while considering these methods of pregnancy diagnosis. However, I have argued in Chapters Two and Three that the conditions of medieval society, and the structures of medieval medical knowledge and practice, would have strongly encouraged the use of methods of pregnancy diagnosis like these – to identify heirs, manage reproductive health, or demonstrate the expertise of the medical practitioner

in female reproductive health. Additionally, it was an expensive undertaking to produce a manuscript: even after the fourteenth-century paper revolution reduced the costs of text production, expensive materials, and the time taken to record texts, would generally discourage the copying of texts which were not seen as immediately practical and useful.²⁵² These circumstances strongly suggest that methods of pregnancy diagnosis were intended for use – or were at least thought to be useful.

From the evidence provided by the manuscript volumes in which these methods appeared, medical practitioners were probably the most likely users of medical methods of pregnancy diagnosis. However, they were not the only people to take an interest in this material: the following analysis of manuscript contexts demonstrates evidence of clerical interest in these methods, and some suggestion of their usage in a domestic context – perhaps even by women. The wide range of texts relating to the topic of pregnancy diagnosis, and the variety of manuscript owners apparently taking an interest in these matters strongly suggests a widespread level of interest in – and perhaps even usage of – methods of pregnancy diagnosis in later medieval Europe.

To supplement this discussion, a table of manuscripts including medical methods of pregnancy diagnosis appears in Appendix 1. Appendix 2 contains a table of manuscripts containing divinatory and astrological methods. These give details of the texts containing medical and divinatory methods of pregnancy diagnosis within these volumes, including the names of texts and their authors where these are known, alongside information about the likely user groups of these manuscript volumes.

4.1. Identifying Users of Methods of Pregnancy Diagnosis

We have no descriptive sources to suggest the likely users of medical methods of pregnancy diagnosis in the later middle ages. For divinatory and astrological methods, we see some evidence of the use of these techniques in practitioners' case books, and while condemnations of practitioners of these techniques offer some evidence of the types of users, none of these condemnations related specifically to methods of pregnancy diagnosis. The only available evidence of who may have used these texts comes from the texts

²⁵² David Bell, 'The Libraries of Religious Houses in the Late Middle Ages', in *The Cambridge History of Libraries in Britain and Ireland*, ed. by Elisabeth Leedham-Green and Teresa Webber (Cambridge: Cambridge University Press, 2008), pp. 126-151 (pp. 131-132).

themselves, and the manuscript volumes in which they appear. Identifying the users of medieval manuscripts is not an exact science: compiled volumes as they appear today contain little to no information about medieval owners and users, and marks of ownership are quite rare.²⁵³ In the absence of explicit identifying evidence, medieval historians must make judgements about likely owners by considering the codicological context: assessing criteria such as the physical makeup of a manuscript volume, the sorts of texts included within it, and any evidence that these texts were used, such as annotations.²⁵⁴

In the later middle ages, owners of manuscript volumes often directed their compilation, choosing texts and deciding on their presentation. Books were dynamic repositories of knowledge: useful information was added as it was identified, and readers often annotated the text as they read.²⁵⁵ By considering the broader manuscript contexts in which texts on pregnancy diagnosis appear, and considering the texts which appear alongside them, this chapter offers some initial conclusions about the sorts of individuals interested in methods of pregnancy diagnosis in the later middle ages: medical practitioners, clerics, and members of the nobility and gentry – perhaps also including noble women. In addition to those who were able to read these texts for themselves, this chapter also takes into account the later medieval communal reading practices discussed in Chapter Three, which may have facilitated the transmission of this information beyond the most likely owners, readers and compilers of these texts.

The conclusions offered here are based on a general survey of the sixty-five medical and divinatory manuscripts considered during the course of researching this thesis, as discussed in Chapter One, but within the limitations of this thesis it has not been possible to present a detailed analysis of every one of the contents and likely users of each of these volumes. Sometimes, the identification of a particular usership group has proved impossible. For example, I struggled to categorise Oxford, Bodleian MS Add. A. 106, a

²⁵³ Carla Lord, 'Marks of Ownership in Medieval Manuscripts: The Case of the Rouen *Ovide Moralisé*', *Source* 18 (1998), 7-11 (p. 7).

²⁵⁴ See for example Monica Green's analysis of manuscript volumes containing copies of the Trotula texts, Green, *MWMM*, pp. 77-79.

²⁵⁵ Mary Carruthers, *The Book of Memory: A Study of Memory in Medieval Culture*, 2nd edn (Cambridge: Cambridge University Press, 2008), p. 309; James O'Donnell, 'Retractions', in *The Whole Book: Cultural Perspectives on the Medieval Miscellany*, ed. by Stephen Nichols and Siegfried Wenzel (Ann Arbor: University of Michigan Press, 1996), pp. 169-173 (pp. 171-172); Orietta Da Rold and Marilena Maniaci, 'Medieval Manuscript Studies: A European Perspective', in *Writing Europe, 500-1450: Texts and Contexts*, ed. by Aidan Conti et al. (Cambridge: D. S. Brewer, 2015), pp. 1-24 (p. 10).

manuscript which John Block Friedman suggests originates in northern England, and was written by several different scribes.²⁵⁶ This manuscript may provide some indication of domestic usage, given the inclusion of a short lullaby for sending a child to sleep. However, this is followed by the text of Cato's *Disticha de moribus* in English, a text associated with children's education. Perhaps these texts were intended for domestic use, as parents may have taught their children how to read English.²⁵⁷ In addition to this, MS Add A. 106 contains religious texts, and several medical tracts – including notes relating to promoting conception and diagnosing pregnancy drawn from the Trotula, John of Burgundy's plague tract which was apparently popular in the north of England, and a herbal.²⁵⁸ I would suggest that these contents most likely relate to use in a domestic context, in a household with a particular interest in medical matters, but it is also possible that this volume was owned by a medical practitioner, or an educational institution.

Additionally, manuscript volumes as we encounter them today may be the products of later compilers, and the rearrangement of texts into different volumes may obscure the interests of the original medieval owners. MS Sloane 249 is one such example: in the late sixteenth century, a compiler of medical texts – possibly John Woolton, a medical practitioner who was a Fellow of All Souls College, Oxford – extracted a version of the *Syknesse of Wymmen* text from a fifteenth-century volume, and included it within a volume of sixteenth-century medical texts.²⁵⁹ Most of the earlier volume was apparently discarded, and it is impossible to reconstruct in detail the interests of the earlier owner of this text. A set of crossed out instructions for saying masses for the sick on the recto of the first folio of the *Syknesse of Wymmen* text might suggest that the owner of the earlier volume was a priest.²⁶⁰ Perhaps the original volume was part of the library of a religious house, which was broken up during the Reformation, and this new compilation was an attempt to salvage useful medical material from a volume of texts deemed inappropriate under new religious conditions.

²⁵⁶ John Block Friedman, *Northern English Books, Owners, and Makers in the Late Middle Ages* (Syracuse, NY: Syracuse University Press, 1995), p. 70.

²⁵⁷ Samantha Sabalis, 'Beyond St. Anne Teaching the Virgin Mary: St. Monica, St. Birgitta of Sweden, and Teaching Children the Faith in Fifteenth-Century England', *The Journal of Medieval Religious Cultures* 44 (2018), 77-104 (p. 78).

²⁵⁸ Block Friedman, p. 70.

²⁵⁹ Sloane, MS 249, ff. 180v-205v.

²⁶⁰ *Ibid*, f. 180r.

In response to these difficulties, I have focused on a selection of volumes which offer the clearest evidence of use by particular user groups. Where information about users and owners is indicated in manuscript catalogues, this has been taken into account and checked, but in most cases this information is unavailable. In the absence of identifying information, it is difficult to assess how individual users would have categorised themselves: medieval readers exhibited wide-ranging tastes, and manuscript compilations reflect this. People may have inhabited various differing identities: some medical practitioners were clerics, and sometimes clerics expressed their identities as the sons of the gentry and nobility through an interest in texts with a distinctly secular flavour. It would therefore be impossible to identify a neatly defined social group for all individuals in the later middle ages, and such a task is complicated further by the evidence available – or the lack thereof. My conclusions about usership are therefore somewhat tentative, but are supported by supplementary information about the sorts of individuals who would have taken an interest in pregnancy, as discussed in Chapters Two and Three of this thesis.

4.2. Medical Practitioners

Educated medical practitioners might be seen as the most likely group to take an interest in written medical methods of pregnancy diagnosis, given the demands of their medical practice managing the reproductive health of female patients, and the engagement of these individuals with written medicine.²⁶¹ This conclusion is supported by the fact that the majority of manuscripts containing medical methods of pregnancy diagnosis under consideration are volumes composed almost entirely of medical texts – around two thirds of them. As physicians are the best documented owners of medical manuscripts in later medieval Europe, it is very likely that many of the manuscript volumes containing methods of pregnancy diagnosis and composed of medical texts were owned by educated physicians.

Physicians were not the only medical book owners in later medieval Europe: less educated medical practitioners, surgeons, and apothecaries might all have owned these sorts of books. It is possible that surgeons and apothecaries may have taken an interest in diagnostic methods if they were involved with offering abortions. Surgical abortions were rare in the middle ages, but it is possible that apothecaries may have diagnosed their clients

²⁶¹ For a comprehensive discussion on the involvement of male medical practitioners in women's medicine, see Green, *MWMM*. See also Lemay, 'Guainerius', pp. 318-319.

so that abortifacient herbs could be prescribed.²⁶² Apothecaries may also have taken an interest in methods of pregnancy diagnosis which involved testing the body with *materia medica*, discussed in Chapter Eight, if they were responsible for supplying these substances. Less educated medical practitioners probably did participate in acts of pregnancy diagnosis and may have owned manuscript volumes offering instructions on such matters. It is difficult to draw a distinction between texts owned by educated physicians and less educated medical practitioners, but in general, the more complex the text in terms of its structure and theoretical contents, the more educated the owner would have been. Volumes of complex theoretical medical texts were therefore most likely owned by the tiny minority of university educated medical practitioners, and volumes of vernacular texts were perhaps more appealing for less educated medical practitioners. This generalisation is not indisputable, particularly for the fifteenth century when vernacular languages were increasingly used for the discussion of complex and theoretical medical concepts, even by the most educated physicians. However, it does provide a guiding principle for the discussion which follows.

The foundation of learned medical practice in the later middle ages was fundamentally literary, and medical texts provided a vital part of the increasingly structured university medical curriculum.²⁶³ Students learned the fundamentals of medical theory and practice through readings and commentaries. Medical students might purchase or commission their own copies of books containing the key texts of the curriculum, or might construct their own books, copying from borrowed exemplars, or writing down the text during lectures and readings.²⁶⁴ Medical books signified the learning of the elite medical establishment, and physicians probably purchased or commissioned manuscript volumes to suit their particular purposes, or compiled their own commonplace books to record the particulars of their practice.²⁶⁵ Manuscript volumes containing medical texts therefore generally, but of course not exclusively, suggest ownership by medical practitioners.

²⁶² Riddle, *Contraception and Abortion*, p. 10.

²⁶³ Luke Demaitre, *Medieval Medicine: The Art of Healing, from Head to Toe* (Santa Barbara, CA: Praeger, 2013), p. 4.

²⁶⁴ Derek Pearsall, 'Introduction', in *Book Production and Publishing in Britain, 1375-1475*, ed. by Jeremy Griffiths and Derek Pearsall, 2nd edn (Cambridge: Cambridge University Press, 2007), pp. 1-10 (pp. 2-4).

²⁶⁵ Demaitre, *Medicine*, pp. 5-6.

One example is MS Sloane 246, which consists of one long and complex technical medical treatise, an edition of Johannes de Tornamira's *Clarificatorium super nono Almansoris cum textu Rhasis*. This is a very technical commentary in Latin, on Rhazes's *Liber ad Almansorem*, a Latin translation of the tenth-century Arabic text.²⁶⁶ Tornamira himself was an educated medical practitioner, who was Dean of the University of Montpellier, and the text demonstrates his detailed theoretical medical knowledge, and his mastery of this complex text. Tornamira's commentary does contain information about pregnancy diagnosis, but it is somewhat obscured by the fact that it appears in the midst of so much other detailed information about medicine and the body, and would not have been particularly easy to consult. The complex theoretical nature of this text, its length and its technical approach to the subject matter all strongly suggest the interest of an educated reader with a strong grasp of complex theory, probably a learned medical practitioner.

Explicit marks of ownership are very rare in medieval manuscripts, and of the manuscripts I have examined for this thesis I have only been able to identify one owned by a named medical practitioner: John Cokkes (d. 1475) who apparently owned Philadelphia College of Physicians, MS 10a 249. This volume, containing the *Lilium medicine* of Bernard de Gordon – complete with a chapter on pregnancy and the signs of conception – was compiled in 1348 by a scribe probably working in Oxford. It contains the following inscription on f. 2r:

I bought this book from Doctor Kokkes for 10 s, and furthermore he charged me the price of forty pence for diverse labours in medicine at the price of 13 s 4 d.²⁶⁷

John Cokkes was a medical practitioner active in Oxford in the fifteenth century. While he was a beneficed cleric throughout his life, he was identified as a master of medicine or a physician on the two occasions he was involved in legal cases – this suggests that Cokkes identified himself primarily as a medical practitioner, rather than a priest.²⁶⁸ Cokkes owned and composed several medical volumes, and several recipes recorded in MS Ashmole 1432

²⁶⁶ British Library, MS Sloane 246.

²⁶⁷ 'Istum librum emi a doctore Kokkes pro x s et adhuc dedit mihi in precio xl d pro diversis laboribus in medicinis et precium xiiij s iiii d', Philadelphia, The College of Physicians of Philadelphia, MS 10a 249, f. 2r.

²⁶⁸ C. H. Talbot and E. A. Hammond, *The Medical Practitioners in Medieval England: A Biographical Register* (London: Wellcome Historical Medical Library, 1965), pp. 134-135.

were attributed to him.²⁶⁹ His ownership of this medical text is consistent with the activities of a learned, literate medical practitioner.

Other volumes contain less complicated medical texts, which may be a sign of their use by slightly less educated medical practitioners. One example of this sort of compilation is Wellcome MS 532, a volume of medical texts in Latin and Italian, copied in Italy in the fifteenth century. This volume includes a range of theoretical medical texts useful for a medical practitioner: Pietro d'Abano's texts on therapeutic baths, and on bloodletting; a text on fractures to the bones of the head; verses on the four complexions in Latin; the Trotula *Conditions of Women* text; and a text specifically focusing on the signs of pregnancy on f. 71r – this text appears in full in Appendix 4. In this volume, the signs of pregnancy text might represent one element of medical practice which a physician was expected to master. This short, easy to consult, list of signs would assist in this. While some of the texts in this volume do contain medical theory, it is not certain that this volume belonged to a learned medical practitioner. The inclusion of texts in the vernacular Italian, and the short, clear format of this text on the signs of pregnancy, might indicate that it was for less educated readers. Learned individuals increasingly used vernacular medical texts in the later middle ages, but vernacular texts were still associated with less learned individuals. The presence of theoretical texts in this volume does suggest a medical interest, however, and it is possible that the owner may have been a surgeon, as suggested by the text on fractures to the skull included within it.

Surgeons owned medical texts in the later middle ages, and may also have taken an interest in matters of pregnancy diagnosis. There was a variety of practical and theoretical surgical tracts in circulation, and numerous phlebotomy tracts offered guidance on bloodletting. Texts such as these were particularly important in the establishment of surgery as a university discipline from the fourteenth century.²⁷⁰ Wellcome MS 564 contains a fifteenth-century copy of one such text – a fourteenth-century English translation and

²⁶⁹ According to Peter Kidd, Cokkes composed Oxford, Bodleian MS e Mus 155; composed part of Cambridge, King's College MS 16, and owned Bodleian, MS Ashmole 1432. Peter Kidd, 'A Descriptive Catalogue of the Medieval Manuscripts in the Library of the College of Physicians, Philadelphia', *Academia* <http://www.academia.edu/19606281/A_Descriptive_Catalogue_of_the_Medieval_Manuscripts_in_the_Library_of_the_College_of_Physicians_Philadelphia> [accessed 24th April 2019], p. 28.

²⁷⁰ Michael McVaugh, 'Therapeutic Strategies: Surgery', in *Western Medical Thought: From Antiquity to the Middle Ages*, ed. by Mirko Grmek (Cambridge, MA: Harvard University Press, 1998), pp. 273-290; Demaitre, *Medicine*, p. 26.

abbreviation of the *Chirurgia* of Henry de Mondeville.²⁷¹ The circulation of this text in the vernacular would have facilitated its use by less educated surgeons, and it is possible that this volume was owned and used by such an individual. Towards the back of the volume, a range of medical recipes and receipts for medical care have been added in an early sixteenth-century hand. Amongst these medical recipes, a note about recognising the sex of a child using breastmilk, and examining a pregnant woman's hands appears – these indications of pregnancy will be discussed in Chapters Six and Eight.²⁷² If the volume was still in the possession of a surgical practitioner when these notes were added, this might demonstrate the interest of surgeons in pregnancy diagnosis. However, according to the Wellcome Library catalogue, it is likely that the volume had passed into the hands of a physician by this time, who was also responsible for adding notes about uroscopy, medical astrology, and the humours to the back of this earlier volume.²⁷³ The presence of these notes in a surgical volume cannot therefore be taken as evidence of surgeons' interest in methods of pregnancy diagnosis.

Apothecaries also possessed medical books: in continental Europe, these individuals were required to demonstrate a strong understanding of pharmacological substances, and basic medical knowledge about diagnosis and treatment. Some of these requirements related to the analysis of urine samples, and given the role of uroscopy in pregnancy diagnosis, perhaps apothecaries were involved in diagnosing pregnancy too.²⁷⁴ Carole Rawcliffe draws attention to testamentary evidence of fifteenth-century English apothecaries owning medical books, and some of the medical compilations considered here may have belonged to apothecaries.²⁷⁵ I have found no direct evidence of this for the fourteenth and fifteenth centuries, but have identified one example of apothecary ownership in the later sixteenth century. Cambridge University Library, MS Gg. 3. 29, a fifteenth-century copy of Henry Daniel's *Liber uricrisiarum* – which contains information relating to pregnancy diagnosis – was owned by a pair of Bristol apothecaries. A note on the first flyleaf records how David Harris (born before 1511; died 1582) and his son David Harris,

²⁷¹ Wellcome, MS 564.

²⁷² *Ibid.*, f. 195v.

²⁷³ 'Henri de Mondeville, *Chirurgia*, Plus Miscellaneous Receipts', Wellcome Library <https://search.wellcomelibrary.org/iii/encore/record/C__Rb1973092__SMS%20564__P0%2C3__Orightresult__U__X3?lang=eng&suite=cobalt> [accessed 15th April 2019].

²⁷⁴ Carole Rawcliffe, *Medicine and Society*, p. 165.

²⁷⁵ *Ibid.*, p. 165.

acquired the book from 'Portugale and Spanish phisicians' who sometimes stayed in 'Harris Howse'. These physicians were in debt to the elder Harris for 'mony borrowed, and thear diet', probably as tenants in one of Harris's tenements on Bristol bridge.²⁷⁶ Their inability to pay their debts meant they 'were faine to leave thear bokes behind them for a pawne'.²⁷⁷ Harris was a wealthy man, owning property and acting as mayor of Bristol and as a member of Parliament.²⁷⁸ His acquisition of medical books as surety for a debt does not prove his interest in medical books: perhaps they were simply the most valuable assets these physicians possessed. However, this does support the possibility of apothecaries of earlier periods also taking an interest in owning medical books.

The evidence presented here suggests that medical manuscripts would have been owned primarily by medical practitioners of various types: university educated physicians, less educated practitioners, surgeons or apothecaries. It is a logical conclusion to assume that a volume full of medical texts would have been owned by a medical practitioner, but this is not necessarily the case. Reading habits were eclectic in the later middle ages: it is possible that any educated, intellectually curious individual could have owned a volume of medical texts and may even have put some of them to use. Participation in medicine was not limited to professional medical practitioners, as the following discussion of manuscripts owned by clerics and householders will demonstrate.

Finally, it must be noted that manuscripts owned by medical practitioners may have been read aloud to non-medical practitioners, and the possibility of non-literate audiences benefiting from knowledge of the contents of such volumes must be considered. The case of Gueraula des Codines, discussed in Chapter Three, is one such example of this: the physician who taught Gueraula how to diagnose medical conditions by identifying various named colours of urine likely gathered this information from written texts. While this sort of transmission was rarely recorded in the later middle ages, it is possible that the owners and users of these volumes of medical texts may have been participating in similar forms of dissemination. The active readers of these medical texts were not necessarily the only ones with access to their contents.

²⁷⁶ 'David Harris (by 1511-82), of Bristol, Glos.', in *The History of Parliament: The House of Commons 1509-1558*, ed. by S.T. Bindoff, 1982, <<https://www.historyofparliamentonline.org/volume/1509-1558/member/harris-david-1511-82#end-notes>> [accessed 15th April 2019].

²⁷⁷ Cambridge, Cambridge University Library (CUL), MS Gg. 3. 29, f. i v.

²⁷⁸ 'David Harris', *The History of Parliament*.

4.3. Ecclesiastical Owners

Methods of pregnancy diagnosis appear frequently in volumes and texts suggesting ecclesiastical ownership. This includes individual clerics, clerical medical practitioners, and religious houses, and their interest encompassed gynaecological texts, and matters relating to generation and reproduction. Such an interest might be unexpected, given the conventional understanding of clerics living lives inherently separate from women, but this interest stemmed from two different aspects of clerical intellectual life. Firstly, the active involvement of certain clerics in medical practice and care for female patients; and secondly, a general intellectual interest in natural philosophy from university-educated clerics. This desire to understand God's creation extended to an interest in conception, pregnancy, and the functioning of female bodies, which led to the circulation of texts on the topic of 'women's secrets' amongst clerics from the fourteenth century onwards.

At this point, the relationship between clerics and medical practitioners must be discussed: a substantial number of physicians were clerics, particularly before the fifteenth century. While medical students at the Italian universities were usually laymen, the religious nature of most northern European universities meant that students generally had to be in minor clerical orders to take a university degree.²⁷⁹ This did not preclude people taking initial arts degrees and going on to lead secular lives: many of the Paston men who studied at the University of Cambridge were married, and the sons of the gentry and nobility would frequently attend university.²⁸⁰ However, many of those taking higher degrees – that of Doctor of Theology or Doctor of Medicine – would take higher clerical orders, deriving income from church benefices to fund a long period of university education.²⁸¹ Some of these churchmen continued to practise medicine while holding religious offices, but this was not always looked upon favourably: complaints they neglected their religious duties were frequent.²⁸² By the fifteenth century, in England there were an increasing number of married laymen graduating as physicians, perhaps in response to complaints about churchmen preoccupied with medicine.²⁸³

²⁷⁹ Rawcliffe, *Medicine and Society*, p. 113.

²⁸⁰ Marie Claire Jones, 'Vernacular Literacy in Late-Medieval England: The Example of East Anglian Medical Manuscripts', (unpublished doctoral thesis, University of Glasgow, 2000), p. 371.

²⁸¹ Nutton, 'Medicine'

²⁸² Rawcliffe, *Medicine and Society*, p. 113.

²⁸³ Jones, 'East Anglian Medical Manuscripts', p. 371; Rawcliffe, *Medicine and Society*, p. 110.

A medical education was not necessary for clerics taking an interest in medicine – and perhaps even pregnancy diagnosis. The medical care given to Richard Mitford, Bishop of Salisbury during an illness in 1406, is illustrative of this. He was attended by two laypeople: a local '*medicus*', and Thomas Thirlwall, a renowned medical practitioner with no university degree. Three churchmen also attended: Thirlwall's colleague, John Malvern, a clerk in royal service who had graduated from Oxford University as Master of Arts and Doctor of Theology; an unnamed priest-physician, who may or may not have been university trained; and a local clergyman who sent fortifying drinks, either demonstrating understanding of the importance of diet in preserving health, or the application of *materia medica* in providing cures.²⁸⁴ Malvern was the most esteemed medical practitioner amongst the churchmen: despite not holding a medical degree, he was described as a 'King's physician' in 1399, as a Canon of St George's Chapel, Windsor.²⁸⁵ Perhaps Malvern was able to attend medical lectures alongside his theological studies at Oxford.²⁸⁶

Here we see the range of clerical interest in medical practice: local clergyman, anonymous priest physician, and illustrious medical practitioner. The following discussion of clerical owners and readers of manuscripts containing pregnancy diagnosis texts seems to reflect this range of clerical interest in medicine, which was broadly permissible for clerics in major orders, as long as they did not participate in the theoretically forbidden practices of surgery or bloodletting.²⁸⁷ Whether clerics were permitted to take an interest in gynaecological matters and care for female patients is an interesting question: while caring for women's reproductive health was a normal part of medical practice, and taboos against male physicians touching female patients were being overcome by the fourteenth and fifteenth centuries, male clerics might face additional difficulties. Their social roles were limited by their vows of celibacy, and it might be considered particularly inappropriate for a cleric to interact with female patients on intimate terms as a medical practitioner would be expected to do. The involvement of priests in women's medical care might also be seen as 'polluting' their spiritual purity, as suggested by the Bishops of Salisbury and Lincoln's

²⁸⁴ Rawcliffe, *Medicine and Society*, pp. 105-106.

²⁸⁵ Nigel Saul, 'Servants of God and Crown: The Canons of St George's Chapel, 1348-1420', In *St George's Chapel, Windsor, in the Fourteenth Century*, ed. by Nigel Saul (Woodbridge: Boydell, 2005), pp. 97-116 (p.101).

²⁸⁶ Rawcliffe, *Medicine and Society*, p. 108.

²⁸⁷ *Ibid*, p. 112; Darrel Amundsen, *Medicine, Society, and Faith in the Ancient and Medieval Worlds* (Baltimore: Johns Hopkins University Press 1996), p. 197.

objection to Faritius of Abingdon as a candidate for Archbishop of Canterbury in 1114: they claimed it was unseemly for anyone who inspected women's urine to be Archbishop.²⁸⁸

There are some instances of clerical medical practitioners treating female patients, particularly in the fifteenth century: Geoffrey Melton, a canon of Saint George's Windsor alongside John Malvern, treated John of Gaunt's daughter in law, the countess of Derby, and attended her in childbirth.²⁸⁹ In 1465, a friar attended and treated Catherine, wife of John Howard, later Duke of Norfolk, providing her with medicines.²⁹⁰ In 1424, John Ottryngton, chaplain of a church in York was brought before the court of the Dean and Chapter of York because he was accused of operating on female patients' breasts.²⁹¹ Ottryngton was in trouble for practising surgery as a cleric, not because he was treating women specifically, but Carole Rawcliffe also cites a thirteenth-century case which illustrates the dangers of interactions between clerical medical practitioners and female patients: a case heard by the justices at York in 1218 involved a monk named Simon who had seduced a female patient, and murdered a man who threatened to tell her husband about the affair.²⁹² For clerical medical practitioners, treating female patients was not necessarily incompatible with their clerical identities. If such individuals owned texts offering methods of pregnancy diagnosis, it is therefore possible that these were put to use.

As high-ranking churchmen took an active interest in medical practice in the later middle ages, the financial resources commanded by these men were sometimes directed towards the production of very high-quality medical manuscripts. These might aid in their personal practice, they could act as status objects signalling their knowledge and social standing, or they could be commissioned for the benefit of particular institutions. This is exemplified by Bodleian, MS Bodley 361, an intricately decorated fifteenth-century volume of learned medical texts. It was commissioned by Gilbert Kymer, a medical practitioner and high-ranking churchman, Dean of Salisbury Cathedral who twice acted as Chancellor of the

²⁸⁸ Green, *MWMM*, p. 114; Laurence Moulinier-Brogi, *L'uroscopie au Moyen Âge. Lire dans un verre la nature de l'homme* (Paris: Honoré Champion, 2012), p. 93.

²⁸⁹ Saul, 'Servants of God', p. 101.

²⁹⁰ Christopher Woolgar, *The Great Household in Late Medieval England* (New Haven: Yale University Press, 1999), pp. 104-105.

²⁹¹ Phillip Michael Stell, *Medical Practice in Medieval York*, University of York Borthwick Paper 90 (York: Borthwick Publications, 1996), p. 19.

²⁹² Rawcliffe, *Medicine and Society*, p. 113.

University of Oxford.²⁹³ Kymer had studied medicine at Oxford, and served as household physician to kings Henry V, Henry VI, and Humphrey Duke of Gloucester.²⁹⁴ MS Bodley 361 was copied for Kymer by a professional scribe, Herman Zurke of Greifswald, and the script is immaculate throughout. The status of the commissioner is evident from the illustrations in this volume: texts feature elaborate initial letters, colourful inked illustrations, and decoration in gold leaf.²⁹⁵ The volume consists of complex theoretical medical texts, including a copy of the Trotula, and the *Breviarium medicine* of John of Saint Paul which includes information about the signs of pregnancy, and methods of testing for pregnancy.²⁹⁶ Within a large volume like this, it is difficult to know whether particular texts or sections of texts were ever intended for use in practice. The owner's direct interests are hard to identify, and it is possible that the volume was intended for display, rather than for use. Peter Jones also suggests that Kymer may have commissioned the copying of medical and alchemical texts like this volume to contribute to the institutional collections of the University at Oxford.²⁹⁷ But the inclusion of texts on women's medicine and pregnancy diagnosis does suggest that such matters were not beyond the scope of a clerical medical practitioner's interests.

Many religious houses would also have owned medical manuscripts. Religious houses across Europe were sites of medical activity in the later middle ages: many had an infirmary, where a monk infirmarer would care for the sick amongst the community, and perhaps occasionally outsiders too.²⁹⁸ Such a facility might create a need for medical books. Additionally, members of the religious orders were sometimes active as medical practitioners, and given the numbers of churchmen attending university in the later middle ages, it is likely that some of these men would have attended medical lectures alongside their studies.²⁹⁹ The experiential knowledge of religious men might inform the composition of medical texts. This was apparently the case with the *Tabula medicine*, a medical

²⁹³ Faye Getz, 'Kymer, Gilbert (d. 1463)', Oxford Dictionary of National Biography, 2004 <<https://doi.org/10.1093/ref:odnb/15820>> [accessed 17th April 2019].

²⁹⁴ Rawcliffe, *Medicine and Society*, p. 121.

²⁹⁵ Voigts, 'Books', p. 385.

²⁹⁶ MS Bodley 361, pp. 458-492; pp. 203-331.

²⁹⁷ Jones, 'Medicine and Science', p. 437.

²⁹⁸ Angela Montford, *Health, Sickness, Medicine and the Friars in the Thirteenth and Fourteenth Centuries* (Aldershot: Ashgate, 2004), p. 65; Barbara Harvey, *Living and Dying in England, 1100-1540: The Monastic Experience* (Oxford: Clarendon Press, 1993), pp. 81-84.

²⁹⁹ Rawcliffe, *Medicine and Society*, p. 108.

encyclopaedia originating in England in the fifteenth century: while some of the authorities cited were associated with the universities of Oxford and Cambridge, other remedies were attributed to friars from Dominican and Franciscan houses in England.³⁰⁰

An interest in medicine might prompt educated religious men to read medical texts, either to put this information into practice, or from a sense of intellectual curiosity and interest. Books might also be purchased by monastic institutions, and texts owned by individuals could have reverted to the institutional collection upon their deaths.³⁰¹ Monastic library catalogues included medical texts in their collections: a catalogue for the library of Titchfield Abbey, a Premonstratensian house, drawn up in 1400 included twenty-nine medical books – thirteen per cent of the 244 volumes.³⁰² This was a larger proportion of medical books than appears in any other extant monastic library catalogue studied by Bell, but does support the assumption that it was quite normal for monastic libraries to hold medical texts. Medieval nunneries also owned books, and there is some evidence of these women practising medicine and pharmacy too – most notably, Hildegard of Bingen, active in the twelfth century.³⁰³ However, I have been unable to find any indications of ownership of medical books amongst female religious houses for the later middle ages.³⁰⁴

One of the manuscript volumes considered for this thesis demonstrates origins in a religious institution. Bodleian, MS Bodley 648 is a fifteenth-century manuscript miscellany, once held by Christ Church Priory, Canterbury, one of the largest and wealthiest Benedictine monasteries in England.³⁰⁵ William Boolde, a monk attached to the priory, claimed to have composed the volume:

³⁰⁰ Peter Murray Jones, 'The *Tabula Medicine*: an Evolving Encyclopaedia', *English Manuscript Studies 1100-1700 vol 14, Regional Manuscripts 1200-1700*, ed. by A.S.G. Edwards (2008) 60-85 (pp. 60-61, p. 66).

³⁰¹ Bell, 'Libraries of Religious Houses', pp. 127-128.

³⁰² David Bell, 'Monastic Libraries 1400-1557', in *The Cambridge History of the Book in Britain, Volume III: 1400-1557*, ed. by Lotte Hellinga and J. B. Trapp (Cambridge: Cambridge University Press, 1999), pp. 229-254 (p. 238).

³⁰³ Victoria Sweet, *Rooted in the Earth, Rooted in the Sky: Hildegard of Bingen and Premodern Medicine* (New York: Routledge, 2006), p. 56.

³⁰⁴ David Bell wrote about book ownership by medieval nunneries, but did not refer to any medical works. David Bell, *What Nuns Read: Books and Libraries in Medieval English Nunneries* (Kalamazoo: Cistercian Publications, 1995).

³⁰⁵ Barrie Dobson, 'The Monks of Canterbury in the Later Middle Ages, 1220-1540', in *A History of Canterbury Cathedral*, ed. by Patrick Collinson et al. (Oxford: Oxford University Press, 1995), pp. 69-153 (p. 70).

This book was owned by William Boolde, monk of Christ Church Canterbury, in the year of our Lord 1468.³⁰⁶

The first four leaves belonged to William Molasche, prior of Christ Church between 1428 and 1437, and consist of a number of recipes and fables.³⁰⁷ Boolde apparently combined this section with a number of other texts: moral and historical tracts, a list of the counties, bishoprics, monasteries and castles of England, Scotland and Wales, and prophecies relating to the reigns of Edward II and Edward III. Alongside these miscellaneous texts are two tracts which could be classified as scientific: an astrological treatise, and a short tract on uroscopy. This uroscopy text comes from the *Dome of Urynes* text, discussed in Chapter Five, and includes references to telling whether a woman was pregnant or not, and identifying how many months pregnant she might be.³⁰⁸

The rationale for including this uroscopy text within such a volume is obscure: why would someone interested in a chronicle relating the history of England from A.D. 516 to 1461 also be interested in uroscopic diagnosis? This volume may simply have been an attempt to compile together a number of texts possessed by the institution into a single volume for convenience. Alternatively, perhaps general knowledge about uroscopy may have been valued on the same terms as general knowledge about the counties of England. Christ Church Canterbury did hold other medical volumes: it is known that a number of volumes were donated to the institutional library by a thirteenth-century prior.³⁰⁹ The institution was not medically 'self-sufficient', however: the monks are known to have paid for the services of several physicians and surgeons from outside the community.³¹⁰ It is impossible to know whether the information in this text was ever put into practice, but it is probably unlikely that any of the monks drew on this knowledge to diagnose pregnancy. Given the textual and institutional context, I would suggest that the place of pregnancy diagnosis within this volume was more for theoretical purposes and general knowledge, than active interest in diagnosing pregnancy.

³⁰⁶ 'Iste liber constat .W. Boolde monacho ecclesie christi Cantuarie Anno Domini m° cccc° lcvijº, Bodleian, MS Bodley 648, f. 5r.

³⁰⁷ 'W Molasche prior', MS Bodley 648, f. 1r; Hunt, *Bodleian Library*, vol. 2, part 1, p. 292.

³⁰⁸ Oxford, Bodleian Library, MS Bodley 648, f. 6r.

³⁰⁹ Bell, 'Monastic Libraries', p. 238.

³¹⁰ Dobson, 'Monks of Canterbury', p. 132. This was the case for the monks at Westminster too. Harvey, p. 85-86.

The second category of clerical interest in pregnancy diagnosis relates to individuals who were not necessarily practising, or trained in, medicine, but nonetheless took an interest in reproduction, women's reproductive bodies, and pregnancy. In the theological and natural philosophical faculties of the later medieval universities, debates were ongoing about the nature of conception.³¹¹ Discussions were informed by the reception of Greek and Arabic texts into the West, particularly the new Aristotle, and this contributed to the development of a new genre of medical and natural philosophical texts in the late thirteenth and early fourteenth centuries, concerned with generation and the 'secrets of women'.³¹² Secrets of women texts provided answers to speculative questions about the way women's bodies functioned, in a way that previous gynaecological texts focused on cures could not. They included information about the female body, fertility, conception, and information about the signs of pregnancy. Secrets of women texts can be characterised by their misogynistic tone, the inclusion of anecdotes suggesting women are untrustworthy, and suggestions that women might present a danger to men.³¹³

The most prominent text in this genre is the thirteenth century *De secretis mulierum*, spuriously attributed to Albertus Magnus – probably because of the prominence of his writings in scholastic embryology debates.³¹⁴ This circulated widely in the later middle ages, and many copies were owned by clerics and churchmen.³¹⁵ Another text, the *De immunditiis mulierum* appears in Wellcome MS 545, ff. 3r-5r. I have been unable to identify any other extant copies of this text, but it follows along the lines of the *De secretis mulierum* in its misogynistic tone and its focus on generation and pregnancy.³¹⁶ The misogynistic tone of these texts may reflect their origins in clerical university culture.³¹⁷ Celibate men who were

³¹¹ Green, *MWMM*, pp. 208-209; Maaik van der Lugt, 'Formed Fetuses and Healthy Children in Scholastic Theology, Medicine and Law' in *Reproduction*, ed. by Hopwood et al. (Cambridge: Cambridge University Press, 2018), pp. 167-180 (pp. 166-167); Müller, *Abortion*, pp. 162-163; Nutton, 'Medicine', pp. 176, 172.

³¹² M. Anthony Hewson, *Giles of Rome and the Medieval Theory of Conception: A Study of the 'De formatione corporis humani in utero'* (London: Athlone Press, 1975), p. 41; Cadden, *Sex Difference*, p. 116; Green, *MWMM*, p. 205.

³¹³ On this development in the context of gynaecological literature, Monica H. Green, 'From "Diseases"'. See also Park, *Secrets*, p. 93; Green, *MWMM*, p. 209.

³¹⁴ *Ibid*, p. 205; Barragán-Nieto, ed., *El De Secretis Mulierum. An english translation, based on later printed editions, has been produced by Helen Rodnite Lemay. Helen Rodnite Lemay, Women's Secrets A Translation of Pseudo-Albertus Magnus' De Secretis Mulierum with Commentaries* (Albany, NY: State University of New York Press, 1993).

³¹⁵ Green, *MWMM*, pp. 210-212.

³¹⁶ Wellcome, MS 545.

³¹⁷ Park, 'Medicine and Natural Philosophy', p. 95.

supposed to have little interaction with women dominated debates about conception, which may have influenced some of the more fantastical ideas about women's bodies. Misogynistic interpretations of the role of women in Christianity contributed to this mistrust: Eve as the source of original sin strongly influenced understandings of women's sinful nature, explaining why they were 'cursed' with the burden of menstruation and childbearing.³¹⁸ The renewed understanding of menstrual blood as toxic, inspired by the writings of Aristotle, contributed to the understanding of women as both morally and physically corrupting, which is prevalent in these texts.³¹⁹

Information about the signs of pregnancy appears within both the *De secretis mulierum*, and the *De immunditiis mulierum*; and the *De secretis* also includes a procedure to test for pregnancy, discussed in Chapter Eight. This sort of information would appear to be of limited practical utility for an intended audience of male clerics. However, this information might represent a more practical interest in pregnancy. It is possible that clerics reading these texts may have been involved in diagnosing pregnancy. Some of the signs suggested in the *De immunditiis mulierum* might be noticed from a distance – those relating to the woman's body growing in size. A priest might want to know if a parishioner was pregnant, so that he could fulfil the ministrative role expected of him at the time of birth, in performing the baptism and churching ceremonies. Most priests would have been informed of a woman's pregnancy by the woman herself or her family, but it is possible that a priest may have been asked for advice about diagnosing pregnancy. As in Thomas of Cantimpré's statement that priests should know how to assist in childbirth in case a midwife was unavailable, a priest might be called upon as a knowledgeable person to actively diagnose a pregnancy. I have no direct evidence of this, but given the frequent involvement of priests in medical care in the later middle ages, such a role would not be unthinkable.³²⁰

Secondly, Thomas of Cantimpré's directive to priests to read the text on assisting in childbirth aloud to midwives, so they might know how best to help women giving birth could also apply to the *Secrets of Women* texts. It is possible that some of the material relating to pregnancy diagnosis and for assisting women to conceive may have been read aloud to female practitioners, or ordinary women, to aid in managing reproductive health.

³¹⁸ Salisbury, 'Gendered Sexuality', p. 85.

³¹⁹ Green, 'Menstruation', p. 58; Park, 'Medicine and Natural Philosophy', p. 95.

³²⁰ Jones, 'East Anglian Medical Manuscripts', p. 61; Rawcliffe, *Medicine and Society*, pp. 106-113.

But given the tone of the text, the misogynistic language and the distrust in women it suggests, this sort of communal educational reading may not have been appropriate. This appears to have been a text more suited for private reading, than reading aloud. However, it would be possible for a reader to absorb this information and share it more broadly, educating parishioners about reproductive matters.

Perhaps this advice occurred during confession. After the fourth Lateran Council of 1215, annual confession was a requirement for all, and would probably have occurred more frequently for higher status individuals.³²¹ Given the Church's role in governing marital matters, and God's role in influencing reproduction, discussion of concerns about fertility or reproductive matters might occur during confession with a man or a woman. Monica Green cites a number of manuscript volumes containing confessors' manuals, alongside copies of the *De secretis* text, and suggests that this was so that confessors could know about the devious behaviours of women, and the functioning of their bodies, so they could ask probing questions about women's transgressions.³²² It is also possible these conversations may have been less admonitory, and more advisory in character: the *De secretis mulierum* text includes an anecdote about the author being asked during confession about why a man's partner – his 'dilecta iuvenula', delightful young woman – bled copiously after sexual intercourse.³²³ The author explained that this was menstrual blood, and this incident perhaps demonstrates the utility of knowledge about reproductive and sexual matters for confessors and priests, in informing their flock about the processes of generation.

With this exchange in mind, it is possible to envisage a discussion of how to identify signs of pregnancy during confession, particularly with reference to the *mellicratum* test for pregnancy, discussed in Chapter Eight. The version of this test in the *De secretis mulierum* recommended not telling the woman why she was being given this honey-based drink, which was intended to test for pregnancy. In characteristic misogynistic fashion, the text claims that if women knew the purpose of the test, they might lie about their symptoms to conceal a pregnancy. This would be difficult for a medical practitioner to accomplish: it would have to be someone who knew that a woman might be pregnant, and wanted to

³²¹ Eamon Duffy, *The Stripping of the Altars: Traditional Religion in England 1400-1580* (New Haven: Yale University Press, 2005), p. 54.

³²² Green, *MWMM*, p. 212.

³²³ *El De Secretis Mulierum*, ed. by Barragán-Nieto, p. 462.

confirm this for certain. It would also have to be someone who was able to give a potentially pregnant woman a drink like this without raising suspicion, which would have been difficult for a medical practitioner or a priest. However, if a husband asked a priest how he might tell if his wife was pregnant, the priest might have recommended this procedure. It would be easy for the husband to provide this drink to his spouse, pretending it was a headache remedy as suggested. He would then be able to consider her response to this substance to identify whether she was pregnant or not. A confessional context for the dissemination of information about pregnancy diagnosis presents one way in which theoretical clerical interest in women's reproductive bodies might be transferred into practical usage to diagnose pregnancy.

4.4. Non-Professional Users

Manuscripts and texts showing evidence of ownership and use in a non-professional or domestic context might also contain methods of pregnancy diagnosis. Literacy rates grew significantly in the later middle ages, particularly in the vernacular, and increasing numbers of individuals compiled household commonplace books – repositories 'of practical information of more or less domestic kinds'.³²⁴ The texts in these volumes covered a wide range of topics related to running a household, and associated agricultural concerns: these might include practical tracts on agricultural topics like arboriculture and viticulture; texts on hunting and hawking; calendrical and basic astrological texts; culinary recipes; texts on distilling; and basic medical texts for self-medication in a domestic context. In applying this definition of a household book, I have identified only those volumes with some sort of domestic element to their texts. It is, however, possible that some of the exclusively medical volumes considered in this thesis may also have been used in such a domestic context.

Household books were generally owned, composed, or commissioned by members of the nobility and gentry families, who were more likely to be able to read and gain access to texts, through purchasing pre-written volumes, commissioning texts from professional scribes, or by copying texts themselves from borrowed volumes.³²⁵ They were most likely to

³²⁴ Julia Boffey, 'Bodleian Library, MS Arch. Selden. B. 24 and Definitions of the "Household Book"', *The English Medieval Book: Studies in Memory of Jeremy Griffiths*, ed. by A. S. G. Edwards et al. (London: British Library, 2000), pp. 125-134 (p. 125).

³²⁵ Daphna Oren Magidor refers to this process occurring in the seventeenth and eighteenth centuries, and the existence of such a system of exchange in previous centuries is likely. Oren Magidor, p. 308.

select texts which would assist them in directing the domestic and business affairs of their households and estates.³²⁶ These concerns frequently included managing the health of a household, and medical texts appeared in household commonplace books – often in vernacularised forms, as discussed in Chapter Three. In rural communities, the services of a medical practitioner might be difficult to access, unless an itinerant practitioner happened to be passing through, like the Essex bailiff John Crophill.³²⁷ A physician who was willing to travel, like Thomas Fayreford of Devon, could be sent for.³²⁸ Even in urban areas where medical practitioners were more plentiful, it could make financial sense to manage the family's healthcare independently, rather than paying for the services of a professional: paying for the services of physicians was out of reach for lesser members of the gentry.³²⁹ Preventative healthcare was important in the later middle ages, and this approach made particular sense when it came to reproductive health. As discussed in Chapter Two, having children was crucial to preserving the interests of the family for future generations amongst the gentry and nobility who owned these sorts of household books. Managing fertility and women's health was crucial, and consequently information relating to gynaecology and pregnancy diagnosis was included within household books.

MS Rawlinson C. 506 is quite representative of household commonplace books: dating from the fifteenth century and originating from near Cambridge, this volume contains texts on grafting trees, dyeing cloth, veterinary remedies, and calendrical information. Alongside these are medical texts: a tract on bloodletting, a treatise on urines, and a variety of medical recipes.³³⁰ This volume also included information about women's reproductive health: a very short extract from the Trotula appears on ff. 146v-147v, and information about managing menstruation and promoting conception appears on f. 25r.³³¹ The word 'child' is written several times at the top and the bottom of this page of recipes, demonstrating a strong interest in this recipe for promoting fertility. In addition, several texts on uroscopy describe how to recognise pregnancy in urine, as discussed in Chapter

³²⁶ Mitchell, 'Cultural Uses of Magic', p. 97; Charles Moreton, 'A Social Gulf? The Upper and Lesser Gentry of Later Medieval England', *Journal of Medieval History* 17 (1991), 255-262 (pp. 255-256).

³²⁷ James K. Mustain, 'A Rural Medical Practitioner in Fifteenth-Century England', *BHM* 46 (1972), 469-476; Rawcliffe, *Medicine and Society*, p. 105; Ayoub, *John Crophill's Books*.

³²⁸ Peter Murray Jones, 'Thomas Fayreford: An English Fifteenth Century Medical Practitioner', in *Medicine from the Black Death to the French Disease*, ed. by Roger French (Aldershot: Ashgate, 1998), pp. 156-183.

³²⁹ Woolgar, p. 104.

³³⁰ Bodleian, MS Rawlinson C. 506.

³³¹ 'The juse of hors mynt dronk with wyn makyth a woman to conseve & ber child', *ibid*, f. 25r.

Seven. These texts would have equipped any householder with the information necessary to manage women's reproductive health, and identify the presence of a potential unborn heir. The balance of texts in this volume is fairly typical of later medieval household books. It demonstrates the interests of a male gentry readership, in the business affairs of managing their estates, and the leisure pursuits of fishing, hunting and hawking.³³² These appear alongside texts to assist female members of the family with managing their reproductive health, which suggests that managing fertility and pregnancy could be interpreted as part of the normal practices of household management in the later middle ages.

Cambridge, Trinity College, MS O.1.57, a fifteenth-century volume with sixteenth-century additions, presents a similar range of texts to MS Rawlinson C. 506, with a focus on household concerns, including medical matters. This volume demonstrates more information about ownership: it was owned by a gentry family, the Haldenbys, of Isham in Northamptonshire, and male family members have added their names and various genealogical notes within the volume.³³³ At this time, members of the gentry like the Haldenby family would have been involved in the management of their estates and domestic affairs, as members of the lower gentry who could not have afforded to delegate household administration to others.³³⁴ Given the relatively high levels of education and literacy amongst the gentry at this time, the compilation of household miscellanies collecting together useful and practical texts was a common response to managing these domestic responsibilities. This volume also contains references to reproductive matters: a rough note in a fifteenth-century hand at the back of the volume appears to contain a reference to managing childbirth, and an early sixteenth-century hand has added information about fertility and reproduction in three places in the volume. On f. 76v a recipe for expelling a dead child is recorded; information about promoting conception drawn from the Trotula appears on f. 125v; and on f. 125r, the same hand recorded information about

³³² George Keiser, 'Practical Books for the Gentleman', in *The Cambridge History of the Book in Britain*, Volume III: 1400-1557 ed. by Lotte Hellinga and J.B. Trapp (Cambridge: Cambridge University Press, 1999), pp. 470-494 (p. 472).

³³³ In TC, MS O. 1.57, the birth of William Haldenby is recorded on f. 1v; 'Nomen scriptoris Willielmus plenus amoris', 'the name of the writer is William, full of love', on f. 125r; the phrase 'wodeman de haldenby' appears on f. 16v below an illustration of a vein man. The information relating to the Haldenby family included in this manuscript is outlined in *Miscellanea Genealogica et Heraldica*, new series, vol. I, ed. by Joseph Jackson Howard (London: Hamilton, Adams and Co, 1874), pp. 246-247.

³³⁴ Moreton, 'A Social Gulf?', pp. 255-256.

recognising pregnancy using a woman's urine, from the *Dome of Urynes* text.³³⁵ The inclusion of this sort of information would have equipped householders with basic information about diagnosing pregnancy and managing reproductive health. This would assist in negotiating the unpredictable dangers and frustrations of pregnancy, to preserve the interests of the family for future generations.

The question of who in a household might have used these commonplace books is not easy to answer: while many of these volumes included texts relating to traditionally male pursuits, like hunting and hawking, this does not preclude the possibility that women would have used these volumes, or at least some parts of them. It was expensive to compile manuscripts and it is likely that most households would only have owned one commonplace book. These were valuable volumes which would be passed down between family members, given the continued perceived utility of information, and some household commonplace books probably represent the needs of several users, or several generations of users. This is the case with the Haldenby manuscript, TC, MS O.1.57, to which successive scribes added information throughout the fifteenth century. The individual who added notes on reproductive medicine in the early sixteenth century was perhaps a descendant of the earlier owners who were still resident at the manor of Isham until 1546.³³⁶ With multi-personal and multi-generational use, it is possible that men and women of the family would have taken an interest in the contents of this volume. We have seen in Chapter Three that, while female literacy was lower than male literacy in the later middle ages, many women could read, and communal reading practices would have enabled even women who could not to access certain texts. It is therefore possible that women of a household may have read these volumes and used the texts which interested them.

I suggest that female usage of these domestic commonplace books for medicinal purposes was likely. Rawcliffe writes of women taking on medical duties in a household context, and cites several examples of women offering medical care to family members within the Paston letters.³³⁷ Linda Voigts and Anne Payne have written about Berkeley Castle Muniments, Select Book 89, as an example of a domestic medical manuscript

³³⁵ TC, MS O. 1. 57, f. 76v; ff. 125r-v; the fifteenth-century note appears on f. 131r.

³³⁶ 'Parishes: Isham', in *A County History of Northampton*, ed. by L. F. Salzman (London: Victoria County History, 1937) <<http://www.british-history.ac.uk/vch/northants/vol4/pp188-195>> [accessed 17th March 2016].

³³⁷ Rawcliffe, *Medicine and Society*, pp. 183-186.

containing strong indications of women's usage.³³⁸ This volume contained a wide range of culinary and medical recipes, which suggests that noble women may have overseen the health of a household by directing the food eaten, and the medical care provided. This manuscript contains various gynaecological recipes, and information relating to reproductive health, though it does not contain references to pregnancy diagnosis. But the context for use it implies can be taken as a suggestion for the usage of domestic commonplace books by women.

The manuscript volumes discussed here provide few indications of female usage, but there is one hint which appears in the uroscopic pregnancy diagnosis text in TC, MS O. 1. 57, on f. 125r. This excerpt from the *Dome of Urynes* text, discussed below, states that 'yf she may see her selfe in the uryvall as in a myrrour she hath conceyved'.³³⁹ This is quite a remarkable deviation from other versions of the *Dome of Urines* text, which usually included the word 'yu' or 'thou', addressing the reader of the text. Instead, this example suggests that a woman might carry out this act of diagnosis for herself, looking into her own urine and examining it for signs of her reflection. The text's form also suggests the presence of an intermediary here: the instructions are not addressed directly to the reader, perhaps suggesting that the text was supposed to be read aloud or summarised for the woman by another reader, probably male. This reflects the reading practices discussed in Chapter Three: a male reader reading a text aloud for the benefit of a female listener, who might then put these instructions into practice in her own home to tell whether she was pregnant or not.

4.5. Divination and Astrology

This discussion of user groups has focused on those interested in medical methods of pregnancy diagnosis, which relied on the principles of learned medicine and conventional diagnostic practices to recognise pregnancy. However, there were a number of other methods of pregnancy diagnosis in circulation in the later middle ages, which drew on divinatory practices and judicial astrology to tell whether women were pregnant, and to determine the sex of an unborn child. The techniques of onomancy, geomancy, and judicial astrology for pregnancy diagnosis will be discussed in Chapter Nine, but it seems

³³⁸ Voigts and Payne.

³³⁹ TC, MS O.1.57, f. 125r. This text appears in full in Appendix 5.

appropriate to consider the users of these methods and texts here. Evidence for the use of divinatory and predictive methods of pregnancy diagnosis in the later middle ages comes not only from the contexts of the manuscripts which contained these methods, but also from practitioners' casebooks, and evidence of some of these methods being worked out in contemporary manuscripts. There are also condemnations of those practising these techniques, from religious and secular authorities. While these do not relate explicitly to pregnancy diagnosis, they do indicate the sorts of people who may have used these techniques. User groups seem to correspond with the three broad groups taking an interest in medical methods of pregnancy diagnosis: medical practitioners, clerics, and upper-class householders.

We can see some evidence of the use of divinatory techniques in a domestic context, with reference to onomancy, the art of divination by assigning numbers to the letters of names and performing calculations with them; and geomancy, a term which meant 'earth divination', and which involved casting dots on paper or in the earth and interpreting figures made by consolidating them. The operation of this technique is discussed further in Chapter Nine. Onomancy was perhaps the simplest of the three predictive techniques, and would have required little specialist expertise to perform, beyond a grasp of basic mathematics. It is therefore unsurprising for onomantic texts, including one for telling the sex of the foetus, to be included in this compilation of vernacular French medical texts probably intended for use in a domestic context. This manuscript is Wellcome MS 546, an early fourteenth-century compilation of medical texts in Latin and the vernacular, featuring information on horse medicine, divination, and three onomantic texts: a text to identify the sex of the unborn child, another for identifying whether a husband or wife would die first, and a third for predicting who would win in a duel.³⁴⁰ It was probably owned by relatively wealthy householders, who could read and afford the costs of such a manuscript. This is in line with Joanne Edge's discussion of members of the English gentry owning manuscripts containing onomantic sphere diagrams, including one which was previously included in TC, MS O. 1. 57, and is now missing from the volume – its presence is recorded in a contemporary list of

³⁴⁰ Wellcome MS 546; Tony Hunt, 'The Old French Translation of the "Four Masters Gloss" in Wellcome MS 546', in *Science Translated: Latin and Vernacular Translations of Scientific Treatises in Medieval Europe*, ed. by Michèle Goyens et al. (Leuven: Leuven University Press, 2008), pp. 287-296 (p. 289).

contents on one of the flyleaves.³⁴¹ This was probably a 'sphere of life or death', but Edge's idea that possessing divinatory information like this might serve as a status symbol for a family of the lower gentry could also be applied to onomantic methods of pregnancy diagnosis. If commonplace books containing these methods were lent out to be read by neighbours, the possession of this sort of device might demonstrate the owners' superior knowledge of occult matters.³⁴² They were also simple to use, and it is feasible to imagine that using a divinatory device like this to try and find out the sex of an unborn child might have been fun for families looking forward to welcoming a new child.

Members of the upper aristocracy and even royalty also took an interest in the divinatory technique of geomancy, and owned geomantic texts which offered methods of pregnancy diagnosis. Hilary Carey describes geomancy as 'something of a courtly fad' in later medieval Europe: from the fourteenth century there was a great deal of interest in geomancy amongst the noble and royal elites.³⁴³ Charles V of France owned geomantic texts, Emperor Wenceslaus of Bohemia owned a manuscript including geomantic treatises, and his son in law, Richard II of England, had a geomantic treatise compiled for him – two manuscript copies of which survive.³⁴⁴ In the fifteenth century, Humphrey, Duke of Gloucester owned a geomantic manuscript, and his brother, John, Duke of Bedford (1389-1435), apparently commissioned his physician and renowned geomancer Roland Scriptoris to write a geomantic text for him, the *Compilerium geomancie*, which was composed between 1427 and 1437, and appears in MS Sloane 3487 and BL MS Royal 12.C.xvi.³⁴⁵ Scriptoris's text offered information about diagnosing pregnancy via geomantic methods, and this is discussed with reference to these two manuscripts in Chapter Nine of this thesis.

The appeal of geomancy for this group probably lay in its relative simplicity, compared to astrology. It promised access to answers, without the need to master the

³⁴¹ TC, MS O. 1. 57, flyleaf 4v.

³⁴² Joanne Theresa Edge, 'Nomen omen: The "Sphere of Life and Death" in England, c. 1200-c. 1500' (Doctoral Thesis, Royal Holloway University of London, 2015), pp. 129-131.

³⁴³ Hilary M. Carey, *Courting Disaster: Astrology at the English Court and University in the Later Middle Ages* (London: Palgrave Macmillan, 1992), p. 106.

³⁴⁴ Thérèse Charmasson, *Recherches sur une technique divinatoire: la géomancie dans l'occident médiéval*, V Hautes Études Médiévales et Modernes 44 (Paris: Librairie H. Champion, 1980), p. 229; Jonathan Hughes, *The Rise of Alchemy in Fourteenth-Century England: Plantagenet Kings and the Search for the Philosopher's Stone* (London: Continuum, 2012), pp. 135, 191-192; Katherine Breen, 'A Different Kind of Book for Richard's Sake: MS Bodley 581 as Ethical Handbook', *The Chaucer Review* 45 (2010), 119-168 (p. 140).

³⁴⁵ Laurel Braswell-Means, 'The Popular Art of Geomancy in the Medieval West and Contemporary Asia', *Journal of Popular Culture* 23 (1990), 131-143 (p. 136).

complexities and calculations of astrology. Jonathan Hughes suggests that this drew Richard II of England towards the practice of Geomancy: it would have enabled him to gather advice and answers to questions, without recourse to courtiers or advisors.³⁴⁶ This is rather speculative – Katherine Breen suggests that this manuscript shows no signs of use dating from Richard’s reign. The contents of the volume may have been selected by a compiler attempting to curry favour by presenting it to Richard, and do not necessarily represent his actual interests.³⁴⁷ Breen observes that as geomancy was a questionable practice, it operated outside the realm of university learning, which might have appealed to an audience of royals and nobles.³⁴⁸ These men did not necessarily receive a high level of university education, and while some, including Charles V of France, may have mastered the complexities of astrological calculation, most probably would not have been able to do this. Geomancy offered the same sort of power in a simplified form, which would have appealed to literate laymen amongst the aristocracy.³⁴⁹

The questions addressed in these geomantic texts offer insights into the concerns of this class of men, in their wide-ranging focus on social, political, economic and interpersonal matters. Questions about battles and withstanding sieges reflect the concerns of the military classes. Those relating to contacts with royalty and politics reflect the roles of these men as political operators. A wide range of questions are concerned with family matters, and it is possible to view the questions relating to pregnancy in this context, as one among many aspects of the family lives of elites. Pregnancy diagnosis is also related to concerns about health and sickness. It is reasonable to conclude that the authors and compilers of these texts were concerned to provide their users with the answers necessary to navigate all aspects of their lives, from politics and warfare, to health and family affairs – finding out information about a pregnancy fitted within these concerns.

Educated individuals might also take an interest in divinatory techniques for carrying out pregnancy diagnosis. Wellcome MS 349, a fifteenth-century compilation of computistic and divinatory material, includes a sphere for predicting the sex of the child, along with other spheres for finding out the sign of the moon for a particular day, and for finding out

³⁴⁶ Hughes, pp. 72-73.

³⁴⁷ Breen, pp. 120, 123-124.

³⁴⁸ *Ibid*, p. 159.

³⁴⁹ *Ibid*, p. 140.

whether a person would live or die.³⁵⁰ Other texts in this volume include the *Ars computistica* of Heymandus de Veteri Busco (probably the Dutch cleric Adrianus de Veteribusco or Oudenbosch), diagrams of the phases of the moon, eclipses, and a Ptolemaic map of the world. This volume was perhaps compiled by a learned scholar or cleric, perhaps even by Heymandus de Veteri Busco himself. The texts were intended for a learned audience with an interest in natural philosophy and astronomy, and the inclusion of spheres in this context suggests that while onomancy was relatively simple to master, it was still seen as technical knowledge about the functioning of the cosmos. We see some evidence of clerics taking an interest in geomantic techniques, from a condemnation of Pope John XXII. In 1320, he wrote a letter to inquisitors to encourage the investigation of certain clerics and members of his court for magic and heresy. He accused these men of continuing ‘to entangle themselves in endeavours [to practise] necromancy, geomancy and other magical practice’ – these are described as ‘the practices of demons’.³⁵¹ John appears to be condemning a group of learned men for using ‘manuscripts and books’ on topics which elsewhere in Europe at the time would have seemed perfectly legitimate.³⁵² John’s condemnation was perhaps motivated by political concerns and court intrigues, and widening definitions of heresy at the time which came to associate these sorts of divinatory activities with the influence of the devil.³⁵³

Evidence for interest in judicial astrological techniques of pregnancy diagnosis relates not only to those who practised these methods, but also to the individuals who consulted professional practitioners for advice about diagnosing pregnancy. By the fourteenth century, astrology was seen as at the cutting edge of later medieval science: the application of knowledge of the influence of the stars and planets on affairs on earth had significant implications for medical practice, but there was also an interest in astrological knowledge for more secular reasons. Astrologers were frequently associated with courts, as kings and princes sought to harness their knowledge to advance their political concerns.³⁵⁴

³⁵⁰ Wellcome MS 349, ff. 25r-v.

³⁵¹ P. G. Maxwell Stuart, *Witch Beliefs and Witch Trials in the Middle Ages* (London: Continuum, 2011), pp. 19-22.

³⁵² Jean-Patrice Boudet, ‘Magic at Court’, in *The Routledge History of Medieval Magic*, ed. by Sophie Page and Catherine Rider (Abingdon: Routledge, 2019), pp. 331-342 (pp. 336-337).

³⁵³ Isabel Iribarren, ‘From Black Magic to Heresy: A Doctrinal Leap in the Pontificate of John XXII’, *Church History* 76 (2007), 32-60 (p. 33); Alain Boureau, *Satan the Heretic: The Birth of Demonology in the Medieval West* (Chicago: University of Chicago Press, 2004), pp. 10-11.

³⁵⁴ Carey, *Courting Disaster*, p. 20.

Like the clerics practising geomancy at the court of Pope John XXII, these astrologers might face politically motivated accusations of magical practice or treason. Astrology was an ambiguous practice: while its functioning could be explained in terms of natural phenomena, there was a thin line between this predictive art and divination. Others were accused of treason because of the nature of the knowledge they sought, particularly where this related to the king's death. Eleanor of Cobham, wife of Humphrey, Duke of Gloucester, was accused of treason, and dabbling in magic and the necromantic arts in 1441. She had a horoscope drawn up, which included an assessment of whether she would ever become queen: as her husband Humphrey was heir to his nephew, the young and childless Henry VI, for this to come about the king would have to die. This prediction led to the accusation of treason.³⁵⁵ It is likely that knowledge of a pregnancy was less dangerous than knowledge of a king's death, but this case demonstrates the fine line between licit and illicit practices in the later middle ages.

Over the fifteenth century, astrological practice increasingly played a role beyond the world of the courtly elites. Astrological-medical practitioners like Richard Trewythian in London began to offer their predictive services to ordinary paying customers from the professional and mercantile classes. Trewythian's notebook demonstrates evidence of his astrological practice, using the methods of judicial astrology to answer questions. While this is the only medieval survival of such a casebook, Sophie Page suggests that Trewythian was one amongst many astrologers offering similar services.³⁵⁶ From the questions answered in his casebook, we can gain an insight into the social status and interests of his clients. These questions covered a range of topics, including the ongoing Hundred Years War with France; commercial matters, including the fortunes of particular commercial goods; and personal matters, as clients revealed 'intimate problems ... to a practitioner who was thought to have access to information not available to the client'.³⁵⁷ These interests appear to reflect those of the mercantile classes, who might seek astrological advice to inform their business matters, and navigate the complexities of national politics in the fifteenth century. Trewythian was also asked about marriages and fertility, and questions about pregnancy were apparently common: eight of the astrological charts Trewythian drew up in this

³⁵⁵ Carey, *Courting Disaster*, pp. 144-149; Freeman, 'Sorcery', pp. 347-348.

³⁵⁶ Page, 'Trewythian', p. 197.

³⁵⁷ *Ibid*, pp. 201-204.

casebook seek to answer questions about whether women are pregnant or not, and three relate to whether a pregnant woman would have a son.³⁵⁸ There is little evidence about the individuals who asked these questions, and why they sought the services of an astrological practitioner. They were probably women and men of the mercantile classes, hoping for the birth of a much-wanted child. The choice of an astrological practitioner, rather than a medical practitioner, might relate to the perceived prestige of these predictive activities, or a desire to emulate the practices of courtly elites by situating the ordinary events of one's life within the workings of the cosmos. Medical practitioners did not generally keep casebooks like this – at least none that survive. This means that Trewythian's notebook provides the only evidence we have of ordinary people in the later middle ages seeking confirmation of a pregnancy and information about the sex of a child from a professional practitioner.

4.6. Conclusion

The available evidence suggests that there were three main groups of people who took an interest in texts containing methods of pregnancy diagnosis in the later middle ages: medical practitioners, clerics and priests, and members of the gentry and mercantile classes. The nobility and some members of royalty were also interested in divinatory methods of pregnancy diagnosis. The evidence of individual owners is limited, given the lack of names or ownership information present in these manuscript volumes. With prescriptive texts it is difficult to tell whether this information was ever read or used, but we can see some evidence of the use of astrological and geomantic techniques for diagnosing pregnancy in the casebooks of Trewythian.

Judging by the abundance of material for diagnosing pregnancy in these later medieval texts, and the social conditions which prioritised pregnancy and reproduction at this time, I would suggest that these texts were probably put to use in attempts to recognise pregnancy at this time. This conclusion is supported by the discussion in Chapter Five, which considers the types of texts in which methods of pregnancy diagnosis appeared in later medieval manuscripts, and the insights this can offer into the ways in which they were put to use. The probable owners and users of these texts were motivated by a variety of

³⁵⁸ For example, 'Question: whether a woman will have a son this year or not', 'Quaestio utrum mulier habebit puerum isto anno vel non', MS Sloane 248, f. 136r. The answer was no.

concerns, but the desire to offer certainty during the uncertain early stages of pregnancy was perhaps a significant motivating factor for the owners, users, and compilers of these texts.

Chapter 5: Uses of Pregnancy Diagnosis

Texts

Methods of pregnancy diagnosis appeared in a variety of different texts in the later middle ages: some texts were devoted entirely to the topic, but more frequently pregnancy diagnosis was discussed within broader tracts on medicine and the body, or in fragments of texts included in recipe collections. This chapter will supplement the limited evidence for the ownership of manuscripts containing methods of pregnancy discussed in Chapter Four with a consideration of the texts in which these methods appeared in later medieval Europe. These texts can tell us a great deal about the interests, motivations, and identities of their readers, which can be used to evaluate their probable levels of engagement with methods of pregnancy diagnosis. The types of text in which these methods appear, and the transmission of ideas between texts also gives an indication of how likely it was that these methods of pregnancy diagnosis were ever put to use. The extraction of texts and information on pregnancy diagnosis can also be interpreted as evidence of the vernacularisation of medical knowledge in the later middle ages, as discussed in Chapter Three, and I shall use a range of manuscripts originating in England and featuring texts in Middle English to support this argument.

These varying textual formats demonstrate that knowledge about pregnancy diagnosis could be approached in several different ways in the later middle ages. Some texts present this as theoretical knowledge, to be understood, but not necessarily to be put into practice. Other texts demonstrate a more practical focus, organising texts so that information could be found easily. This information also appeared in informal rough notes, as people noted down information for future use. These differing texts might include similar information and methods of pregnancy diagnosis, but the composers and manuscript compilers evidently had compiled these texts with different intentions. The following survey of these different types of pregnancy diagnosis texts offers some indication of what these intentions may have been, and provides some context for the discussion of these diagnostic methods in Chapters Six, Seven, Eight and Nine.

This thesis does not present a detailed discussion of the origins of pregnancy diagnosis texts. However, where this information is demonstrable, some comments will be made on the relationship between texts and their earlier sources. For instance, the section on signs of pregnancy from Avicenna's *Canon medicinae* was very influential in shaping the contents of pregnancy diagnosis texts, and the signs of pregnancy section of Bernard de Gordon's *Lilium medicine* was copied frequently. Comment will be made where information is known about these sorts of influences and origins, but this will not be an exhaustive survey of this sort of information.

5.1. Medical Treatises

Encyclopaedic medical treatises, taking a head-to-toe approach to the body and its ailments, often included sections on generation and gynaecology. Sometimes this encompassed information about the signs of pregnancy and methods of pregnancy diagnosis.³⁵⁹ These comprehensive medical encyclopaedias were a popular format for medical writing in western Europe from the start of the fourteenth century, representing a response to the need to integrate theory and practice within the framework of learned medicine.³⁶⁰ Encyclopaedic medical texts were long, comprehensive and well organised texts, divided into books on general topics, which were then subdivided into chapters on particular body parts or conditions. Information about diagnosing pregnancy would be included in sections on the generative organs, gynaecology, or general reproductive matters, alongside various other information: the disorders of the male generative organs, aids to conception, and gynaecological disorders.³⁶¹ Gynaecological sections were sometimes extracted and adapted into separate texts, some of which had a general focus on women's illnesses. Others had a more specific focus on methods of pregnancy diagnosis.

These texts were intended as guides to medicine for medical practitioners and students, giving examples of medical treatments and equipping them with theoretical explanations for the causes and cures of conditions. Composing such a text would also allow a learned physician to bolster his reputation, by describing the successful treatment of

³⁵⁹ Demaitre, *Medicine*, pp. ix-xiii.

³⁶⁰ Jacquart, 'Scholasticism', p. 229.

³⁶¹ Demaitre, *Medicine*, pp. 300-303.

patients, and allowing him to display his comprehensive knowledge of the human body.³⁶² Some authors became very well known as a result of their medical compendia, and their texts were copied and transmitted around the medical communities of western Europe. Examples include Bernard de Gordon's early fourteenth-century *Lilium medicine*, and Michele Savonarola's fifteenth-century *Practica maior*.³⁶³ Information would be drawn from the physician's practical experience, reinforced by theoretical explanations drawn from the works of ancient and medieval Arabic medical authorities.³⁶⁴

Some of the works of these earlier medical authorities circulated in their entirety in the later middle ages, and one such work was Avicenna's *Canon medicinae*.³⁶⁵ This was an Arabic encyclopaedic medical work composed in Persia in the eleventh century, which was translated into Latin and transmitted to western Europe in the twelfth century. The text synthesised the views of Aristotle and Galen, and was accepted as a systematised summary of all available medical learning in the later middle ages. The *Canon* was influential as a medical reference work, and was included in university medical curricula from the thirteenth century.³⁶⁶ Its ideas and approaches were adopted by educated medical practitioners and authors across later medieval Europe.

Book Three of the *Canon* included a section on generation, a chapter on the signs of pregnancy, and another on identifying the sex of the foetus. The signs and symptoms of pregnancy are outlined, including sensations felt around the time of coitus, uroscopic signs, and tests for the presence of a foetus – these will be discussed in Chapters Six, Seven, and Eight. The inclusion of this information in a long encyclopaedic work might not indicate an active interest in diagnosing pregnancy: this information may only have been included for theoretical purposes, as just one aspect of the entirety of medical knowledge. These texts were often so long it was impractical for individuals to consult these texts in day to day practice: their sheer size created 'physical limitations' on their use. This inspired the development of abbreviated versions of these encyclopaedic works.³⁶⁷ But an organisational apparatus, including subheadings and indexes, circulated with later medieval versions of the

³⁶² Demaitre, *Medicine*, pp. 27-28; Jacquart, 'Scholasticism', p. 232.

³⁶³ *Ibid*, p. 232.

³⁶⁴ *Ibid*, pp. 214-216.

³⁶⁵ Jacquart, 'Scholasticism', p. 250; Nancy Siraisi, *Avicenna in Renaissance Italy: The Canon and Medical Teaching in Italian Universities after 1500* (Princeton, NJ: Princeton University Press, 1987), p. 20.

³⁶⁶ *Ibid*, pp. 6-7.

³⁶⁷ Demaitre, *Medicine*, p. 30.

Canon, alongside the fifteenth-century commentary of Jacques Despars (d. 1458).³⁶⁸ This framework, along with the logical structure of this book covering medical ailments from head to toe, would have enabled readers to access the section on generation should they wish to. While the presence of information on pregnancy diagnosis does not prove interest in this material, a reader concerned with this material would not be hindered from reading it by the structures of the text.

Some authors composed commentaries on earlier texts, including Jacques Despars, a fifteenth-century physician whose commentaries on Avicenna's *Canon* circulated alongside the translation of this text by Gerard of Cremona – this translation of the text, appearing in British Library, MSS Harley 3799-3809, will be referenced throughout this thesis. Sometimes commentaries involved adapting the material of earlier authorities to include information of interest to later medieval readers. The *Clarificatorium super Nono Almansoris* of Johannes de Tornamira, a fourteenth-century physician associated with Montpellier, was an expansion of and commentary on book nine of the *Liber medicinalis ad Almansorem*. This was a Latin translation of the *Kitāb al-tibb al-Mansuri* of the ninth and tenth century Persian physician al-Razi, known as Rhazes in the medieval West. Tornamira's commentary was probably written for the benefit of future students, and he seems to have added several chapters to this adaptation, apparently to cater for the interests of a later medieval audience.³⁶⁹ This included chapters on impotence, difficult birth, and gonorrhoea.³⁷⁰ He also added a chapter on the signs of conception, which seems to draw on the chapter on this topic in Avicenna's *Canon*. Examples from this text will be discussed in Chapters Six, Seven, and Eight.

From the fourteenth century, more physicians began to write texts within the genre of the *practica*.³⁷¹ These texts often incorporated the ideas and adopted the structural organisation of earlier texts like Avicenna's *Canon*, and usually included a chapter on conception, gynaecology, or diseases of the generative organs. Theoretical explanations of

³⁶⁸ Danielle Jacquart, 'Theory, Everyday Practice, and Three Fifteenth-Century Physicians', *Osiris* 6 (1990), 140-160 (pp. 141-142).

³⁶⁹ Geneviève Dumas, *Santé et société à Montpellier à la fin du Moyen Âge* (Leiden: Brill, 2015), pp. 179-180.

³⁷⁰ For comparison, see the contents of this sixteenth-century printing of the ninth book of the *Liber ad Almansorem: Rhasis philosophi tractatus nones ad regem Almansorem* (Paris: Simonem Colineum, 1534), f. 56v; and the contents of this sixteenth-century printed version of the *Clarificatorium: Clarificatorium ... Joanis de Tournamira ... super nonu Almansoris: cum textu ipsius* (Venice: Scotto, Ottaviano, 1507), f. iz7.

³⁷¹ Jacquart, 'Scholasticism', p. 232.

generation might appear alongside information on the signs of conception, and methods of pregnancy diagnosis. The *Practica sive Liliium medicine* of Bernard de Gordon, completed in 1305, was influential, appealing to practitioners who were not university educated.³⁷² Bernard was master in the faculty of medicine at the university of Montpellier, and his *Liliium* demonstrates aspects of his practice in many areas of medicine, including reproductive medicine.³⁷³ The organisational structure of the text addresses the ailments of the body from head to toe, and the seventh book covers matters of reproductive medicine, with a chapter on the ‘regimen of pregnant women, and of miscarriage’. The text draws its signs of pregnancy from Avicenna’s *Canon* repeating references to feelings in the woman’s body after coitus: the horripilation – hairs standing on end – referenced in the *Canon* became horripilation or blushing in Bernard’s text.³⁷⁴ He also included references to the reduced desire for coitus in Avicenna’s *Canon*.³⁷⁵ Bernard’s text then followed the structure and contents of the *Canon*’s chapter on the signs of pregnancy, addressing a substance like carded cotton in the urine as a sign of pregnancy, before discussing testing the body with *mellicratum* and suffumigation – these signs and tests will be discussed in Chapters Six, Seven, and Eight.³⁷⁶ This borrowed structure and the inclusion of these signs demonstrates Bernard’s engagement with and adaptation of the information about pregnancy diagnosis in the *Canon* – this may suggest that Bernard employed this material in his practice.

There was a strong level of interest in the *Liliium medicine* in the later middle ages: the text was translated into vernacular languages, including English, German, Castilian, Gaelic, French and Hebrew, and circulated widely around Europe.³⁷⁷ It is not possible to tell the extent to which all of the readers of this text took an interest in the section on pregnancy diagnosis, but it may have been quite significant. In the following sections of this

³⁷² Rider, ‘Men and Infertility’, p. 251; Luke Demaitre, *Doctor Bernard de Gordon: Professor and Practitioner* (Toronto: Pontifical Institute of Medieval Studies, 1980), p. 2.

³⁷³ *Ibid*, pp. 51-59.

³⁷⁴ ‘Et horripilatione’, ‘and horripilation’, BL, MS Harley 3808, f. 125v; ‘horripilation or blushing’ ‘orripilationem versus pudibundam’, Philadelphia, College of Physicians, MS 10a 249, f. 245v.

³⁷⁵ ‘Et accidit ei ut abhorreat coitum post illud; et odio habet ipsum Et quando cum ea coitur non emittit sperma’, ‘and it happens that they abhor coitus after that [conception], and they have a hatred for it, and after coitus they do not emit sperm’, MS Harley 3808, f. 125v; ‘& retinetur semen & in cessant & dimmiuntur appetitus coytum’, ‘seed is retained and ... her appetite for coitus is diminished’, ‘retinetur semen & ... dimminitur appetitus coytum’, College of Physicians MS 10a 249 f. 245v.

³⁷⁶ MS Harley 3808, ff. 125v-126r; College of Physicians MS 10a 249, ff. 245v-246r.

³⁷⁷ Luke Demaitre, ‘Medical Writing in Transition: Between Ars and Vulgus’, *Early Science and Medicine* 3 (1998), 88-102 (p. 88).

chapter, I explore a number of instances in which information about pregnancy diagnosis was extracted from the broader text of the *Lilium medicine*, and adapted to form standalone texts on the subject, which suggests this information on pregnancy diagnosis was not ignored, and may have been of active interest to later medieval readers.

5.2. Gynaecological Texts

Methods of diagnosing pregnancy and predicting the sex of the child appeared in general gynaecological texts in the fourteenth and fifteenth centuries. Some were inherited from the classical world, like the *Gynaecia* of Soranus, as adapted by Muscio in the fifth or sixth century.³⁷⁸ The twelfth-century *Trotula* corpus of three texts on women's medicine, gynaecological matters, and women's cosmetics was also popular.³⁷⁹ New texts were also composed in the later middle ages by physicians seeking to address gaps in the older literature relating to fertility medicine, and explanations of generation – texts like the *Tractatus de matrice* of Antonius Guainerius.³⁸⁰ In these texts, pregnancy is approached as one of the many aspects of women's health which could be managed with medical care. The diagnosis of this condition was therefore an essential prerequisite to this treatment.

The most significant of these older gynaecological texts including information about pregnancy diagnosis were the *Gynaecia* of Soranus, in Muscio's translation, and the *Trotula* corpus. Soranus's text referred to signs of conception around the time of coitus, and signs of the sex of the child, including the idea that a woman would be well coloured if her child was male.³⁸¹ This information was derived from the Hippocratic *Aphorisms*, and similar signs of pregnancy appeared in later texts, including Avicenna's *Canon*, and many of the texts deriving from it.³⁸² It is unclear whether the *Muscio* text was the source of these ideas, or whether they were derived from the *Aphorisms* themselves. The *Trotula Conditions of*

³⁷⁸ Laurence Totelin, 'Old Recipes, New Practice? The Latin Adaptations of the Hippocratic *Gynaecological Treatises*', *SHM* 24 (2011), 74-91 (p. 74); Green, *MWMM*, pp. 34-35.

³⁷⁹ *Ibid.*, p. viii.

³⁸⁰ Lemay, 'Guainerius', pp. 320-321.

³⁸¹ 'The gravida has better colour, moves with more ease, her right breast is bigger, firmer, fuller', Soranus, *Gynaecology*, ed. and trans. by Owsei Temkin (Baltimore, Maryland: Johns Hopkins University Press, 1956), Book I, pp. 44-45.

³⁸² 'If a woman be going to have a male child she is of a good complexion; if a female, of a bad complexion', Hippocrates of Cos, *Aphorisms*, in Hippocrates and Heracleitus, *Nature of Man. Regimens in Health. Humours. Aphorisms. Regimen 1-3. Dreams. Heracleitus: On the Universe*, trans. by W. H. S. Jones, LCL 150 (Cambridge: MA: Harvard University Press, 1931), pp. 168-169; 'a pregnant woman having a male child is better coloured', 'pregnans habens masculum est melior coloris', MS Harley 3808, f. 128r.

Women text provided information on identifying the sex of the child, including a reference to a well coloured complexion as a sign of a male child – the text attributes this information to Hippocrates:

Whence Hippocrates says: a woman who is carrying a male is well-coloured and her right breast is bigger. If she is pale, she is carrying a female, and the left breast is bigger.³⁸³

Additionally, a procedure to test the quality of the breast milk for indications of the sex of the child is included, which I have not been able to identify in any earlier texts.

In the later middle ages, these two texts attracted a great deal of interest, and translations and adaptations circulated widely. Older editions of the text might also be adapted for later use. One manuscript example of the Soranus/Muscio text, Cambridge, St John's College MS D. 4 was copied in the eleventh or twelfth century, but a table of contents and a chapter numbering system was added alongside the text in a fifteenth-century hand indicating later interest in and use of this text.³⁸⁴ It was not unusual for earlier medical texts to circulate in the fifteenth century as 'current working copies', and this suggests the continued use and perceived appeal of the Muscio text several centuries later.³⁸⁵

New gynaecological texts were also composed in the later middle ages: Monica Green suggests that the contents of the Trotula text, which had hitherto dominated the field of women's medicine, were not sufficient for the interests and needs of later medieval medical practitioners. These men wanted to know as much as possible about generation and the female reproductive anatomy, so that they could assist their female patients with fertility treatments. Consequently, new texts were developed, often following the same principles as the genre of *practica* texts discussed above: they were written by active medical practitioners, and synthesised medical theory with knowledge drawn from the author's medical practice. Over the fourteenth and fifteenth centuries, this medical practice increasingly included intervention in gynaecological matters, sometimes with female

³⁸³ 'Unde Ypocras dixit: mulier que masculum gerit bene colorata est et dextram mammillam habet grossiorem. Si pallida est, feminam gerit, et sinistram mamillam habet grossiorem', Green, *Trotula*, pp. 104-105.

³⁸⁴ Cambridge, St John's College, MS D. 4, ff. 149r-152v.

³⁸⁵ Kate Harris, 'Patrons, Buyers and Owners: The Evidence for Ownership, and the Role of Book Owners in Book Production and the Book Trade', in *Book Production and Publishing in Britain, 1375-1475*, ed. by Jeremy Griffiths and Derek Pearsall (Cambridge: Cambridge University Press, 2007), pp. 163-200 (p. 173).

assistants or midwives acting as intermediaries, to avert the shame of female patients.³⁸⁶

The authors of these gynaecological *practica* drew on their experience of treating women's bodies to demonstrate a strong level of knowledge about women's medicine and gynaecological problems.

Anthonius Guainerius, an early fifteenth-century professor of medicine at the university of Pavia, intended his *Tractatus de matricibus* – treatise on the womb – as the first chapter of a complete *practica*. He published this section separately in 1440 in case he failed to complete the full text, and dedicated the text to the childless Duke of Milan.³⁸⁷ Like other authors in the genre of *practica*, he included information from his own experience of treating patients for the conditions he discussed, but with a focus on women's gynaecological problems.³⁸⁸ Guainerius treated female patients for conditions of the generative organs, and assisted them with remedies for infertility. Despite his concerns about the need for physicians to distinguish themselves from female practitioners, discussed in Chapter Three, he apparently relied on female attendants for assistance in examinations or treatments involving direct contact with the female genitalia, including suffocation and prolapse of the womb.³⁸⁹ But, in general, he rejected the ideas of less learned practitioners, and generally relied on conventional learned theory and astrological ideas to support his knowledge of the functioning of the female body. Within this text, Guainerius included information about pregnancy diagnosis, which demonstrates the interest of a learned interventionist medical practitioner in diagnosing pregnancy.

The *Pomum aureum*, written in 1444 by Pierre Andrieu, a Montpellierian physician active at the court of the Counts of Foix, includes similar information about pregnancy diagnosis.³⁹⁰ Pierre's work was apparently commissioned by Count Gaston of Foix, whose childlessness was discussed in Chapter Two.³⁹¹ These circumstances – and their political consequences – may have influenced the development of this text, which, according to Monica Green, was distinctive amongst contemporary texts because of its detailed advice

³⁸⁶ Green, *MWMM*, p. 74.

³⁸⁷ *Ibid*, p. 253.

³⁸⁸ Lemay, 'Guainerius', pp. 320-321.

³⁸⁹ *Ibid*, p. 323.

³⁹⁰ Green, *MWMM*, p. 261.

³⁹¹ *Ibid*, p. 249.

on childbirth.³⁹² While Guainerius limited his discussion to the care of women as they became pregnant, pregnancy diagnosis, and the developments of the body during pregnancy, Pierre Andrieu also included instructions for assisting during birth. He did not, however, expect male physicians to take an active role here: physicians were to advise female attendants in assisting the parturient woman. Monica Green suggests this text demonstrates an increased involvement for male physicians in pregnancy and childbirth, and situates methods of pregnancy diagnosis amongst the activities a physician might conduct during a pregnancy.³⁹³

Not all later medieval gynaecological texts included information about diagnosing pregnancy. The fifteenth-century *Knowing of Woman's Kind in Childing* text, a vernacular English adaptation of parts of the Trotula corpus, included no information about the signs of conception or pregnancy.³⁹⁴ Most copies of the fifteenth-century English *Sickness of Women* text, drawn from the gynaecological chapters of the thirteenth-century *Compendium medicinae* of Gilbertus Anglicus, do not include information about recognising pregnancy either.³⁹⁵ However, at least one fifteenth-century copyist considered this absence a serious oversight. In the copy of the *Sickness of Women* text in MS Sloane 249, a test for pregnancy is added to the text of the chapter on 'default of the moder' – the womb. This is a variant on the *mellicratum* test, which derived from the Hippocratic *Aphorisms*, appeared in Avicenna's *Canon*, and will be discussed further in the following chapter. It would not be fair to say that a gynaecological text was incomplete without methods of pregnancy diagnosis, but such information was clearly seen as a useful addition.

³⁹² Green, *MWMM*, p. 299; *Eadem*, 'Royal Mothers, Part 1: A Text Comes to Life', *Queens in the Middle Ages*, 24 June 2013 <<https://theresaearefight.com/2013/06/24/royal-mothers-part-1-a-text-comes-to-life/>> [accessed 30th October 2019].

³⁹³ Green, *MWMM*, p. 261.

³⁹⁴ Alexandra Barratt, *The Knowing of Woman's Kind in Childing: A Middle English Trotula-Text*, *Medieval Women: Texts and Contexts 4* (Turnhout, Belgium: Brepols, 2001).

³⁹⁵ Rowland; Peter Murray Jones, 'The Sekeness of Wymmen', *Generation to Reproduction*, University of Cambridge (July 2011) <<https://www.reproduction.group.cam.ac.uk/features/sekenesse-of-wymmen>> [accessed 23rd April 2019].

5.3. Signs of Pregnancy Texts, Rough Notes and Recipes

Five of the manuscripts examined for this thesis include independent texts solely on the signs of pregnancy, and methods of pregnancy diagnosis.³⁹⁶ These texts include lists of the signs and symptoms of a pregnancy, which might be recognised by a medical practitioner or a potentially pregnant woman, and some also include diagnostic tests for recognising pregnancy. These signs of pregnancy texts were apparently not original compositions, but instead represent extractions from other texts. Their sources include the section on conception from Avicenna's *Canon medicinae*, and the chapter on pregnancy in Bernard de Gordon's *Lilium Medicine*. The authors and compilers seem to have displayed a strong interest in the practical utility of this material by extracting it in this way: by transforming chapters of long, encyclopaedic medical texts into short standalone tracts on a specific topic of interest, the original material has been rendered useable in a new and more practical way. This strongly suggests that at least some readers had encountered information about pregnancy diagnosis in long encyclopaedic texts and decided it could be useful in practical medicine.

These five texts are all short, and three of them have clear titles reflecting their focus: the signs of pregnancy, *Signa pregnationis*, and the signs of conception, *Signa conceptionis*. Three of these texts appeared in prose as in their original sources, but one was presented as a list. This fifteenth-century text appeared in an Italian manuscript, Wellcome MS 532, entitled *Signa pregnationis*.³⁹⁷ The information is apparently drawn from Avicenna's *Canon medicinae*, or perhaps Bernard de Gordon's *Lilium medicine* text which derived from it. The short text covers half a page and is divided into a clearly structured list of the signs of pregnancy: each sign appears on a new line, complete with rubricated initial letters.³⁹⁸ This format would facilitate consultation – and perhaps memorisation – of the text, which implies this information was intended to be incorporated into the ordinary

³⁹⁶ These are: Wellcome MS 532, f. 71r; MS Sloane 284, ff. 76r-77r; Cambridge, University Library, MS Dd. 6. 13, f. 99r; MS Sloane 783 B, f. 184r and Graz, Universitätsbibliothek MS 311, ff. 85r-85v. Working transcriptions of texts from Wellcome MS 532, MS Sloane 783 B, and CUL, MS Dd. 6. 13 appear in Appendix 5.

³⁹⁷ Wellcome, MS 532, f. 71r.

³⁹⁸ This is transcribed in Appendix 5.

practice of the medical practitioner who appears to have owned this volume – as discussed in Chapter Four.³⁹⁹

A more detailed text on the signs of conception appears in MS Sloane 284, a volume of medical texts including a list of synonyms of herbs, a treatise on uroscopy, and medical recipes. This text is entitled *De Signum conceptionis*, and spans three pages, a total of 189 words.⁴⁰⁰ The text contains a wide range of methods for identifying pregnancy, including signs and symptoms demonstrating the presence of a pregnancy and the sex of the child, a brief note on recognising pregnancy from urine, and two methods of testing the breast milk to recognise the sex of the foetus. The information offered here has been drawn from various sources, and covers all the different categories of medical diagnostic methods discussed in the following chapters. The compiler of this text apparently sought to present a comprehensive guide to the subject of pregnancy diagnosis, of use to anyone wanting to try as many methods of recognising a pregnancy as possible – probably a medical practitioner.

In a similar vein to these compilations of methods of pregnancy diagnosis, some later medieval manuscripts contained recipe collections with a distinctly gynaecological focus. These were not presented as coherent texts, but contained disjointed pieces of information relating to countering infertility, promoting conception, diagnosing pregnancy, and managing childbirth. Bodleian, MS Add A. 106 contains two sections of this sort of material in English, on f. 82r, and between ff. 136v-137v. A later user attempted to convert the section on f. 82r into a coherent text by giving it the title *De mulieribus*, with *explicit* added at the bottom of the page. Some of the information in this volume, particularly between ff. 136v and 137v, derives from the Trotula *Conditions of Women* text, but not all of it can be traced to this source text. Little consideration was given to the organisation of information in this volume: the milk drop test, from the *Conditions of Women* text, appears in each of these two gynaecological sections, and again within a more generalised recipe collection. On f. 137v, this test is followed by the idea that a well coloured face would indicate a male child, just as it is in the original Trotula text. This disorganised approach to compilation suggests that the compiler was concerned with putting together all available information on this topic for future practical use, rather than organising it logically. This perhaps suggests

³⁹⁹ Theresa Tyers, 'The Rebirth of Fertility: Trotula and Her Travelling Companions, c. 1200-1450' (unpublished doctoral dissertation, University of Nottingham, 2012), pp. 143-144.

⁴⁰⁰ MS Sloane 284, ff. 76r-77v.

the efforts of a less educated compiler, indicating that the volume may have been intended for use in a domestic context.

Methods of pregnancy diagnosis were also included in general recipe collections, which had no particular gynaecological focus. A procedure for testing the quality of breast milk on a red wort leaf is included within a general recipe collection in a manuscript owned by clerics associated with St Augustine's Abbey, Canterbury.⁴⁰¹ Additionally, a fifteenth-century English recipe collection in MS Bodley 591 included the Trotula breastmilk test, and the signs of a male or female child attributed to Hippocrates, as discussed above. While these appear on a page alongside other gynaecological recipes, the page also features a remedy for piles, and one 'to kepe a man from dronkenes'.⁴⁰² In other places in this volume, there is a more obvious gynaecological focus: on ff. 107v-110r, a text on procedures for midwives to use during childbirth appears.⁴⁰³ According to Monica Green, this is drawn from Muscio's adaptation of the *Gynaecia* of Soranus.⁴⁰⁴ This is followed by charms and instructions for assisting during and after childbirth written in English – this section includes the Trotula description of the visible signs of a male or female child once again.⁴⁰⁵ In this volume, information about pregnancy diagnosis is included in a gynaecological section, but also within a general compilation of medical recipes. Rough notes added to the margins of texts and images in other manuscripts might also include information about diagnosing pregnancy. This is the case for Bodleian, MS Ashmole 399, a thirteenth-century manuscript which included diagrammatic representations of the male and female genitalia intertwined with sections of the Muscio text.⁴⁰⁶ Someone added a note about diagnosing pregnancy using garlic or saffron to the diagram of the uterus in an early fourteenth-century hand,

⁴⁰¹ Bodleian, MS Wood Empt. 18, f. 36r.

⁴⁰² 'For to wete wheder a woman be with man childe oder with mayde childe Take well water and let this woman that is withe childe mylke a drope there in and if it synke to the grounde it is a syngte that it is a man ~~with a man~~ childe and yefe it flete a bovyne it is syngte of a mayde childe Ipocras seythe that a woman that is with ~~with~~ a man childe sche is ruddy & her ryght pappe is corny aboute & if sche be with a mayde childe she is blake & her leffte pappe is corny all about', MS Bodley 591, f. 64r.

⁴⁰³ Ibid, ff. 107v-110r.

⁴⁰⁴ Green, *MWMM*, p. 194.

⁴⁰⁵ 'Ipocras seythe that a woman tha is with a knave childe sche is ruddy and the ryght pape is gretter than the todir And if she be with a mayde childe her lyfte pape is gretter than the toder and so hit is evyn contrary', MS Bodley 591, f. 110v.

⁴⁰⁶ Karl Whittington, 'The Cruciform Womb: Process, Symbol and Salvation in Bodleian Library MS. Ashmole 399', *Different Visions* 1 (2008), 1-24 (p. 1) <<http://www.differentvisions.org/issue1PDFs/Whittington.pdf>> [accessed 6th June 2019].

evidently deciding that this diagram was the most appropriate place for this information.⁴⁰⁷ Information about diagnosing a pregnancy could therefore be viewed as just one more useful resource to be employed in the course of general medical practice – professional, or domestic.

5.4. Uroscopy Texts

Uroscopy texts are the most commonly occurring medieval texts offering methods of pregnancy diagnosis. They involved uroscopy, the visual inspection of urine to diagnose a patient's condition, and various other methods of testing and visually examining the woman's body for signs of pregnancy.⁴⁰⁸ Uroscopy was a very common aspect of medieval medical practice: urine was easy to obtain from a patient, and was believed to offer valuable insights into the internal condition of a patient's body – this will be discussed in more detail in Chapter Seven.⁴⁰⁹ Uroscopy was relatively easy to master, and was practised by a range of people in the fourteenth and fifteenth centuries: university educated physicians, clerics, less educated practitioners including apothecaries and empirics, and some ordinary lay people.⁴¹⁰ The texts considered in this thesis reflect this range of practitioners in the different forms and contents, and the complexity of structure and language might indicate use by practitioners with varying levels of education. Information about uroscopic pregnancy diagnosis was probably widely available in the later middle ages.⁴¹¹

Earlier uroscopy texts, from the thirteenth and fourteenth centuries, reflect a more learned approach to the practice: these were influenced by scholastic approaches to uroscopy, and were usually written in Latin for an audience of learned medical practitioners. These texts cover a whole range of medical conditions, and are usually organised in terms of the different colours of urine. A set of standardised names for the colours of urine was set out by Maurus of Salerno in the twelfth century, and by the later middle ages uroscopy texts generally worked through this list of colours, delineating the illnesses associated with

⁴⁰⁷ Bodleian, MS Ashmole 399, f. 14v.

⁴⁰⁸ Demaitre, *Medicine*, p. 46; Moulinier-Brogi, *L'uroscopie*, p. 9.

⁴⁰⁹ *Ibid*, p. 38.

⁴¹⁰ *Ibid*, pp. 100-101.

⁴¹¹ *Ibid*, pp. 93-95; M. Teresa Tavormina, 'The Twenty-Jordan Series: An Illustrated Middle English Uroscopy Text', *American Notes and Queries* 18 (2005), 40-64 (p. 41).

them.⁴¹² Gilles de Corbeil's thirteenth-century *De urinis* text follows this model, describing twenty colours of urine, and this text circulated widely in the fourteenth and fifteenth centuries.⁴¹³ The text contains information about identifying pregnancy from women's urines, alongside bodily signs of conception apparently derived from Avicenna's *Canon*.⁴¹⁴

Most uroscopy texts relied on elaborate descriptions and similes to describe the colours of the urine: urine was compared to the colour of lead, to sun beams, yellow cloth, or red tanne.⁴¹⁵ Some texts, like the Twenty-Jordan Series, would come with illustrations to demonstrate the colours of urines – I have identified one example of an illustrated text like this which contained references to diagnosing pregnancy.⁴¹⁶ Urine flasks were drawn on the page, and would be coloured in to match the colour described. These sorts of illustrations would have simplified the process of learning how to practise uroscopy, enabling individuals to identify the colours of urine from these illustrations, without having to rely on the experience of seeing colours of urines with their associated conditions. The colours in these illustrations may not have been reliable representations of the colours of urine under discussion, but they would have helped those attempting to master the art of uroscopy.

Several vernacular uroscopy texts were in circulation by the fifteenth century, including Henry Daniel's English translation of his *Liber uricrisiarum*, which enriched English medical vocabulary from the late fourteenth-century.⁴¹⁷ These translations made uroscopic information more accessible to a less learned audience, facilitated by the circulation of simple vernacular uroscopy texts. *The Dome (or Doom) of Uryne* compendium is one such example: this compilation brought together a number of short Middle English uroscopy texts, several of which relate to pregnancy diagnosis.⁴¹⁸ The texts provide a fairly comprehensive guide to uroscopy, describing the substance, colours, regions and contents of urine, and the different conditions which could be identified from it. Two sections of this text relate to the diagnosis of pregnancy: *Urina mulieris* and *Ad cognoscendum pregnantes*,

⁴¹² Moulinier-Brogi, *L'uroscopie*, p. 70.

⁴¹³ Ibid, p. 148; M. Teresa Tavormina, 'Uroscopy in Middle English: A Guide to the Texts and Manuscripts', *Studies in Medieval and Renaissance History*, 3rd Series, 11 (2014), 1-154 (p. 3).

⁴¹⁴ British Library, Harley, MS 3140, ff. 273r-274v. The signs of conception appear on f. 274r.

⁴¹⁵ Tavormina, 'Uroscopy', pp. 151-152.

⁴¹⁶ Tavormina, 'Uroscopy', p. 14; MS Sloane 783 B, f. 224v.

⁴¹⁷ 'Daniel's English', The Henry Daniel Project.

⁴¹⁸ Tavormina, 'Uroscopy', pp. 22-24. An edited version of this text appears in Javier Calle Martín, 'A Late Middle English Version of The Doom of Urines in Oxford, MS Rawlinson C. 81, ff. 6r-12v', *Analecta Malacitana* 35 (2013), 243-274.

which circulated widely, respectively appearing in 30 and 29 of the 55 extant manuscripts containing versions of the *Dome of Urynes*.⁴¹⁹ Some also copied extracts of these texts into miscellanies and commonplace books: an extract from the *Urina mulieris* text appears in a sixteenth-century hand in Trinity College, MS O. 1. 57.⁴²⁰

Uroscopy texts are the most common type of text containing methods of pregnancy diagnosis considered in this thesis, but not all uroscopy texts contained methods of pregnancy diagnosis. Walter Agilon's *Judicium urinarum* text, deriving from his *Summa* (or *Practica*) *medicinalis* does not contain such information.⁴²¹ Pregnancy diagnosis was therefore not necessarily an integral part of uroscopy practice, but the topic does appear frequently in many uroscopy texts. Sometimes uroscopic information was supplemented with other information about the signs of pregnancy, as in the *Ad cognoscendum pregnantes* text, and in Henry Daniel's *Liber uricrisiarum*. This suggests that, where pregnancy was concerned, additional information might be sought to supplement the conclusions suggested by the inspection of urines.

5.5. Non-Medical Texts

I have also identified information relating to the signs of pregnancy and conception appearing in several types of non-medical text: divinatory treatises, natural philosophical texts, and a polemical tract. This demonstrates knowledge of conventional medical information beyond the medical sphere. The natural philosophical texts relating to pregnancy, from the *Secrets of Women* tradition, have been discussed in Chapter Four, in the section on clerical medical practitioners. Divinatory texts were also discussed in the same chapter, with reference to the concerns of their elite noble and royal owners. In these contexts, information about pregnancy diagnosis could be interpreted as intended for use, but it might also represent an extension of the theoretical knowledge of learned, literate owners.

The early thirteenth-century *Holy Maidenhood* or *Hali Meiðhad* text presents a slightly different type of interest in the signs of pregnancy. This was a tract on the spiritual

⁴¹⁹ Tavormina, 'Uroscopy', p. 52. Appendix 5 contains a full transcription of these two texts, from Wellcome MS 409, ff. 63r-64v.

⁴²⁰ TC, MS. O. 1. 57, f. 125r.

⁴²¹ Tavormina, 'Uroscopy', pp. 92-93.

merits of virginity, which sought to encourage young women to pursue a life of devout and spiritual chastity, rather than marrying. One of its rhetorical methods of persuasion was to discuss at length the horrors of pregnancy and childbearing, to put off young women from any desire to participate in this. Nausea and vomiting take a very prominent place within this text:

your mouth is bitter, and all that you chew nauseating. And what food your stomach scornfully accepts (that is, with distaste) it casts out again. In the middle of all your happiness and your husband's joy you degenerate into a wretch.⁴²²

The painful nature of pregnancy is emphasised, and negative changes to the face are described. The text includes an unflattering depiction of this: 'inside, in your womb, a swelling in your belly that puffs you up like a water-skin'.⁴²³ This was evidently not a desirable bodily state for young medieval women.

The *Holy Maidenhood* text demonstrates an awareness of contemporary medical knowledge on the topic of pregnancy. The signs of pregnancy are closely related to those in Avicenna's *Canon medicinae*, and this borrowing perhaps demonstrates the circulation of ideas about pregnancy beyond medical texts. The author of this devotional tract was clearly aware enough of this information to make use of it in their attempts to persuade young women to pursue a life of virginity.

5.6. Conclusion

By no means all later medieval medical texts contained references to pregnancy diagnosis, but for the purposes of this thesis I have identified a wide range of texts which include information to assist with this practice. The textual formats are diverse, representing a wide range of different users with differing motivations for taking an interest in pregnancy diagnosis. The evidence considered in Chapters Four and Five suggests a strong and active interest in methods of diagnosing pregnancy amongst various owners and users of manuscripts containing medical texts in the later middle ages. These users might include

⁴²² 'Thi muth is bitter, ant walh al thet tu cheowest. Ant hwet mete se thi mahe hokerliche underveth (thet is, with unlust) warpeth hit eft ut. Inwith al thi weole ant ti weres wunne forwurthest a wrecche', 'Hali Meithhad', from *The Katherine Group, MS Bodley 34*, ed. and trans. by Emily Rebekah Huber and Elizabeth Robertson (Kalamazoo, MI: Medieval Institute Publications, 2016), <<http://d.lib.rochester.edu/teams/text/hali-meithhad>> [accessed 28th February 2018], f. 66v.

⁴²³ 'Inwith, i thi wombe, swel in thi butte the bereth the forth as a weater-bulge', *ibid*, f. 66r.

medics, wanting to manage the health of their female patients; clerics, administering medical advice and care, or simply taking an intellectual interest in matters of conception; and members of the gentry and nobility, who might copy texts on pregnancy diagnosis into their household commonplace books to assist with their families' reproductive strategies. Information about the signs of pregnancy was not left hidden within long and complex encyclopaedic medical texts: this material was extracted and adapted into texts solely on pregnancy diagnosis and predicting the sex of the child, indicating a strong interest in this material from users of medical texts. This is confirmed by the appearance of extracts copied from these texts in household miscellanies and recipe collections. The wide range of textual contexts in which methods of pregnancy diagnosis appeared in the later middle ages suggests a strong level of interest in these techniques, from a diverse variety of individuals. The following three chapters will consider these diagnostic techniques in detail, situating them within later medieval medical theory and practice. Divinatory and astrological techniques will then be addressed in Chapter Nine.

Part 3. Tests

Following on from Part Two, this part of the thesis will consider the various different methods for diagnosing pregnancy and identifying or predicting the sex of an unborn child which circulated in the later medieval medical, divinatory and predictive texts found in the manuscripts discussed in Chapters Four and Five.

The first three chapters of this section are focused on medical methods – those which could be explained in terms of contemporary medical theory, or which drew on conventional medical diagnostic techniques. Chapter Six considers information about signs and symptoms of pregnancy as diagnostic aids, and Chapter Seven discusses uroscopy, and the different colours, contents, and qualities of urine associated with pregnancy. Chapter Eight examines diagnostic tests for pregnancy, which instructed the operators to test a woman's body and bodily fluids to reveal that she was pregnant, or the sex of the foetus.

Chapter Nine considers divinatory and predictive methods of recognising a pregnancy and the sex of an unborn child, encompassing onomancy, geomancy, and astrology. These methods did not fit within the main framework of later medieval medical theory (although astrological medicine did become widespread), but they could be used to find out information about medical matters, including pregnancy.

These diagnostic methods were all intended to render visible the interior processes of pregnancy, and given their appeal and widespread circulation, it is likely that at least some of these methods were put to use, as discussed in Part Two. Pregnancy was difficult to recognise, and the possibility that it could be confused with other potentially fatal conditions would have encouraged the use of pregnancy diagnosis texts to seek certainty. The promise of texts offering ways of identifying the sex of an unborn child would have been particularly appealing. Medical methods worked on the principle of allowing practitioners to identify the bodily changes of pregnancy, discussed in Chapter Three; whereas the divinatory and predictive methods of Chapter Nine were less concerned with the body itself, and instead sought to find out about pregnancy by accessing powers inherent in numbers, names, and the stars. Medical methods of diagnosis often appeared without theoretical explanations or rationalisations, which demonstrates the ways in which

medical theory might be put into practice by medical practitioners and ordinary people. The procedures described or implied in these texts can also offer insights into different diagnostic and prognostic practices amongst medical practitioners, lay people, and divinatory and astrological practitioners. Finally, they offer a unique insight into the experiences of potentially pregnant women in confirming a pregnancy in the later middle ages.

Chapter 6: Symptoms and Signs of Pregnancy

Later medieval texts describing the external bodily signs and perceptible symptoms of pregnancy offered scope for diagnosing whether a woman was pregnant or not. As discussed in Chapter Five, information about the signs of conception and the bodily changes of pregnancy appeared in encyclopaedic medical and gynaecological texts, and was sometimes extracted into separate texts on pregnancy diagnosis: twenty-seven of the manuscripts considered here include information about these indications of pregnancy. This information would provide a diagnostic aid: a practitioner could compare the bodily signs and symptoms in these texts with those displayed and experienced by a potentially pregnant woman to offer a diagnosis of pregnancy, and to recognise the sex of the foetus. This chapter will consider indications of pregnancy perceptible from the moment of conception, before discussing signs and symptoms caused by the bodily changes of pregnancy.⁴²⁴ The signs and symptoms which could be used to indicate the sex of the unborn child will then be discussed. This chapter will focus on symptoms which a woman might recognise herself, and signs identifiable by examining the woman's body. While evidence of these same internal conditions could be identified by uroscopy, its particular techniques and rationale require further discussion and will be explained in Chapter Seven.

Descriptions of bodily signs and symptoms could be understood quite differently, however: William MacLehose interprets these as references to the 'pathology of pregnancy', the dangers a mother's body might present to a foetus, which could be mitigated if women followed the information in regimens for pregnant women.⁴²⁵ Manuscript evidence, however, suggests that information about the signs and symptoms of pregnancy was intended for use in a diagnostic context: it was included in texts focused on the signs of conception and pregnancy, and appeared in uroscopy texts alongside practical

⁴²⁴ Examples discussed in this chapter are included in Appendix 4, in tables corresponding with each section number.

⁴²⁵ MacLehose, *Tender Age*, Chapter 1, Para. 60.

uroscopic methods of pregnancy diagnosis. Because of this contextual evidence, I am therefore interpreting texts on the signs of conception and pregnancy as being intended for use in medieval diagnostic practice.

Medieval texts refer to signs of pregnancy or conception – *signa pregnationis*, as in the title of the text on f. 71r in Wellcome MS 532, and *signa conceptionis*, as in the chapter of the *Liber de matrice* attributed to Johannes de Ketham.⁴²⁶ In this context, the term *signum* refers to a sign or a token, and in medical use this referred to any bodily indication of a patient's condition. In the following discussion, I will draw on modern definitions of signs and symptoms to distinguish between signs as external indications of conditions which can be 'objectively' identified through observation or examination, and symptoms as the 'subjective' reports of the experiences of their patients.⁴²⁷ In the following, the term 'symptoms' will be used to refer to internal physical or mental sensations, which could be perceived or experienced through introspection by the potentially pregnant women themselves. The term 'signs' will be used to refer to external indications of pregnancy, which could be seen or identified by another person. This distinction is not present in the medieval use of the term *signum*, but it is useful for considering the ways in which indications of pregnancy were identified in practice: whereas a practitioner could identify a sign, symptoms could only be identified by a potentially pregnant woman. This would shape interactions and relationships between patients and practitioners, depending on whether practitioners relied on their own observational judgement, or took into account a woman's testimony about her own body. Taking into account symptoms would imply a greater degree of collaboration between patient and practitioner. Women's own sensations were evidently seen as significant indicators of pregnancy in the later middle ages, but they rarely appear without some reference to externally perceptible signs. It is possible that women's accounts were mistrusted, and it was seen as necessary to check them against externally perceptible signs recognised by medical practitioners.

The lists of the signs of pregnancy discussed here were not drawn from the observations of contemporary practitioners, or the experiential knowledge of contemporary women: as discussed in Chapter Three, contemporary women's knowledge rarely appeared

⁴²⁶ Wellcome MS 532, f. 71r; MS Sloane 345, f. 128r.

⁴²⁷ Patricia Spataro, 'Signs and Symptoms: Knowing How They're Different Can Make A Difference', *GP Solo* 32 (2015), 68.

in later medieval medical texts, and deference was shown for the knowledge of earlier authorities over that drawn from experience.⁴²⁸ Most texts containing lists of the signs of pregnancy appear to derive from earlier medical texts, including Avicenna's *Canon Medicinae*, and Bernard de Gordon's *Lilium medicinae*, as discussed in Chapter Four. The ideas contained within them can be traced back to those of Galen and the Hippocratic authors. Signs of pregnancy were included in earlier medieval texts, like the *Trotula corpus*, John of Gadsden's *Rosa Anglica*, and Johannes de Tornamira's *Clarificatorium*. They also appeared in uroscopy texts, and texts exclusively on identifying pregnancy. These signs and symptoms all relate to the internal bodily changes caused by a foetus in the womb, as discussed in Chapter Three. It is often assumed that premodern women would only recognise the presence of pregnancy after the child had 'quickened'.⁴²⁹ Quickening was a term used to refer to the first foetal movements, which usually occur around the twentieth week of pregnancy, and was often associated with the child receiving its soul.⁴³⁰ The signs and symptoms included in these texts, however, suggest that indications of pregnancy could be perceived far earlier in the process. As conception occurred and the foetus grew, the body would change in ways which might be visible externally, or which could be felt by the woman from the moment of conception and throughout the course of her pregnancy.

6.1. Sensations at the Moment of Conception

The earliest perceptible symptoms of pregnancy relate to sensations felt just after coitus, as conception began. The author of the late fifteenth-century *Liber de matrice mulieris et impregnationis*, attributed to the German physician Johannes de Ketham, suggested a woman would feel coldness and pain in the kidneys after coitus if she had conceived.⁴³¹ The immediately perceptible nature of conception is also discussed in Tornamira's *Clarificatorium super nonum Almansoris*. This text suggests that the symptoms of pregnancy can be experienced from the first hour, of the first day, of the first week, of

⁴²⁸ Green, *MWMM*, pp. 292, 299.

⁴²⁹ Woods, p. 4.

⁴³⁰ Michael Stolberg, *Uroscopy in Early Modern Europe*, trans. by Logan Kennedy and Leonhard Unglaub (Ashgate: Farnham, 2015), p. 85.

⁴³¹ 'For if a woman, when she was in coitus with a man, after coitus feels coldness and pain in the kidneys, it is a sign of conception', 'si enim mulier quando fuit in coitu cum viro post coitum frigus sentit et dolores in renibus signum est conceptionis', MS Sloane 345, f. 128v. All examples discussed in this chapter are included in tables in Appendix 4.

the first month of pregnancy.⁴³² It describes six symptoms or bodily sensations which could be perceived immediately after conception: the first was tightening of the mouth of the womb and dryness after coitus, and the second was a throbbing sensation, and pain in the back and stomach.⁴³³ The third was blood flowing to the womb, and the fourth was a sensation of horripilation – hair standing on end.⁴³⁴ The fifth was the constriction of the mouth of the womb, so that the penis could not enter it, and finally, the sixth was the sensation of ‘attraction’ of the womb upwards as the seed came together within.⁴³⁵ A man might also experience certain symptoms which indicated conception, including dryness of the head of the penis after coitus.⁴³⁶

These symptoms and sensations were apparently drawn from the ‘Signs of Pregnancy’ section in Book Three of Avicenna’s *Canon medicinae*. Similar signs appear in Antonio Guainerius’s *De egritudinibus mulierum*, and in the *Signa pregnationis* list in Wellcome MS 532. They relate to theoretical understandings of the processes of conception, discussed in Chapter Three, and describe the sensations a man and woman might feel during this process. Dryness of the head of the penis might indicate the action of the attractive power of the womb, as it drew the seed up into itself to form the foetus. Avicenna’s *Canon* described it as if ‘the head of the penis was almost sucked in’ by the womb as it emitted sperm.⁴³⁷ The upward attraction of the womb, and a sensation of constriction of the mouth of the womb is described in the Tornamira text too. Perhaps the

⁴³² ‘Note that of the signs of conception, certain are attested to upon conception only. And certain of these are in the first day, certain in the first week, certain in the first month, certain in the first months’, ‘nota quae signorum conceptionis quedam attestantur super conceptione dumtaxat. Et quod horum sunt in prima die quaedam, in prima septimana quaedam, in primo mense quaedam, in primis mensibus’, British Library, MS Sloane 246, f. 198r.

⁴³³ ‘The mouth of the womb, or the vulva, is tightened, and dryness of this after the act of coitus’, ‘astrictio orifice matricis seu vulvae et eius exsiccatio post actum coitus’, ‘the second sign is that same day after coitus, if the woman feels pulsating, with a little pain in the stomach and back, you know that she has conceived’, ‘secundum signum est quod ipso die post coitum si mulier senserit pulsacionem cum modico doloris in ventre et dorso, scias quod ipsa concepit’, MS Sloane 246, f. 198r.

⁴³⁴ ‘Horripilation with stiffness’, ‘horripilacionem cum rigore’; ‘blood flows to the womb on the very same day of the reception of sperm’, ‘sanguis fluit ad matricem ipso die receptionis spermatis’, MS Sloane 246, f. 198r.

⁴³⁵ ‘Constriction of the internal orifice of the womb, for it should be tightened so that the head of the penis is barely able to pass through’, ‘constrictio orifice intrinseci matricis, nam detur stringi quae vix acumen acus possit transire’; ‘attraction of the womb upwards to some extent, so that when the seed is united and compressed it ascends to some extent to that which is above’, ‘attractio matricis aliquantulum ad superius quia quando coadunatur et constringitur ascendit aliquantulum ad superius’, MS Sloane 246, f. 198v.

⁴³⁶ ‘Dryness of the head of the penis after coitus’, ‘exsiccatio capitis virgi post coitum’, *Signa pregnationis*, Wellcome MS 532, f. 71r.

⁴³⁷ ‘And the head of the penis is almost sucked in, then it emits sperm’, ‘et est caput virge quasi suctum tum emittit sperma’, London, British Library, MS Harley 3808, f. 125v.

coolness and pain in the woman's kidneys in the *Liber de matrice* might relate to the transferral of heat from the rest of the body to begin the process of foetal formation. These texts suggest that medical theorists believed the earliest stages of conception were physically perceptible, and that patients could be asked about them to detect a pregnancy as early as possible. Theoretical ideas about the processes of conception were transformed into practical tools for diagnosing pregnancy in these texts.

The inclusion of symptoms perceptible to the male partner at the moment of conception suggests that both man and woman could play a role in identifying pregnancy. A focus on women's sensations would be expected, given the significance of the female body as the site of conception and gestation, but these texts consider the man's experience too. If we accept that these texts were not just a theoretical description of the occurrences at the moment of conception, this suggests a role for the male partner in recognising when conception may have occurred. A man's observations and experiences of coitus could therefore contribute to the diagnosis of pregnancy. Medical practitioners would therefore need to ask both the potentially pregnant woman and her husband about their sensations during coitus: whether he had noticed dryness of his penis, whether she had noticed a sense of constriction of the womb, and whether either of them had noticed difficulties in the penis entering the womb. This would suggest a level of openness between medical practitioners and their male and female patients, as they discussed intimate bodily experiences to find out more about a potential pregnancy. Alternatively, if a husband and wife were equipped with this knowledge – having read the information in a text or having been informed by a medical practitioner – it is feasible that conversations about the sensations felt during and after coitus may have played a role in the collaborative management of their fertility, as they worked together to recognise the earliest signs of pregnancy.

6.2. Changes to the Body

Bodily changes during pregnancy might lead to perceptible symptoms, and might manifest themselves in signs which could be interpreted by the woman herself, or an external observer, as indications of pregnancy.

6.2.1. Absence of Menstruation

A lack of menstruation was the most commonly recorded symptom of pregnancy in the texts considered here, correlating with modern understandings of a missed period as a likely sign of pregnancy. Avicenna's *Canon* states that:

The menses are retained, for which reason women do not menstruate for the moment, or they menstruate only a little.⁴³⁸

This sign appears in several of the texts deriving from this section of Avicenna's *Canon*, including the *Signa pregnationis* text in Wellcome MS 532, the text on the *De conceptione mulieris urine* in MS Sloane 783 B, and the *Signum conceptionis* text in MS Sloane 284.⁴³⁹ Retention of the menses is also mentioned in the *De immunditiis mulierum* text, deriving from the misogynistic *Secrets of Women* tradition.⁴⁴⁰ The appearance of this sign across multiple texts suggests that this was a widely understood and recognised sign of pregnancy.

As discussed in Chapter Three, the absence of menstruation during pregnancy related to its perceived role in foetal nourishment, as menstrual blood was retained for this purpose. According to the Aristotelian model of conception, it was also involved in foetal formation.⁴⁴¹ Eventually, menstrual blood moved up to the breasts to form milk for the nourishment of the infant: the *De immunditiis mulierum* text follows its assertion that pregnant women do not emit menstrual blood with the statement that it 'remains in women about to give birth, and rushes to the breasts and becomes milk'.⁴⁴² But the absence of menstruation might indicate menstrual retention, a dangerous condition in which toxic menstrual blood became trapped inside the woman's body, harming her health and damaging her fertility.⁴⁴³ The absence of menstruation might therefore not be sufficient evidence that a woman was pregnant, and a remedy for bringing on menstruation in two fifteenth-century recipe collections supports this. Before applying the remedy, the operator

⁴³⁸ 'Et retinentur menstrua quare non menstruatur usque ad tempus aut menstruatur paulatim', MS Harley 3808, f. 125v.

⁴³⁹ "She has a defect of the menses", 'deffectus menstruorum habita', Wellcome MS 532 f. 71r; 'retention of the [menstrual] flow' 'retencionem fluxus', MS Sloane 783 B, f. 184r; 'retention of the menses', 'retencio menstruorum', MS Sloane 284, f. 76r.

⁴⁴⁰ 'Pregnant women do not emit blood', 'inpraegnata mulieres non emittit sanguinem', Wellcome MS 545, f. 3v.

⁴⁴¹ Salisbury, 'Gendered Sexuality', p. 89.

⁴⁴² 'Sed remansit in creaturam et vadit ad mamillas et sit lac', Wellcome MS 545, f. 3v.

⁴⁴³ Bildhauer, p. 66.

is directed to 'lok that she be not with child'.⁴⁴⁴ The appearance of cessation of menstruation in lists of other diverse signs and symptoms of pregnancy might suggest that the identification of several of these signs might be needed before a pregnancy could be diagnosed.

It might be supposed that menstruation was a difficult thing for a female patient to discuss with a male medical practitioner. According to Monica Green, menstruation was a taboo topic in later medieval European society: very few references to it appear outside of medical and natural philosophical writings.⁴⁴⁵ If discussion of menstruation was an improper topic of discussion, absence of menstruation might be problematic as an indication of pregnancy. However, as with the sensations at the time of coitus, open dialogue between patients and medical practitioners was necessary for most of these symptoms and signs to be used in diagnosing pregnancy, and it was fairly normal for professional male medical practitioners to provide women with assistance for menstrual problems. In the fourteenth century, Bernard de Gordon even recommended that physicians should ask women to bring them their menstrual rags for examination, so that he could assess the colour of their menstrual blood.⁴⁴⁶ The necessity for openness between practitioner and patient in fertility medicine, coupled with the normalcy of medieval medical practitioners treating menstrual disorders, strongly suggests that if a woman perceived an absence of menstruation, this symptom could be identified by physicians as a potential sign of pregnancy.

6.2.2. Changes to the Womb

Changes to the womb were thought to occur during pregnancy. The indications of pregnancy at the time of coitus relating to a sensation of constriction of the womb, discussed in section 6.1, can be described as symptoms of pregnancy, as they could only be perceived by a woman and her partner at the time of coitus. However, another later medieval text, the *Signa pregnationis* text in Wellcome MS 532, offers a different interpretation of the changes to the womb caused by pregnancy. In this abbreviated text, changes to the womb are described as follows:

⁴⁴⁴ London, British Library, MS Sloane 284, f. 167v; MS Selden Supra 73, f. 40r.

⁴⁴⁵ Green, 'Menstruation', pp. 61-62.

⁴⁴⁶ Green, *MWMM*, p. 89, fn. 52.

The mouth of the womb and the womb itself are dried up without abscesses and hardness... The uniting of the mouth of the womb so that it cannot be entered by the penis. Elevation of the mouth of the same to a higher place.⁴⁴⁷

The idea that the womb could not be entered by the penis suggests that a woman's partner could notice this change to her body, but identifying the other two signs would probably require a direct manual examination of the womb or vagina.

Who might conduct such an examination in the later middle ages? By the fourteenth century, caring for female patients and their gynaecological problems was a normal part of a physician's practice. But it was not entirely appropriate for a male physician to engage in direct contact with the intimate parts of a female patient's body for diagnostic or therapeutic purposes. We see some evidence of this in a fourteenth-century case brought against an unlicensed female medical practitioner in Paris, Jacoba Felicie. She was accused of practising medicine 'without the knowledge and authority' of the Faculty of Medicine of the University of Paris, and in her defence, she claimed that:

It is better and honest that a woman wise and expert in the art should visit a sick woman, and should see and inquire into the secrets of nature and her hidden parts, than a man, for whom it is not permitted to see and inquire into the aforesaid, nor to feel the hands, breasts, belly and feet, etc., of women.⁴⁴⁸

Jacoba's attempt to assert her right to practise medicine was unsuccessful, but her argument does appear to reflect a more widespread belief that it was inappropriate for male medical practitioners to conduct physical examinations of women's bodies.⁴⁴⁹

This is supported by evidence in contemporary medical texts. Monica Green suggests that the use of passive language by medical authors in discussing the diagnosis of gynaecological disorders implied a reluctance to conduct intimate physical examinations of

⁴⁴⁷ 'Os vulve et vulva ipsa exsita sunt absque apostemate et duritie... Adunatio horis matricis ita ut non ingrediatur acus. Elevatio horis eiusdem ad superiora', Wellcome MS 532, f. 71r.

⁴⁴⁸ 'Melius est et honestius et par quod mulier sagax et experta in arte visitet mulierem infirmam, videatque et inquirat secreta nature et abscondita ejus, quam homo, cui non licet predicta videre, inquirere nec palpare manus, mammas, ventrem et pedes, etc.', Henri Denifle, ed., *Chartularium universitatis Parisiensis*, 4 vols, vol. ii (Paris: Delalain, 1891-9), pp. 255-267 (p. 264); 'The Faculty of Medicine of Paris VS. Jacoba Felicie', in *Medieval Medicine: A Reader*, ed. by Faith Wallis, Readings in Medieval Civilisations and Cultures, XV (Toronto: University of Toronto Press, 2010) pp. 366-369 (p. 368).

⁴⁴⁹ Monica H. Green, 'Getting to the Source: The Case of Jacoba Felicie and the Impact of the *Portable Medieval Reader* on the Canon of Medieval Women's History', *Medieval Feminist Forum* 42 (2006), 49-62 (p.53).

their female patients.⁴⁵⁰ And even in the fifteenth century, as medical practitioners became more involved in women's medicine, many male physicians delegated the tasks of physical inspection to female attendants and assistants.⁴⁵¹ Guglielmo of Saliceto, operating in the thirteenth century, relied on midwives for the examination and treatment of female genitalia, and while Anthonius Guainerius claimed, in the fifteenth century, to have examined women's bodies, including touching and inspecting their genitalia, on other occasions he employed female assistants to carry out recommended gynaecological treatments.⁴⁵² It is quite likely that a male physician would have delegated the task of an inspection of the vagina for signs of pregnancy to a female assistant.

Tornamira's *Clarificatorium* supports this conclusion about who might conduct a physical examination for changes to the womb as a sign of pregnancy. After discussing constriction of the mouth of the womb and the womb being drawn upwards, the text continues:

Such things as these we cannot know by what the woman says, but we observe that a matron woman might make proof with fingers, because an experienced woman recognises this.⁴⁵³

Tornamira envisaged that a female attendant would confirm these signs of pregnancy so that the practitioner would not have to rely on the testimony of the potentially pregnant woman alone. The description of this woman as a matron woman (*mulier matrona*) implies age and respectability, and experience (*mulier experta*). The text does not specify whether this was experience in assisting with examinations, in medical care, or in having given birth herself. No professional expertise is specified. This description is remarkably similar to the language employed to describe the trustworthy matron women who would diagnose pregnancy in the English legal cases, discussed in Chapter Ten. Whether or not Tornamira's matron woman was a professional midwife or medical practitioner, her involvement supports the assumption that a physician would delegate direct genital examination to female attendants to confirm the presence of vaginal signs of pregnancy.

⁴⁵⁰ Green, *MWMM*, p. 43.

⁴⁵¹ *Ibid*, p. 26, Park, *Secrets*, pp. 100-101.

⁴⁵² Lemay, 'Guainerius', p. 336; Park, *Secrets*, p. 100.

⁴⁵³ 'Ista talia nescire possumus per dictam mulierem sed spectamus quae mulier matrona faciat probam cum digitis quia mulier experta statim cognoscit', MS Sloane 246, f. 198v.

6.2.3. Weight Gain and Belly Growth

Weight gain is one of the signs most commonly associated with pregnancy today, along with an increase in the size of the belly as the foetus grows. Later medieval texts also included these as signs of pregnancy. Avicenna's *Canon* described 'heaviness of the body' as an indication of pregnancy, as did the *De immunditiis mulierum* text, which described pregnant women as being 'weighed down'.⁴⁵⁴ Other signs related to the expansion of the belly. The *De signum conceptionis* text in MS Sloane 284 stated that 'inflation of the navel is a very certain sign' of pregnancy, which the *Holy Maidenhood* text compares to a puffed-up water-skin.⁴⁵⁵

Tornamira's *Clarificatorium* contradicts this association between belly growth and pregnancy by describing 'slenderness of the stomach around the navel' as one of the signs appearing in the first month of pregnancy.⁴⁵⁶ But this text is an outlier: judging by the inclusion of a growing belly as a sign of pregnancy in of these texts, and Valesco de Tarenta's warning to women who assume they are pregnant just 'because the belly has grown and perhaps the menses have been retained', this was evidently a culturally accepted sign of pregnancy.⁴⁵⁷

6.2.4. Changes to the Face and Eyes

Changes to the face could be interpreted as signs of pregnancy. Some of these related to general facial colour, and others were associated with changes to a woman's eyes. Greenness of the face and the eyes appears in several texts: the *Signa pregnationis* text in Wellcome MS 532 described greenness of the whites of the eyes as an indication of pregnancy, and the *Holy Maidenhood* text poetically claims that one's face, during pregnancy, would become 'as green as grass'.⁴⁵⁸ Henry Bayon, writing in the 1930s, associated this greenness with the condition of 'cloasma uterinum', a green tint to the skin

⁴⁵⁴ 'Heaviness of the body', 'gravitate corporis', MS Harley 3808, f. 126r; 'women, after impregnation, are weighed down', 'mulieres post impregnacionem gravantur', Wellcome MS 545, f. 3v.

⁴⁵⁵ 'Inflation of the navel is a very certain sign', 'inflacio umbilici est signum certissimum', MS Sloane 284, f. 76r; 'Inwith, i thi wombe, swel in thi butte the bereth the forth as a weater-bulge', *Holy Maidenhood*, f. 66r.

⁴⁵⁶ 'Slenderness of the stomach around the navel', 'Gracilitas ventris circa umbilicum', MS Sloane 246, f.198r.

⁴⁵⁷ 'Because the belly has grown and perhaps the menses have been retained, therefore at first, for that reason, women believe themselves to be pregnant', 'quia venter crescit forte menstrua retinentur credunt esse pregnantes', Valesco de Tarenta, *Practica*, cap. 16, f. 286v.

⁴⁵⁸ 'The whites of the eyes become green' 'Albumina oculorum viridia fiunt', Wellcome MS 532, f. 71r; 'your rosy face will grow lean and become green as grass', 'thi rudie neb schal leanin ant ase gres grenin', *Holy Maidenhood*, f. 66r.

sometimes associated with pregnancy.⁴⁵⁹ But this greenness appears to have some similarities with green sickness or chlorosis, a disease which was conceptualised in the sixteenth century, and which was claimed to have precedents in ancient Greek medicine. It was associated with suppressed menstruation, digestive problems and a greenness of the face, but as the disease was exclusively associated with young women, generally virgins, the connection of greenness of the face with pregnancy is somewhat contradictory.⁴⁶⁰ More nuanced discussions of possible skin colour in this condition dating from the seventeenth and eighteenth century generally concur that women's faces very rarely turned green with chlorosis: instead, their faces were usually very pale and white.⁴⁶¹ Perhaps the greenness of the face discussed here instead related to this more general change to the facial complexion, associated with paleness and whiteness.

This is supported by other facial signs of pregnancy: the *Liber de matrice*, attributed to Ketham, referred to a negative change to facial colour as a sign of pregnancy:

If the colour of the face is changed further than usual and is inferior to its normal manner, it is a sign of conception.⁴⁶²

The *Signa pregnationis* text also described pregnant women's faces becoming withdrawn and whitened, with '*lentigines*' – freckles or liver spots – appearing.⁴⁶³ Given the connection between the face and the womb discussed in Chapter Three, changes in the womb during pregnancy might be expected to have some effect on the face. This paleness could be a consequence of the woman's internal heat being redirected to nurture the growth of the foetus in the womb.

6.2.5. Changes to the Breasts

Changes to the size of the breasts, and their visual appearance, were important signs of pregnancy, and could have implications for identifying the sex of the child – these will be discussed in section 6.3. The *Signa pregnationis* text in Wellcome MS 532 described 'a

⁴⁵⁹ Bayon, p. 61.

⁴⁶⁰ Helen King, *The Disease of Virgins: Green Sickness, Chlorosis and the Problems of Puberty* (London: Routledge, 2004), pp. 4-5; p. 25.

⁴⁶¹ *Ibid*, pp. 32-33.

⁴⁶² 'Si color faciei ultra modum et secundum morem solitum est mutatus signum est conceptionis', MS Sloane 345, f. 128v.

⁴⁶³ 'Accidunt lentigines et albaras, et facies ipsarum denigrantur', 'freckles and whitening occur, and the face becomes darkened', Wellcome MS 532, f. 71r.

greater than usual swelling of the breasts' as one of its signs of pregnancy.⁴⁶⁴ The *De signum conceptionis* text in MS Sloane 284 suggested that if the operator had:

Seen the heads of her breasts [the nipples] increased, and represented by the usual heat, they know her to be pregnant.⁴⁶⁵

The *Signa pregnationis* text also associated this swelling with a green colour, particularly of the nipples.⁴⁶⁶ The *De signum conceptionis* text placed this colour change at the beginning of pregnancy, stating that the colour of the breasts 'settles to greenness' during the first forty days.⁴⁶⁷

Changes to the size of the breasts during pregnancy were attributed to the accumulation of breast milk during pregnancy, as we have seen in the discussion of cessation of menstruation in section 6.2.1. The menses would travel to the breasts to be formed into milk. This accumulation may also have altered the colour of the breasts, but it is probable that these colour changes were associated with the changes to facial complexion discussed in section 6.2.4.

Breast changes could have been identified by the woman herself, if she knew what to look out for. They could also be identified by a medical practitioner, but whether it was proper for a male physician to inspect a female patient's breasts is debateable. Jacoba Felicie included the breasts amongst the body parts which male physicians were forbidden from touching, but her list extended to the whole female body, including the feet and hands.⁴⁶⁸ Her arguments were not accepted by the court – male physicians were probably more able to interact with female patients than Jacoba suggested. Monica Green states that from the twelfth century onwards, it was considered appropriate for male surgeons to treat disorders of the breast – although it was problematic for clerics to do so, as in the case of John Ottryngton, discussed in Chapter Four.⁴⁶⁹ By extension, it is possible to suggest that male medical practitioners would have been able to conduct a visual inspection of the breasts for signs of pregnancy.

⁴⁶⁴ 'Ingrossatio mamillarum maiora solito', Wellcome MS 532, f. 71r.

⁴⁶⁵ 'Si viderint capita mammarum eis extensa & a calore solito imitata sciunt ipsamesse pregnantem', MS Sloane 284, f. 76r.

⁴⁶⁶ 'Green colour of the same breasts, and especially of the nipples', 'Viridis color ipsarum mamillarum et maxime suorum pupillas', Wellcome MS 532, f. 71r.

⁴⁶⁷ 'For the first forty days the colour of the breasts settles to greenness', 'primis quadraginta diebus color mamillarum sedit ad viriditatem', MS Sloane 284, f. 76r.

⁴⁶⁸ Denifle, *Chartularium*, p. 264.

⁴⁶⁹ Green, *MWMM*, p. 91.

6.2.6. Digestive Symptoms

Changes to the digestive processes might create signs of pregnancy, as pregnant women were expected to experience nausea, vomiting, and cravings for strange foods. This relates to modern women's experiences: recent studies suggest that nausea and vomiting are the most commonly experienced symptoms of pregnancy.⁴⁷⁰ These signs were often accompanied by references to other digestive symptoms: Avicenna's *Canon* referred to nausea, heartburn, and a bad appetite after a month or two of the pregnancy.⁴⁷¹ Changes to the appetite were frequently described: the *De signum conceptionis* text describes a 'diverse appetite, and particularly for fruits', and the *Signa pregnationis* text refers to 'an appetite for horrible foods'.⁴⁷² Some texts also mentioned appetites for non-food items: the *Liber de matrice* described cravings for coal and earth.⁴⁷³ Joan Cadden relates this to the disorder of *kissa*, described in the *Gynaecia* of Soranus: this digestive condition was associated with pregnancy, and involved an upset stomach and cravings for earth, charcoal, and unripe fruit.⁴⁷⁴ This parallels the modern concept of pica, a condition commonly associated with pregnancy.⁴⁷⁵

Later medieval ideas about digestion and appetite changes during pregnancy could be explained by the processes of conception and foetal formation, as heat was diverted from the rest of the woman's body to aid in the formation of the foetus. Heat would be drawn from the stomach, disrupting the normal functioning of digestion. Bettina Bildhauer also presents an explanation for food cravings during pregnancy, drawn from the *Secrets of Women* text, suggesting that as toxic menstrual blood was enclosed within the woman's body during pregnancy, the proximity of these 'venomous fluids' might poison the stomach, leading to digestive problems.⁴⁷⁶ A medical practitioner could easily question a female

⁴⁷⁰ Sheba Jarvis and Catherine Nelson-Piercy, 'Management of Nausea and Vomiting in Pregnancy', *British Medical Journal* vol. 342 no. 7812 (2011), 1407-1412 (p. 1407).

⁴⁷¹ 'And a little nausea, and heartburn... then they are agitated by a bad appetite after a month or two months', 'et parva nausea, et eructatione aceto... Deinde commoventur appetitus mali post mensem aut duos menses', MS Harley 3808, f. 125v.

⁴⁷² 'Appetitus diversorum & maxime fructuum', MS Sloane 284, f. 76r; 'appetitus ciborum oribillium', Wellcome MS 532, f. 71r.

⁴⁷³ 'Si aliquae cibaria concupiscit sicut terram vel carbones: signum est conceptionis', 'if someone desires earth or coal as if they are suitable for food: it is a sign of conception', MS Sloane 345, f. 128v.

⁴⁷⁴ Cadden, *Sex Difference*, p. 29; Soranus, *Gynaecology*, pp. 49-50.

⁴⁷⁵ Adrien Kettaneh et al, 'Pica and Food Craving in Patients with Iron-Deficiency Anemia: A Case-Control Study in France', *The American Journal of Medicine* 118 (2005), 185-188 (p. 187).

⁴⁷⁶ Bildhauer, p. 71.

patient about her digestive symptoms, and a number of pregnancy regimens might be implemented to assist women in managing these symptoms.

6.2.7. Changes to the Pulse

Pregnancy was thought to affect a patient's pulse. Assessing the pulse – the practice of sphygmology – was a common diagnostic technique in the later middle ages, but by this time, the complexities of Graeco-Roman and Galenic sphygmology had been lost. The descriptions of pulses associated with pregnancy are therefore relatively simple. Some texts describe patterns in the pulse, as in the *De signum conceptionis* text: 'the pulse is made faster and becomes different'.⁴⁷⁷ John of Gadsden's *Rosa Anglica* describes a pulse 'fast in the arms, and the collar bone under the throat' as a sign of pregnancy.⁴⁷⁸ This sign is included in the *Ad cognoscendum pregnantes* text from the *Dome of Urynes* compendium, which appears to derive from Gadsden's text. The fast pulse is described in various ways in different versions of this text: it is described as beating 'moche', beating 'swight' or swiftly, and as 'seeything'.⁴⁷⁹ The idea that a strong pulse indicated pregnancy may relate to the heat produced by the woman's body as the foetus grew within the womb.

These texts describe the pulse being measured at the arms, and the collar bone. Taking the pulse at the arm or the wrist was a normal part of medical diagnosis in the later middle ages, and it was apparently appropriate for a male physician to examine a female patient in this way.⁴⁸⁰ The simple descriptions of pulses included in these texts raise the possibility that a non-specialist could use the pulse to recognise the presence of pregnancy. The *Ad cognoscendum pregnantes* text appeared in several volumes owned by non-specialists – including Trinity College, MS O. 1. 57, owned by the gentry Haldenby family. It is possible that ordinary people in possession of these texts may have carried out basic sphygmology to identify a pregnancy.

⁴⁷⁷ 'Pulsus velossitatur & facti diversus', MS Sloane 284 f. 76r.

⁴⁷⁸ 'If the pulse is fast in the arms and the collar bone under the throat always from that time she is pregnant', 'si pulsus sit velox in brachijs & furcella sub guttore semper tunc pregnans est', Bodleian, MS Bodley 608, f. 157v.

⁴⁷⁹ TC, MS O. 1. 57, f. 125r; Oxford, Bodleian, MS Add B. 60, f. 55r; Bodleian, MS Hatton 29, f. 67r.

⁴⁸⁰ Demaitre, *Medicine*, p. 47.

6.3. Signs and Symptoms of the Sex of the Child

Information about signs and symptoms of the sex of an unborn child accompanied signs of pregnancy. Differences in the location and physiology of male or female foetuses within the womb meant that a pregnant woman would experience different symptoms, or display different external signs, depending on the sex of the foetus. There are three key principles which can explain the signs and symptoms associated with each of the two sexes, as discussed in Chapter Three. Firstly, while foetal growth was driven by heat, male foetuses were thought to be hotter than female foetuses because of fundamental differences in the complexions of the two sexes. A male foetus within the womb would therefore create more heat, affecting the woman's body and its functions. Secondly, male foetuses were formed on the right side of the womb, whereas female foetuses would be formed on the left. The growth of a male foetus would influence the right side of the body more, whereas the growth of a female foetus would influence the left side of the body. Finally, cultural assumptions may have had some influence: as we shall see, a number of negative symptoms were associated with carrying a female child, which can perhaps be explained by the negative perception of the birth of daughters in an era when having sons was crucial to providing an heir. However, these differences could also be caused by differential levels of heat between male and female foetuses: it is difficult to determine these causes when the texts do not provide detailed explanations for them.

6.3.1. Pain at the Moment of Conception

A woman might begin to perceive the sex of the child at the moment of conception, depending on the side of the body in which different sensations were felt. A short, anonymous, fifteenth-century text on identifying the sex of the child appearing in Wellcome MS 549, described pain on different sides of the body:

If a woman pains in the right part at conception, she will bear a son. If in the left, a daughter.⁴⁸¹

The pain would apparently be felt where the two seeds came together: the author apparently envisaged that this would be a painful and perceptible process.

⁴⁸¹ 'Si mulier dolet in dextro parte conceptionem pariet filium. Si in sinistra filiam', Wellcome MS 549, f. 229v.

6.3.2. Changes to the Face

As discussed in section 6.2.4, a foetus in the womb could affect a woman's face, changing her complexion and her eyes. The sex of the child in the womb could influence these changes, probably because of the level of heat exuded by the child. Most texts agree that a woman carrying a male child would experience more positive facial changes, caused by the extra heat associated with a male child: her complexion would be more elegantly coloured, her face would take on a reddish tone, and she would generally appear healthy. By contrast, a colder female child would have a negative effect on the appearance. This idea originated in the Hippocratic *Aphorisms*, and appeared in the *Trotula* corpus, amongst other texts. The exact wording used to describe the complexion differed: in the *Liber de matrice*, attributed to Johannes de Ketham, a woman's face is described as 'red and light' if she was carrying a male child, whereas the *De conceptione mulieris urine* text stated that a male child would 'bestow brilliance to the face'.⁴⁸² Johannes de Tornamira interpreted this complexion change as a disorder to be treated, stating that:

a woman carrying a male is well coloured, a woman carrying a female is badly coloured, so that for many women, see that she is able to eat a good regimen and she might be restored.⁴⁸³

This is the only instance I have encountered of a symptom or sign of pregnancy being assessed as a disorder to be treated with medical intervention, as William MacLehose suggested might be the case.⁴⁸⁴

6.3.3. Changes to the Breasts

As discussed in section 6.2.5, growth of the breasts was a reliable indication of pregnancy. Differences between the left and right breasts might indicate whether the child was male or female. Firstly, a larger right breast indicated a male child, and a larger left breast indicated a female child, as in several different texts. This included the *Conditions of Women* text from the *Trotula* corpus, as in Wellcome MS 544:

⁴⁸² 'If you wish to know whether a male or female has been conceived: if the colour of the face is red and light ... then it is a male', 'item si vis scire utrum masculus vel femina sit, vel est concepta. si color faciei est rubeus levis ... tunc est masculus', MS Sloane 345, f. 128v; 'A male foetus might bestow brilliance to the face', 'conceptum maris insumat splendore faciei', MS Sloane 783 B, f. 184r.

⁴⁸³ 'Mulier portans masculum est bene colorata in facie portans femellam male colorata ut plurimum quia potest esse boni regiminis et equetur', MS Sloane 246, f. 199r.

⁴⁸⁴ MacLehose, 'Tender Age', Chapter 1, Para. 60.

It is said that a woman who carries a male child is well coloured, and the right breast is larger. This is true for a female child: she is pale and has a larger left breast.⁴⁸⁵

The cause of this probably relates to the idea of a male child growing on the right side of the body, and a female child on the left, thereby increasing the amount of heat generated on respective sides of the body.

Other signs of the sex of the child in the breasts related to the colour of the nipples, as in the *De signum conceptionis* text:

Observe the heads of the breasts [the nipples]: if they are changed to blackness in their colour you will begin to know that the pregnant woman carries a female. If it is true that they are changed to redness, you know that in the womb will be a male.⁴⁸⁶

Tornamira's *Clarificatorium* described the same changes:

The heads of the breasts are changed to redness if she carries a male, and if to blackness she carries a female.⁴⁸⁷

Texts on the topic of the signs of pregnancy often demonstrate variations as a result of copying errors, but this is apparently another instance of a negative change associated with a female foetus.

6.3.4. Shape of the Belly

Growth of the belly was a common sign of pregnancy, but different changes to the shape of the belly might indicate the child's sex. In medieval texts, two signs relating to belly shape could indicate the sex of the child; firstly, whether the belly protruded to the left or the right side, and secondly, its overall shape. As with other distinctions relating to the sides of the body, protrusion of the left side of the belly was associated with a female foetus, and protrusion to the right with a male. For example, the *Liber de matrice*, attributed to Johannes de Ketham, stated the following:

⁴⁸⁵ 'Dicit quae mulier qui gerit masculum. Bene colorata est & dextra mamilla grossior est. Quod vero feminam: pallida & sinistram mamillam grossiorem habet', Wellcome MS 544, f. 35v.

⁴⁸⁶ 'Rursum aspiciunt capita mammarum si futurum earum color conversus in nigredinem sciunt quae pregnans portet feminam. Si vero in ruborem conversus fuerit & sciunt quae in ventrem sit masculo', MS Sloane 284, f. 76v.

⁴⁸⁷ 'Et capita mamillarum mutantur ad rubedinem si portat masculum et si ad nigredinem portat feminam', MS Sloane 246, f. 119v.

If you wish to know whether a male or female is conceived, if the colour of the face is red and light, and you know the right part of the stomach is rounded ... then it is a male child.⁴⁸⁸

The *De conceptione* text presented more evidence for why a male foetus might cause changes to the right side of the body during pregnancy:

A male foetus might bestow... an uplift to the right side of the body – this is a sign that the parts of the foetus joining together are on the right side, and also swelling and a rounded belly on the right side. Contrary signs signify a female foetus.⁴⁸⁹

The growth of the foetus on a particular side of the body causes this side to be raised up and rounded as a result. This would alter the appearance of the left side of the belly during a pregnancy with a female child, and the right side with a male child. While it is written in Latin, this is quite a simple text, which does not include much in the way of theory. The inclusion of this theoretical explanation may suggest the association of different sides of the body with foetuses of different sexes was commonly known.

The sex of the child might also be indicated by the overall appearance of the belly. In the *De signum conceptionis* text in MS Sloane 284, the following distinction is drawn:

Also, knowing about those who are [pregnant] with males and females, by examining the belly of a woman, whereby if they become full and round and they become fair, the belly is hardened, and they become a splendid colour, and they know that she is carrying a male. If it is true that her stomach is long and lax and more hideous in colour than in other women or men, they know that the pregnant woman is carrying a female child.⁴⁹⁰

The juxtaposition between a well coloured, fair and rosy belly associated with a male foetus, and a hideous colour associated with a female foetus is similar to other changes related to the face and the breast. But the additional distinctions between belly shape may also relate to complexional differences between male and female foetuses. Joan Cadden suggests that

⁴⁸⁸ 'Si vis scire utrum masculus vel feminam sit libera est concepta. Si color faciei est rubeus levis et venter in dextera parte tunc scit est rotundatur ... tunc est masculus', MS Sloane 345, f. 128v.

⁴⁸⁹ 'Conceptum maris insumat ... suffulcione dextre signa quae per dextras fetus iungencia partes atque tumor ventris in dextera parte rotundas ffeminum fetum contraria signa significat', MS Sloane 783 B, f. 184r.

⁴⁹⁰ 'Scientia quoque eorum in masculis & feminis est via aspiciant ventrem mulieris quod si fiunt plenus & rotundus ac pulcher fiunt quae obduratus & ipsa fuit colore splendida & sciunt quae pregnans gerat masculum. Si vero fuerit in ventre eius longitudo & laxacio & seditas apparuerat quae in colore eius aliqua feminas vel masculos sciunt quae pregnans portet feminam', MS Sloane 284, f. 76r.

the meat of female animals was understood to be more lax or loose than that of male animals in the later middle ages, because their cooler, moister complexions affected the composition of their flesh. This principle may apply here: during pregnancy, the cooler complexion of a female foetus would affect the woman's body, causing her belly to become longer and laxer, whereas the heat of a male child would have a stronger influence, as the heat shaped her belly and made it grow rounder and fuller.

6.3.5. Bodily Symptoms and Sensations

Some of these signs of pregnancy relate to the differing physical and emotional effects of carrying a male or female child. Johannes de Tornamira's *Clarificatorium* associated negative symptoms with carrying a female child, including headaches and horripilation – the sensation of body hair standing on end.⁴⁹¹ He also claimed that women carrying a female foetus had a higher libido during pregnancy:

A woman carrying a male child does not delight in coitus, the thought of which abhors her; carrying a female she rejoices in coitus and longs for coitus, on account of windiness of the womb.⁴⁹²

Libidinousness was sometimes considered to be a particularly female quality in the later middle ages, influenced by ideas inherited from Graeco-Roman medical texts.⁴⁹³ However, as society sought to regulate sexual behaviour on the basis of Church teachings, sexual insatiability was a potentially dangerous quality.⁴⁹⁴ The author of the *De immunditiis mulierum* text even suggested that:

Women who desire coitus excessively, when they are pregnant many of them may lose their children. Because they supply thin sperm because of appetite [for coitus].⁴⁹⁵

Some authors, including Albertus Magnus, suggested that pregnancy might raise a woman's libido, but sexual intercourse during pregnancy inspired particular anxieties. Many earlier medieval penitential texts forbade sexual intercourse during pregnancy, and some medical

⁴⁹¹ 'A woman carrying a female ... more often has some horripilations, and head ache', 'portans femella... magis solito habens aliquam horripilaciones et doloris capitis', MS Sloane 246, ff. 199r-v.

⁴⁹² 'Mulier portans masculum non delectatur in coytu ymago qui abhorret ipsum, portans feminam gaudet in coytu et appetit coytum propter ventositates matricis', MS Sloane 246, f. 199v.

⁴⁹³ Salisbury, 'Gendered Sexuality', pp. 84-86, 93.

⁴⁹⁴ Karras, *Sexuality*, p. 107; Brundage, *Law*, p. 350.

⁴⁹⁵ 'Mulieres qui nimis appetunt coijtum quando pariunt, multos ammittant filios. Quia per appetitum sperma subtile subiciunt' Wellcome MS 545, f. 3v.

texts suggested that it might harm the foetus.⁴⁹⁶ Sexual appetite during pregnancy might therefore be very dangerous to an unborn child.

The overriding association between a female foetus and negative effects probably explains the increased desire for coitus amongst women carrying female children. This is slightly contradictory: within medieval concepts of physiology, excess heat was usually associated with increased desire, and the formation of a male foetus generated more heat than the formation of a female.⁴⁹⁷ On the basis of physiology alone, we might expect women carrying a male child to be more lustful, but cultural associations between negative bodily effects and female foetuses prevail here. This is particularly relevant for a notably misogynistic clerical text like the *De immunditiis mulierum*, as its readers were unlikely to participate in medical practice or interact with potentially pregnant women.

6.4. Signs and Symptoms: Conclusion

Texts containing signs and symptoms of pregnancy can be interpreted as evidence of the ways in which medical theory was put into practice – or at least, was thought to be practicable. Theoretical understandings of pregnancy provided information about the perceptible elements of the process, so that a diagnosis could be reached. It seems that much of this information was intended for the use of physicians, appearing in long, theoretical encyclopaedic medical texts, and within recipe collections or texts probably owned by medical practitioners. But while some texts explained the rationale behind these signs and symptoms, many did not. It was possible to put the principles of these texts into practice without mastering any of the underlying theory. Many of these signs and symptoms could have been identified by anybody, including potentially pregnant women themselves. It is feasible that they were memorised or circulated orally, and were put to use with no reference to these texts.

References to both signs and symptoms offers an insight into interactions between medical practitioners and their patients in recognising pregnancy. For these signs and symptoms to be useful in diagnosing pregnancy, this relationship would have been quite

⁴⁹⁶ Ibid, pp. 451-452, 156.

⁴⁹⁷ Robert Allen Rouse, "'Some Like it Hot': The Medieval Eroticism of Heat', in *The Erotic in the Literature of Medieval Britain*, ed. by Amanda Hopkins and Cory James Rushton (Woodbridge: D. S. Brewer, 2007), pp. 71-81 (p. 77).

collaborative. Signs of pregnancy relating to changes to a woman's body or her facial appearance could be identified by merely looking at a woman, or perhaps conducting a brief tactile examination. But the symptoms of pregnancy, relating to bodily sensations and emotions, could only have been identified with the testimony of a potentially pregnant woman – and sometimes that of her husband. To identify a pregnancy, medical practitioners and their female patients would have to work together, in observing and discussing these bodily changes. Some symptoms relate to intimate experiences for the potentially pregnant women, particularly those associated with the time of coitus. For these to be useful indicators of pregnancy, a strong degree of trust between female patient and male medical practitioner was necessary. The identification of some of the signs of pregnancy – particularly those concerning the breasts and the genitals – would also require an intimate bodily examination.

Katharine Park suggests that the use of visible signs on a woman's face and body to identify a medical condition might indicate male physicians' mistrust of female patients: a woman's testimony about her symptoms had to be confirmed with a physician's visual examination of the body.⁴⁹⁸ While it is possible some degree of mistrust of women's motives may have influenced some diagnostic encounters, the identification of the intimate signs and symptoms included within these texts would have necessitated trust in women's testimony, and collaboration between women and their medical practitioners. These texts imply the collaboration sometimes extended to include a woman's husband as well. Rather than interpreting these texts on the signs and symptoms of pregnancy as evidence of physicians' attempts to wrest control of pregnancy away from women, I would argue instead that they demonstrate the collaborative nature of pregnancy diagnosis, as women sought to find out as much as possible about a possible pregnancy with the support of trained practitioners.

⁴⁹⁸ Park, *Secrets*, p. 104.

Chapter 7: Uroscopy and Pregnancy

Diagnosis

Yif thou wilt knowen well & truly whether a woman be with child other none
withouten lokyng of water...⁴⁹⁹

Uroscopy, the inspection of a patient's urine by sight, taste, and smell to diagnose a medical condition, was a common technique in later medieval medicine. As a substance excreted from the body, urine was understood to provide an insight into the conditions within. Like the signs and symptoms discussed in the previous chapter, it therefore offered the opportunity to identify internal changes related to pregnancy.⁵⁰⁰ Consequently, various uroscopic signs of pregnancy and the sex of the foetus were included in medical texts. Urine was understood as a waste product of the three-stage process of digestion. Stage one, from the stomach, produced the faeces. Stage two, in the liver, produced red bile, black bile and urine. The third stage of digestion occurred in the members of the body, producing a number of residues including the sediments in urine. Urine therefore offered an insight into two of these stages. It was also easy to collect and examine, as it was regularly emitted in sufficient quantities. Uroscopy therefore replaced Galen's complicated emphasis on pulse diagnosis and became one of the most important techniques for finding out information about the body's internal state in the later middle ages, to identify disruptions caused by ill health, and in pregnancy.⁵⁰¹

Uroscopic diagnosis required a practitioner to collect the patient's urine and inspect it, in a clear glass container.⁵⁰² This inspection considered the colour, consistency, contents,

⁴⁹⁹ MS Sloane 249, f. 192r; MS Sloane 2463, f. 216r. This second manuscript has been edited by Beryl Rowland. Rowland, *Guide to Health*. Examples discussed in this chapter are included in Appendix 4, in tables corresponding with each section number.

⁵⁰⁰ Moulinier-Brogi, *L'uroscopie*, p. 38.

⁵⁰¹ Ibid, pp. 58, 68; Faith Wallis, 'Inventing Diagnosis: Theophilus' *De urinis* in the Classroom' *Dynamis* 20 (2000), 31-73 (p. 35).

⁵⁰² Moulinier-Brogi, *L'uroscopie*, pp. 85-86.

and quantity of the urine to provide a diagnosis.⁵⁰³ The different parts of the urine would be assessed, and the nature of any substances found within it. Sometimes the taste and smell of the urine would be considered too, although I have not found references to this as a method of pregnancy diagnosis. The practitioner could then offer a diagnosis to the patient and proceed with treatment accordingly. Uroscopy was used to identify a wide variety of conditions, including kidney pain, types of fevers, apostemes, broken veins, menstruation, and even imminent death. Pregnancy featured regularly in uroscopic texts, and thirty-seven of the manuscripts considered for this thesis included references to uroscopic signs of pregnancy or the sex of an unborn child. Uroscopy may have been seen as the 'default' way of identifying pregnancy. A test for pregnancy included in the *Sicknesses of Women* text in MS Sloane 249 which involved giving the woman mead to drink and assessing her reaction, included in the epigraph above, strongly implied that uroscopy was seen as the normal way of diagnosing pregnancy. Diagnostic 'tests' like this one might therefore be seen as comparatively unusual.

Women's urine could indicate more about a pregnancy: how many months pregnant she was, the sex of the foetus, and whether the foetus was dead in the womb. One text, from the *Dome of Urynes* compendium, discussed in Chapter Five, even instructed the practitioner in discerning the urine of a pregnant woman from that of a pregnant cow.⁵⁰⁴ Perhaps this was in response to concerns that a patient might try to trick a practitioner by substituting animal for human urine.⁵⁰⁵ These texts offer a range of uroscopic signs of pregnancy, demonstrating diversity in their sources: this was not just one text copied multiple times. Uroscopic signs of pregnancy sometimes appeared alongside information about other techniques for identifying pregnancy, in texts on the signs of pregnancy, and in encyclopaedic medical texts. Several uroscopy texts also contained non-uroscopic signs of and tests for pregnancy, including the *Ad cognoscendum pregnantes* text discussed in Chapter Five. It seems that uroscopy might be combined with other diagnostic techniques, to confirm a diagnosis of pregnancy with certainty.

⁵⁰³ Rawcliffe, *Medicine and Society*, pp. 46-49.

⁵⁰⁴ 'If it be coves water that is with calve. it is esy to knowe fro a wommannys water that is with childe for the drestes or contentys of the coveswater shal be mucche gretter than the womannys water In as much as the cowe is mucche moor beste than a womman & fouler of complexioun', Bodley MS Add B. 60, f. 52v.

⁵⁰⁵ Stolberg, p. 46.

As with any prescriptive medieval medical text, it is never certain that uroscopic methods of pregnancy diagnosis were ever put to use. However, given the frequency of uroscopic diagnosis in later medieval medical practice and the wide range of uroscopic texts referring to different signs of pregnancy, it is very likely that uroscopic methods of diagnosing pregnancy were used by medical practitioners and other interested individuals. It is even possible that women could have used uroscopy to diagnose their own pregnancies. The use of these methods may represent a different context for diagnostic practice to that suggested by the signs and symptoms texts discussed in the previous chapter, because uroscopy did not require the practitioner to interact with the potentially pregnant woman's body. No physical examination was needed, because the urine was thought to reveal a patient's internal condition. A uroscopic practitioner could even conduct a diagnosis without meeting a patient, although transporting urine could disrupt its appearance, texture and contents.⁵⁰⁶ This may have been an attractive prospect for male medical practitioners: with uroscopy, there would be no need for a male practitioner to negotiate the difficult boundaries between what was proper and what was improper in examining female patients.

The following discussion will consider the circumstances of diagnosis suggested by later medieval uroscopy texts, but the primary focus will be on the contents of the texts themselves, and what they can tell us about the ways in which theoretical knowledge about women's bodies was put into practice. The three sections of this chapter will address the colours (section 7.1), contents (section 7.2), and qualities (section 7.3) of urines which were thought to occur in pregnant women, and those which might indicate the sex of the unborn child, the death of a foetus, and the length of time a woman had been pregnant.

7.1. Colours of Urine

Taking into account the colours of urine was one of the most significant aspects of medieval uroscopic practice: the colour indicated the overall condition of a patient's body, and it was relatively easy to identify the colours associated with particular conditions.⁵⁰⁷ Changes to the colour of urine were related to digestion: they reflected the degree of digestion, concoction, and heating ongoing within the body, and its overall digestive

⁵⁰⁶ Moulinier-Brogi, *L'uroscopie*, pp. 96-98.

⁵⁰⁷ Demaitre, *Medicine*, p. 47; Moulinier-Brogi, *L'uroscopie*, p. 9; Stolberg, p. 33.

strength. Excessive digestion would cause a dark yellow, orange or red, very condensed urine, whereas a lack of digestion would cause a pale, thin urine.⁵⁰⁸ As effective digestion was associated with good health, different colours of urine offered an insight into the health of a patient's body.

There were around twenty different named colours of urine, based on a scheme set out by Gilles de Corbeill, a thirteenth-century French physician. The urines fell somewhere along a spectrum of colours ranging from very dark, black urine, through red urines, yellow urines, through to white urine.⁵⁰⁹ But the descriptions in the texts, and the colours to which they refer, are not always as clear as they might appear: a urine described as white referred to a clear urine, not a milk-coloured one; red and gold urine might refer to the same colour, and a urine described as black was probably just a very dark coloured urine.⁵¹⁰ This may have provided some interpretative problems for contemporary users, but authors describe the colours of urine carefully in the texts: they included coloured diagrams, and various metaphors were deployed to assist in interpretation, facilitating the use of these diagnostic techniques by amateurs and trained professionals.⁵¹¹

7.1.1. Clear or White Urine

White coloured urine was frequently associated with pregnancy in later medieval uroscopy texts. Clear, white, urine was associated with a lack of digestion within the body, and it is possible that this was caused by pregnancy and foetal growth diverting heat away from digestion.⁵¹² This sign appeared in several different texts, occasionally with reference to different stages of conception. Some texts simply associate white urine with pregnancy, as in the version of the *Urina mulieris* text, of the *Dome of Urynes* compendium, which appears in Trinity College, MS O.1.57:

Yf a woman be with childe, her water is white.⁵¹³

This sign also appears in the illustrated treatise on urines in MS Sloane 783 B, which states that urine:

⁵⁰⁸ Moulinier-Brogi, *L'uroscopie*, p. 60; Stolberg, p. 50.

⁵⁰⁹ Tavormina, 'Twenty-Jordan Series', p. 41.

⁵¹⁰ Stolberg, pp. 38-39.

⁵¹¹ Rawcliffe, *Medicine and Society*, pp. 47-48.

⁵¹² Moulinier-Brogi, *L'uroscopie*, p. 60; Stolberg, p. 50.

⁵¹³ TC, MS O. 1. 57, f. 125r.

Al White with out fevery in a man other woman other whiles colour of the reynes,
other whil conscvyngs of child.⁵¹⁴

In this text, white urine might indicate pregnancy, or pain in the kidneys. This section of the text was illustrated with a urine jar, shown in Figure 1. According to the description in the text, the urine in the bottom of the jar would once have been white or silver, but the pigment in the ink has apparently been discoloured over the centuries so that this white urine appears to be black.⁵¹⁵ The copyist or colourist might also make mistakes in illustrating these sorts of uroscopy texts, mislabelling colours or adding the wrong colour to a named jar. These mistakes, along with the instability of materials seen here, offers some insight into the difficulties with identifying the colours of urine.

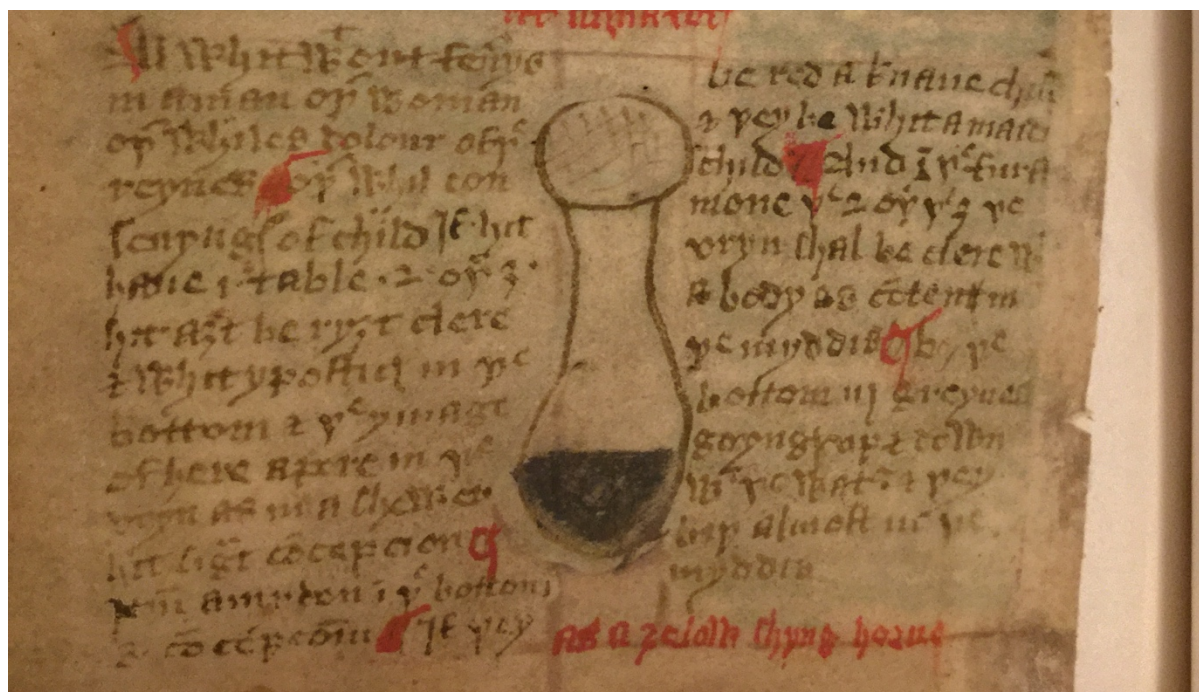


Figure 1: Urine flask diagram, MS Sloane 783 B, f. 224v

Colours might mean different things depending on the sex of the patient, creating particular difficulties with diagnosis from women's urine. The text appearing in MS Sloane 783 B – and another version in Latin in MS Bodley 648 – both state that white urine could only mean pain in the kidneys in men, but the same sign could also mean pregnancy in

⁵¹⁴ MS Sloane 783 B, f. 224v.

⁵¹⁵ This may have been a lead-white pigment, which is known to discolour over time. Stephanie Lussier, 'An Examination of Lead White Discolouration and the Impact of Treatment on Paper Artifacts: A Summary of Experimental Testing', *The Book and Paper Group Annual* 25 (2006), 9-12 (p. 9).

women's urine.⁵¹⁶ This would complicate diagnosis by uroscopy in women, and the texts offer no assistance in distinguishing between the two conditions: presumably a practitioner would either ask his patient about her symptoms, or use other methods of identifying pregnancy to confirm the evidence presented in her urine.

Sometimes, white urine was associated with the first moments after conception. This is the case with the *Ad cognoscendum praegnantis* text, from the *Dome of Urynes* compendium. The operator must examine the first urine after coitus:

Take the first water after she have conceyved with man if that the water be clere she is with childe. if it be thik she is not with childe.⁵¹⁷

Clear urine probably refers to a light, clear coloured urine, and thick urine might refer to the viscosity, as well as colour density, of the urine.⁵¹⁸ As with the signs and symptoms discussed in Chapter Six, bodily changes of pregnancy would be perceptible from the moment of conception in a woman's urine. Perhaps the urine was affected by changes in the distribution of heat in the body to aid foetal formation immediately after coitus. For this instant diagnosis to be carried out, a woman would have to know that the first urine after coitus was important in establishing a diagnosis. She may have read this in a text herself, or she may have been advised by a medical practitioner. A woman who suspected she may have conceived might set aside this first urine, to be examined by a professional practitioner, although storing the urine might cause changes over time, complicating diagnosis.⁵¹⁹ These signs were quite simple, allowing a knowledgeable member of the household, or the woman herself, to conduct an immediate diagnosis. This immediate indication of whether a woman was pregnant or not might appeal to those who wished to avoid conception, who might want to terminate a pregnancy as quickly as possible.

7.1.2. Citrine Urine, Descending to White

Some texts describe urine of pregnant women as citrine, or yellow coloured, descending to white. Sometimes references were made to a white substance within the urine, compared to carded cotton or cotton fibres – further consideration of this substance

⁵¹⁶ 'White urine without fever in men and women sometimes signifies pain in the kidneys; sometimes in women, impregnation', 'Urina alba sine febre & in viris & in mulieribus aliquando dolorem renum. aliquando inpregnacionem mulierum significat', MS Bodley 648, f. 6r.

⁵¹⁷ Bodleian, MS Add. B. 60, f. 55r. See Appendix 4, section 7.1.1. for variations.

⁵¹⁸ Stolberg, pp. 32-33.

⁵¹⁹ Moulinier-Brogi, *L'uroscopie*, p. 87.

in the urine follows in section 7.2.2. In the later middle ages, it was fairly common for texts to describe multiple elements within the urine, as practitioners were expected to take into account several elements to identify a patient's condition.

The description of citrine urine declining to white as a sign of pregnancy appears in Avicenna's *Canon medicinae*, associated with the start of a pregnancy:

And urine of someone who is pregnant in the beginning of the pregnancy it is citrine, declining to sub-albus [white], as if there is cotton scattered in the middle of it.⁵²⁰

This was included in various later medieval texts, including John of Gadsden's *Rosa Anglica*, and Johannes de Tornamira's *Clarificatorium*.⁵²¹ Avicenna's text does not specify what is meant by the colour of the urine 'declining to white'. This might describe variations of the colour within the urinal glass so that it was citrine, or yellow, at the top, and subalbus, or white, at the bottom. Alternatively, this decline in colour might occur over time as the urine settled within the jar, gradually transforming from yellow to white. I would suggest gradations of colour within the urine is more likely, as the operator is not instructed to observe the urine after a certain period of time.

7.1.3. Red as Gold with a Circle of Water Above

Gold-coloured urine with a circle of water above it was also recorded as a possible sign of pregnancy in the *Urina mulieris* text from the *Dome of Urynes* compendium:

Uryne of a woman yt ys rede as golde with a cerkyl of watyr a bovyn hyt by tokynythe that sche ys with chylde.⁵²²

In Middle English, red could refer to a gold colour, as it does here; the term circle or *circulus* refers to the upper portion of the urine in a flask.⁵²³ One of the principles of uroscopy was that different sections of the urine, from top to bottom, offered information about a corresponding section of the body, from head to toe: in this interpretation, the circle would be correlated with the head or the upper torso.⁵²⁴ Perhaps the paleness at the top suggests

⁵²⁰ 'Et urina quidem pregnantis in principio pregnationis est citrina ad sub albedinem declinans quasi sit cotum in medio eius sparsum', MS Harley 3808, ff. 126r-v.

⁵²¹ See Appendix 4, section 7.1.2.

⁵²² Wellcome MS 409, f. 63v.

⁵²³ Tavormina, 'Twenty-Jordans', pp. 41-42; Stolberg, p. 41; 'Red', Middle English Dictionary Entry, Middle English Compendium <https://quod.lib.umich.edu/m/middle-english-dictionary/dictionary/MED36281/track?counter=1&search_id=1111258> [accessed 7th June 2019].

⁵²⁴ Moulinier-Brogi, *L'uroscopie*, pp. 70-71.

that digestion was working less effectively in the upper body, if foetal formation was occurring in the lower parts of the body.

The *Urina mulieris* text also associated a different condition with gold urine: the idea of ‘talent to man’, meaning ‘appetite’, ‘desire’, or ‘passion’: ‘Uryne of woman colored as bryzte golde tokenyth talente to man’.⁵²⁵ It would apparently be possible to assess the levels of a woman’s sexual desire or libido from her urine, which may have helped assess whether she was likely to conceive.⁵²⁶ While this second reference to gold urine might complicate pregnancy diagnosis, the text distinguishes between the two different colours: the sign for pregnancy was related to urine ‘rede as golde’, this urine is ‘colored as bryzte gold’: an experienced practitioner, or a confident reader, would be able to differentiate between the two – particularly if the red-gold urine also included a watery circle at the top of it.⁵²⁷ A patient’s testimony could also be used to confirm the indications given by the urine.

7.1.4. Strongly Coloured Urine

According to Tornamira, the sex of the child might have affected how strongly coloured a woman’s urine was, and a male child would contribute to a stronger coloured urine:

A woman pregnant with a male child has urine that is a little more coloured, with a purer substance.⁵²⁸

This distinction could be caused by the increased level of heat produced by a male child, compared to that of a female child, as discussed in Chapter Three, which had various different effects on a woman’s body. This extra heat might contribute to a more efficient digestive process in the woman’s body, thereby causing strongly coloured urine. The reference to a ‘purer substance’ in the urine supports this: substance in the urine was a by-product of inefficient digestion. But if digestion was more efficient when a male child was

⁵²⁵ MS Selden Supra 73, f. 111r.

⁵²⁶ ‘Talent’, Middle English Dictionary Entry, Middle English Compendium <https://quod.lib.umich.edu/m/middle-english-dictionary/dictionary/MED44433/track?counter=1&search_id=971642> [accessed 7th May 2019].

⁵²⁷ ‘Bright’, Middle English Dictionary Entry, Middle English Compendium <<https://quod.lib.umich.edu/m/middle-english-dictionary/dictionary/MED6031>> [accessed 7th May 2019].

⁵²⁸ ‘Pregnans autem de masculo habet magis coloratam modicum cum puriori substantia’, MS Sloane 246, f. 198v.

being carried, this might result in a relatively pure substance, compared to that seen with a female child.

7.1.5. Lead-Coloured Urine

One final colour of urine was associated with pregnancy in the *Ad cognoscendum praegnantis* and *Urina mulieris* texts: lead coloured, heavy urine as a sign of the death of the foetus. Foetal death would have been an unfortunately common occurrence in the later middle ages, and knowledge of such an event would be extremely valuable to a pregnant woman, allowing her to prepare for a miscarriage or to use one of the procedures recorded in medical manuscripts to expel a dead foetus from the womb.⁵²⁹ This indicator is consistent across most of the texts, as in this example in the *Urina Mulieris* text in MS Rawlinson C.506:

Urine of a woman that is of the color & wezt of led if she be with child it betoknith that the child is ded with in hydr.⁵³⁰

The colour is described as lead coloured, which might imply the urine was a dark grey colour, but in one text this urine is described as white, and the weight of lead.⁵³¹ Grey is a deathly colour, but it is possible that these texts were referring to white lead, or lead carbonate, as used in contemporary paint pigments, which would suggest a milky white urine.⁵³² This lack of specificity demonstrates the difficulty with identifying the exact meaning of the metaphors employed in these uroscopy texts, and suggests that metaphors could be interpreted quite subjectively. Whatever the colour described, it evidently suggested serious levels of corruption in the body: if she was not pregnant, the *Urina mulieris* text stated that this sign indicated that the womb was rotten, but some versions of the text suggest that this was a sign of imminent death.⁵³³

⁵²⁹ Several examples appear in the *Fasciculus medicine* attributed to Johannes de Ketham: and 'she might be given these things for easy delivery when the foetus is dead: the leaves of juniper having been boiled with water and honey. And when drunk this will draw out the dead foetus... milk of a dog drunk with wine and honey will expel the foetus at once', 'Detur facili partu hec est quando fetus est mortuus folia iuniperi cum aqua & melle decocta. & bibita fetum mortuum e ducunt... lac caninum ad vino & melle bibitum statim expellit fetum', MS Sloane 345, f. 129r.

⁵³⁰ MS Rawlinson C. 506, f. 58r.

⁵³¹ It is described as 'whyte of coloure' in MS Hatton 29, f. 60r.

⁵³² Daniel Thompson, *The Materials and Techniques of Medieval Painting* (New York: Dover Publications, 1956), pp. 92-94.

⁵³³ Woods, p.1; 'And she be not with child & the water stynk it be toknith that the moder is rotyn', MS Rawlinson C. 506, f. 58r; 'Uryne lik wyzt leed & sche be wt chylde be tokneth === ye chylde is ded with inne here & if sche be nozt with chylde & ye water stynke it tokneth the moder is rotyn with inne here & a flux & deth====', Cambridge, Magdalene College, Pepys Library MS 1307, f. 60v.

7.2. Contents of Urine

It was also important for a uroscopic practitioner to consider the contents of a patient's urine when attempting diagnosis. Contents might take the form of cloudy residues, sediments at the bottom of the glass, or granules or grains within the liquid. The contents within the urine were understood to be the superfluities produced within the tissues of the body during the third stage of digestion, which were expelled with the liquid urine – the product of the first stage of digestion. These substances could therefore provide information about the processes within a person's body to those hoping to diagnose an illness, or a condition like pregnancy. Descriptions of urine in pregnancy sometimes describe several different types of contents appearing together, which could complicate the task of a uroscopic practitioner. Distinctions in the regions of the urine, and the shapes and colours of the objects within would have to be identified.

7.2.1. Clear Stripes and 'Troubleness'

According to the *Urina mulieris* text, clear stripes in a 'troubled' urine could indicate a pregnancy:

Urine of a woman that is with child hyr water shall have som cler strypis & the most party shalbe troblin & the troblines shalbe redish in the maner of tawne.⁵³⁴

The clear stripes could relate to the clear white urine discussed above as a sign of pregnancy. The terms 'trobyl', 'troblynys' and 'troublyness' used in these texts refers to a turbid, murky quality to the urine. The Middle English term 'trouble' can be translated as 'turbid, murky, stirred up ... full of dregs, mud, sand', and the term 'troubling' refers to 'agitation, stirring up; an unsettled state, turbulence, storminess'.⁵³⁵ This description probably refers to a cloudy urine, containing a substance within it like disturbed sand in water. Perhaps this was because more of the substance created during the third stage of digestion was left behind in the urine when a woman was pregnant, because her body was unable to digest efficiently.

⁵³⁴ MS Rawlinson C. 506, f. 57v. For other examples, see Appendix 4, Section 7.2.1.

⁵³⁵ 'Trouble', Middle English Dictionary Entry, Middle English Compendium <<https://quod.lib.umich.edu/m/middle-english-dictionary/dictionary/MED47228>> [accessed 9th May 2019]; 'Troubling', Middle English Dictionary Entry, Middle English Compendium <https://quod.lib.umich.edu/m/middle-english-dictionary/dictionary/MED47234/track?counter=1&search_id=982238> [accessed 9th May 2019].

The colour of this cloudiness was described as ‘somewhat reddish, y leke to tanne’, suggesting that it was tawny coloured.⁵³⁶ This is the colour of tanned leather, which was dyed with substances drawn from oak bark, and the *Urina mulieris* text employs this metaphor to assist the operator in making a diagnosis of pregnancy. Associating the colour of this substance with an easily recognisable item would facilitate uroscopic diagnosis.

Different texts associated cloudiness in urine with different stages of pregnancy. The *Urina mulieris* text associated it with the start, following a description of ‘troubleness’ in the urine with the statement that ‘thys token shal not faile as sone as the childe hath lif’.⁵³⁷ Avicenna’s *Canon* and the texts which derive from it contradict this: they associated cloudiness with the end of pregnancy:

When the urine of a pregnant woman is moved and disturbed, then they are at the end of pregnancy. And when it is not moved, they are at the beginning of pregnancy.⁵³⁸

Perhaps this contradiction was the result of ideas becoming corrupted as they were transmitted between texts, or of different texts offering different rationales for understanding pregnancy.

The *Urina mulieris* text also related cloudiness in urine to the sex of the foetus, depending on the position of the ‘troubleness’ or cloudiness:

Yf hyt be a knave chylde the thykenys schal hovyr a bovyn. If hyt be a mayde chylde the thykenys woll drawe donwarde yn to ye bottom.⁵³⁹

The association of upward motion in the urine with a male child, and downward motion with a female child also appears in one of the diagnostic tests discussed in Chapter Eight, which involved identifying the sex of the child by testing a woman’s urine with a piece of pine wood to see if it would float or sink: if the pine wood sank to the bottom, the woman was carrying a female child, but if it floated upwards, she was carrying a male child. There may be some parallel principles with this uroscopic sign of the sex of the unborn child.

⁵³⁶ MS Rawlinson C. 506, f. 57v.

⁵³⁷ Bodleian, MS Add. B. 60, f. 54r.

⁵³⁸ ‘Et quando movetur urinale pregnantis et conturbatur tunc est in fine pregnationis Et quando non conturbatur est in principio pregnationis’, MS Harley 3808, f. 126v.

⁵³⁹ Wellcome MS 409, f. 63r.

7.2.2. Sediment

Various different types of sediment could appear in pregnant women's urine, and the position or consistency of the sediment might offer additional information about the length of the pregnancy or the sex of the child. Sometimes this sediment was described by the Greek term *hypostasis*, or as *sedimenta*, or *residentia*. Various technical terms existed to describe its various different shapes and forms according to Moulinier-Brogi: *petaloides*, the form of scales; *oroboides*, grains, *crimnoides*, like flour, and *furfureae*, like a ring.⁵⁴⁰ Petros Bouras-Vallianatos also refers to Byzantine medical texts describing 'bubbles', *pompholyges*, in urine.⁵⁴¹ The texts discussed here rarely made use of these technical terms, which may have made it easier for a less educated audience to understand them. Instead, they adopted a number of different descriptive strategies for urines indicating pregnancy.

Some texts present a simple description of a substance in urine as a sign of pregnancy, as in Tornamira's *Clarificatorium*:

The third sign of pregnancy is urine with a pure substance, and it is not mixed in.⁵⁴² This substance is distinct from the 'troubleness' discussed in section 7.2.1, which was described as being mixed into the urine.

Several texts describe a sediment like carded cotton or wool, strewn through the middle of a pregnant woman's urine. This is often described within the yellow urine descending to white, discussed in section 7.1.2. This sign of pregnancy first appears in Avicenna's *Canon medicinae*, and was later included in several of the texts which derived from it, including John of Gadsden's *Rosa Anglica*:

And sometimes hypostasis is torn apart through all [of the urine], and it is as if wool had been carded through every part of it, and if it is torn apart by windiness then the *pannus* [a term for a piece of cloth, which could also refer to cloudiness in the eye] has twistings and rumbling and swelling, and when it is from windiness then it is naturally occurring urine, but in pregnancy it is greatly coloured, whence says Avicenna.⁵⁴³

⁵⁴⁰ Moulinier-Brogi, *L'uroscopie*, p. 61.

⁵⁴¹ Petros Bouras-Vallianatos, 'The Medical Corpus of the Byzantine Physician John Zacharias Aktouarios', (unpublished doctoral thesis, Kings College London, 2015), p. 56.

⁵⁴² 'Tertium signum est urina cum pura substantia et non confusa', MS Sloane 246, f. 198v.

⁵⁴³ '& aliquando ypostasis est per totum divulsa ac si lana esset carpinata per totum & si sit divulsa a ventosite tunc pannus habet torciones & rugitus & extenciones & quando est de ventosite tunc est urinam incolge naturali sed in pregnante est tincta magis unde dicit Avicenna', MS Bodley 608, ff. 157v-158r. For *pannus*, see

The text presents two possible meanings of sediment torn through urine like carded wool: this could indicate ‘windiness’, a ‘morbid vapour’ within the body; or pregnancy, if the urine was strongly coloured.⁵⁴⁴ In some texts, this carded cotton sediment was accompanied by black grains, as in the *Ad cognoscendum pregnantis* text:

And 3yf yt apere in a womans uryne as yt wer cotun or wolle with granes goyng up and downe then yt be tokenes consefyng.⁵⁴⁵

To make these signs of pregnancy useful for the operators of these texts, attempts were made to compare the types of hypostasis with substances which these people would have been familiar with: things like carded cotton or carded wool – common fabric fibres in later medieval Europe.⁵⁴⁶ The *Prose Treatise on Urines* in MS Bodley 682 refers to this same sediment as to ‘flostini serici crudi’, ‘flowers of raw silk’: this manuscript compilation was put together for Gilbert Kymer, Prior of Salisbury Cathedral and Chancellor of the University of Oxford: perhaps this comparison to a higher status substance was intended to signify the status of the text’s owner.⁵⁴⁷

The source of this substance like carded cotton, and the grains that went along with it, was probably inefficient digestion during pregnancy, which would reflect the fact that this substance also appeared in the urine of those suffering from the possibly morbid condition of windiness. The *Urina pregnantium* text presented an alternative source for this substance: the seed emitted at the time of conception:

Citrine declining to white having something like cotton in the middle of it, from the seed.⁵⁴⁸

This idea also appears in Walter Agilon’s thirteenth-century *De contentis urinarum*, which stated that:

Spermatice contents, coagulated in the manner of a ball, lying in the bottom signifies a woman to have conceived.⁵⁴⁹

Juhani Norri, *Dictionary of Medical Vocabulary in English, 1375-1550: Body Parts, Sicknesses, Instruments, and Medicinal Preparations* (London: Routledge, 2016), p. 619.

⁵⁴⁴ Norri, *Dictionary*, p. 1256.

⁵⁴⁵ Bodleian, MS Hatton 29, f. 67v.

⁵⁴⁶ Elisabeth Crowfoot, et al., *Textiles and Clothing, c.1150-c.1450*, 2nd Edn (Woodbridge: Boydell, 2002), p. 17.

⁵⁴⁷ Bodleian, MS Bodley 682, f. 37v.

⁵⁴⁸ ‘Est citrina ad albedinem declinans habens quasi cotum in medio eius de spermate’, MS Bodley 608, ff. 157v-158r.

⁵⁴⁹ ‘Item spermatice contentem coagulatum admodum bombatis residens in fundo mulierem concepisse significat’, Vatican City, Biblioteca Apostolica Vaticana fondo Palatino Latino MS 1304, f. 37r.

This contradicts the conventional understandings of conception, discussed in Chapter Three: if conception had occurred, the male and female seeds were supposed to be drawn upwards into the womb, and would not be released in the urine. Other uroscopy texts refer to seed in the urine as a sign of recent sexual intercourse, in men and women's urine, but not as a sign of conception.⁵⁵⁰ Perhaps this is a case of an author attempting to map meaning onto an accepted, received sign of conception, without fully understanding the underlying theoretical principles.

Putting the information in these prescriptive texts into practice may not have been easy. Readers of these texts today would be quite sceptical about their reliability in identifying pregnancy and might question what a medieval reader would think if these signs were not seen in a pregnant woman's urine. An attempt to rationalise this possible unreliability appears in the addition to the Trotula text in MS Bodley 682, owned by the Gilbert Kymer. This addition expands on the information for identifying the sex of the child in the *Conditions of Women* text with several tests for and signs of pregnancy, including a reference to a uroscopic sign of pregnancy:

Avicenna said that in conception it is as if carded wool is in the bottom of urine. But such hypostasis rarely appears, whence we do not have a certain sign of pregnancy by means of urine, because such urines which we find written about, they will not be found these days, or at any rate rarely.⁵⁵¹

This statement appears to acknowledge the fallibility of the knowledge passed on from ancient authorities, in stating that this sign identified by Avicenna 'will not be found these days, or at any rate rarely'. This judgement was probably made on the basis of the compiler's experience in medical practice, having examined the urines of pregnant women without identifying any trace of this substance like carded wool. And yet, the sign was not omitted, but was incorporated within this text: the author deals with the perceived unreliability of this sign of pregnancy by suggesting that it may once have been useful, even if this was no longer the case. Deference to medical authorities was such that this was still seen as relevant information, even if no longer reliable. The author manages to account for

⁵⁵⁰ 'Urina vero turbida in qua semen apparuerit in fundo mulierem recentem cum viro significat', 'Urine truly clouded in which semen appears in the bottom signifies a woman recently with a man', MS Bodley 648, f. 6v.

⁵⁵¹ 'Avicenna dicit quae in concepcione qua lana carpinata in fundo urine. Sed talis ypus [ypostasis, hypostasis] raro apparet unde per urinam certum indicium non habemus quia tales urinas quas scriptas invenimus non invenientur istis diebus vel certe raro', MS Bodley 682, f. 188v.

the unreliability of this particular sign of pregnancy without directly disparaging the authority of an earlier medical writer.

7.2.3. Sediment and the Length of a Pregnancy

Hypostasis or sediment might also provide some indication of how far along in the pregnancy a woman might be, depending on how much of the substance was in her urine. The texts make a simple distinction: a substance would be present in the urine in the first, second, or third months of pregnancy, and from the fourth month this substance would be much greater, as in the following example from the *Urina praegnantium* text in MS Hatton 29:

Urine of pregnant women. If she will have had it for one month or two or three, it should be very clear and white. It ought to have hypostasis in the bottom. If in truth she has had it for four months the urine should be clear with hypostasis white and great in the bottom.⁵⁵²

A divide was envisaged between two parts of pregnancy, one spanning the first three months and the other covering the rest of the pregnancy. The *Urina praegnantium* text also suggests a change in the quality of this sediment, which would become 'glossy' or glowing. Usually, the first movement of the child would be perceived by the fourth month of pregnancy, and in the early modern period these movements were associated with the child receiving its soul, which might account for the difference in the urine at this point in the pregnancy.⁵⁵³ These ideas about ensoulment and quickening were beginning to develop in the later middle ages: following the Aristotelian tradition, ensoulment was thought to occur in stages as the foetus developed in form: this then led to the first foetal movements.⁵⁵⁴

⁵⁵² 'Urina praegnantium si unum mensem vel duos vel tres habuerit debet essere multum clara & albam ypostasim debet habere in fundo. Si vero quatuor habuerit menses urina debetur esse serena & ypostocis alba & grossa in fundo', MS Hatton 29, f. 77r. For further examples, see Appendix 4, section 7.2.3.

⁵⁵³ Stolberg, p. 85.

⁵⁵⁴ Pamela Huby, 'Soul, Life, Sense, Intellect: Some Thirteenth-Century Problems', in *The Human Embryo: Aristotle and the Arabic and European Traditions*, ed. by G. R. Dunstan (Exeter: Exeter University Press, 1990), pp. 113-122 (p. 118); D. M. Balme, 'Human is Generated by Human', in *The Human Embryo: Aristotle and the Arabic and European Traditions*, ed. by Dunstan, pp. 20-31; G. R. Dunstan, 'The Human Embryo in the Western Moral tradition', in *The Status of the Human Embryo: Perspectives from Moral Tradition*, ed. by G. R. Dunstan and Mary Seller (London: King Edward's Hospital Fund for London, 1988), pp. 39-57 (pp. 47-49); Peter Byrne, 'The Animation Tradition in the Light of Contemporary Philosophy', in *The Status of the Human Embryo*, ed. by Dunstan and Seller, pp. 86-110 (pp. 97-98).

These movements were thought to occur at around forty-six days for males, or ninety-six for females.⁵⁵⁵ The time taken for female foetuses to form may account for this difference in the urine after three months, but this would not account for this difference in the urine at four months for both sexes.

7.2.4. Larger Particles

Slightly larger particles within the urine, referred to as *athomi* or *granula* in Latin, or attome, granes, mottes, or gravell in Middle English, might also indicate a pregnancy. This substance differs from the sediment or hypostasis: some texts describe these two different substances appearing together in the urine, as in the *Ad cognoscendum pregnantis* text discussed in section 7.2.2, which referred to ‘granes’ going up and down in the urine.⁵⁵⁶ The *Prose Treatise on Urines* in MS Bodley 682 described both a sediment like carded cotton, and ‘atoms clinging together and sticking to the bottom’ of the urinal glass as characteristics of the urine of a pregnant woman.⁵⁵⁷ Like the sediment, these particles were probably caused by inefficient digestion, caused by a growing foetus.

These particles are described in various different ways, with texts taking into account their appearance, quality, position within the urine, and motion. Some describe the atoms clinging to the bottom of the glass, as in the *Prose Treatise*. Others describe their motion: if they ascend and descend, then it is a sign of conception. This was a common sign of pregnancy in the later middle ages, appearing in Tornamira’s *Clarificatorium*:

The third sign [of pregnancy] is urine ... having grains ascending and descending if it is looked at immediately or if it is agitated.⁵⁵⁸

John of Gadsden’s *Rosa Anglica* offered a more complex description, taking into account the number and movement of the grains, and also their colours as indications of the sex of the foetus:

If three grains are found in the middle of urine it is a most certain sign of conception. Another, if the grains ascend and descend and they decline to whiteness it is a sign that the conceived child is female, if to yellowness or redness it is a sign that the

⁵⁵⁵ Orme, p. 14.

⁵⁵⁶ MS Hatton 29, f. 67v.

⁵⁵⁷ ‘But as much as carded cotton, which is also seen like a small flower of raw silk’, ‘Sed quantum ad cotum carpinatum quia etiam videtur quasi flosculus serici crudi’; ‘and with atoms clinging together and sticking to the bottom’, ‘cum attome conglobantur et fundo adherent’, MS Bodley 682, f. 37v.

⁵⁵⁸ ‘Tertium signum est urina ... habent grana ascendentia et descendentia si statim respiciatur vel si agitetur’, MS Sloane 246, f. 198v.

conceived child is male. And sometimes these granules appear under the circle, sometimes in the middle, sometimes in the bottom but more frequently in the middle.⁵⁵⁹

The distinction between red granules associated with a male child and white or blue granules associated with a female child appears in several later medieval uroscopy texts, and is often elaborated with reference to the shape of the grains. The red grains signifying a male child are usually described as round, whereas the white or blue grains associated with a female child are flat and thin. A metaphor is once again used to describe these grains, which are compared to fish scales – another natural substance with which most readers or operators would have been familiar. These descriptions may be related to two of the types of sediment described by Moulinier-Brogi, the *petaloides*, shaped like flat petals, and the *oroboides*, shaped like grains.⁵⁶⁰ The association of the sex of the child with the colour and shape of the particles appears in part of the *Dome of Urynes* compendium, as follows:

Motis ... if thai gader to gyder in a gobet rownd & ly thik in the botom or under the cercle if thai be redych & rownd it toknyth a knave chyld. if thai be whit or bloo & thin as scalis it toknyth a mayd chyld.⁵⁶¹

The rationale behind the differing colours and shapes of these granules might be related to the belief that a male child would generate more heat during gestation than a female child, thereby shaping the granules more fully into a sphere, widely held to be a more perfect shape. This may also reflect the same principles as in the description of the pregnant woman's belly shape offering an indication of the sex of the child discussed in Chapter Six, which associated a round belly with a male child, and a long and thin belly with a female child. The colour of these grains might also relate to this concept of heat – red was associated with fire, a hot element, and blue with water, a cool element.⁵⁶²

⁵⁵⁹ 'Si in medio urine inveniuntur tria grana certissimum est signum conceptionis. Item si grana ascendant & descendant & declinant ad albedinem signum est quae conceptum feminam si ad citrinitatem vel rubedinem signum est quae conceptus masculinum. Et aliquando ista granula apparent sub circulo aliquando in medio aliquando in fundo sed frequentius in media', MS Bodley 608 f. 158r.

⁵⁶⁰ Moulinier-Brogi, *L'uroscopie*, p. 61.

⁵⁶¹ MS Rawlinson C. 506, ff. 54v-55r. For other examples, see Appendix 4, section 7.2.4.

⁵⁶² Michael Huxtable and Ronan O'Donnell, 'Medieval Colour', in *The Oxford Handbook of Later Medieval Archaeology in Britain*, ed. by Christopher Gerrard and Alejandra Gutiérrez (Oxford: Oxford University Press, 2018), pp. 742-755 (p.743).

7.3. Qualities of the Urine

As well as the colours and contents of urine, a practitioner would also assess the overall quality of the urine, to diagnose a patient's condition. Two particular qualities of the urine were associated with pregnancy: reflective urine as an indication of pregnancy, and heavy urine as a sign that the child was dead within the womb.

7.3.1. Reflective Urine

If a woman's urine was shiny or reflective enough to show an image of the observer in its surface, this showed that she was pregnant. This sign of pregnancy appears in a number of texts, including the *Urina mulieris* text of the *Dome of Uryne* compendium:

And tak hed & thou se thi face in womans water & she be with out fevers it be toknith that she is with chyld.⁵⁶³

Several Latin texts compared this reflective quality to a mirror, as in the *De urina pregnantis* text in MS Sloane 783 B: 'an image will appear in the urinal glass as in a mirror'.⁵⁶⁴

These comparisons demonstrate the actions an operator would have to carry out: the urine would be placed in the urinal glass, and the operator would then look into it as they might look into a mirror. If they could see their reflection, this was a sign the woman was pregnant. Sometimes the sign was recorded with the qualification that this was only a reliable sign of pregnancy if a woman did not have a fever, as in this text from the *Dome of Uryne* compendium in MS Hatton 29:

And take hede 3yf thou se thi face in the womans water and sche be wyth oute fevyre then yt betokenneth that the woman is with chyld and yf thou se thi face therein and sche have the hote fevyr then yt betokenneth deth 3yf thou se thi face in a mans uryne that hath no fevyr than yt betokenneth longe in seknes.⁵⁶⁵

If a female patient had a fever, or if the patient being examined was male, a reflection in the surface of the urine indicated very severe illness, or even death. Reflective urine was apparently caused by heat, either from a febrile illness, or the heat generated during pregnancy. This heat may have thickened the urine, thus making it seem reflective. The different possible outcomes of this uroscopic sign demonstrate the importance of

⁵⁶³ MS Rawlinson C. 506, ff. 58r-58v.

⁵⁶⁴ '& apparebit ymago in urinale vase sicut in speculo', MS Sloane 783 B, f. 184v.

⁵⁶⁵ MS Hatton 29, f. 60v.

contextualising a patient's gender and bodily condition before conducting a diagnosis. Direct engagement with a patient's body was necessary: diagnosis at a distance, or even anonymous diagnosis, would be impossible in these circumstances.

Some texts offer an insight into who might be expected to conduct this act of uroscopic diagnosis, in the terms used to refer to the person looking into the urine to see if it was reflective. These varied from text to text. In most copies of the *Urina mulieris* text, the operator is generally described as 'yu' or 'thou', implying that whoever was reading this text – or was listening to it as it was read aloud to them – would be the one to look into the urine and conduct this act of diagnosis.⁵⁶⁶ The *De signum conceptionis* text in MS Sloane 284 described a man seeing his reflection in the urine: 'a man ought to see his impression in the urine just as in a mirror'.⁵⁶⁷ But the version of the *Urina mulieris* text in Trinity College, MS O. 1. 57, described self diagnosis by a woman: 'yf she ne may see her selfe in the uryvall as in a myrrour she hath conceyved'.⁵⁶⁸ This disparity suggests that a variety of individuals could have diagnosed a pregnancy by recognising this particular sign, and perhaps the other signs outlined in uroscopic pregnancy diagnosis texts.

Some parallels could be drawn between diagnosis by looking for reflections in urine and the divinatory practice of lecanomancy: looking into a dish of water to identify images or patterns in the surface to find out information, particularly about the future.⁵⁶⁹ This is remarkably similar to the practices of the *trovantuli*, described by Anthonius Guainerius: he accused these lay practitioners of looking into urine not only to diagnose pregnancy, but also to tell whether they were married, whether their parents were still alive, and whether they had ever been pregnant before.⁵⁷⁰ Guainerius condemned these actions, but it seems this idea of reflective urine as a sign of pregnancy was more in keeping with the diagnosis of

⁵⁶⁶ 'And take hede yf thou see thy face in the water', MS Selden Supra 73, f. 111v.

⁵⁶⁷ 'Homo vi debit in urina impressionem suam sicut in speculo', MS Sloane 284, f. 76r

⁵⁶⁸ TC, MS O.1.57, f. 125r.

⁵⁶⁹ Tony Hunt, ed., *Writing the Future: Prognostic Texts of Medieval England* *Savoirs Médiévaux* 24 (Paris: Éditions Classiques Garnier, 2013), p. 20; Armand Delatte, *La catoptromancie Grecque et ses dérivés* (Liège: H. Vaillant-Carmanne; Paris: E. Droz, 1932), p. 8.

⁵⁷⁰ 'Trovantuli, however, are those people who not only affirm truly that they can recognise impregnation from the parts of urine, but also if a woman has ever conceived or the number of births, whether she is married or if she has a father or a mother living, and many other things', 'trovantuli tamen istis in partibus ex urinis impregnacionem non modo cognoscere affirmat verum si mulier concipit umquam ac natorum numerum maritum alium an habuerit pater atque mater vivat et plurima talia', Wellcome MS 557, f. 77v.

a present condition, than with divining the future. The concern is more with the quality of the urine itself and whether it is of a reflective consistency, not the images seen within.

7.3.2. Heavy Urine

A final quality of urine associated with pregnancy was heavy urine as a sign of the death of the foetus. This appears in the *Urina mulieris* text, in conjunction with the description of lead coloured urine, discussed above in section 7.1.5, on the colours of urine.

Urine of a woman that is of the color & wezt of led if she be with child it betoknith that the child is ded with in hyr And she be not with child & the water stynk it be tokenith that the moder is rotyn.⁵⁷¹

This heavy, lead coloured urine was a sign that something dangerous had occurred in a woman's body, whether that was the death of the foetus, or corruption of the womb, the 'moder'. Knowledge of this would allow a medical practitioner to offer some assistance to the patient, by administering a remedy to expel a dead foetus, discussed in Chapter Two, or by applying remedies and therapies to counter the rotting in the womb. This is the only uroscopic sign relating to the weight of the urine which I have encountered in the course of this research, and it is possible that the weight of the urine was considered secondary to the lead colour, as colour was a more conventional category within later medieval uroscopy.

7.4. Uroscopy Conclusions

The urine of a potentially pregnant woman was a rational focus for scrutiny, within contemporary frameworks of medical diagnosis. A pregnancy would have significant disruptive effects on the functioning of normal bodily processes, and as the urine was thought to provide an insight into the state of these, it would therefore offer valuable information to anyone attempting to diagnose a pregnancy. As this discussion suggests, there was a variety of different uroscopic signs associated with pregnancy and identifying the sex of the child: five relating to the colours of urine, four relating to the contents, and two relating to the qualities of urine. This seems to demonstrate the development of a number of different independent diagnostic ideas on this subject. Uroscopic texts including information on pregnancy were apparently quite popular: thirty-seven of the fifty-seven manuscripts containing medical methods of diagnosis referred to uroscopic diagnosis.

⁵⁷¹ MS Rawlinson C. 506, f. 58r.

Women's urine would not be considered alone. Bodily signs of pregnancy, and diagnostic tests often appeared in uroscopy texts, and uroscopic signs appeared in general texts on pregnancy diagnosis. Uroscopy cannot therefore be understood in isolation: it was one of many techniques which medical practitioners, ordinary lay people, and potentially pregnant women might use to identify the bodily changes caused by pregnancy.

Chapter 8: Diagnostic Tests for Pregnancy

A number of diagnostic tests to recognise pregnancy appear in the later medieval medical texts discussed in this thesis. By diagnostic tests, I am referring to procedures in which the operator was instructed to carry out actions to test the patient's body, or bodily fluids, for indications of a particular medical condition to offer a diagnosis. These tests differ from the uroscopic methods discussed in the previous chapter, and the signs and symptoms discussed in Chapter Six, because of the active role required of the operator in conducting diagnosis. For example, rather than merely observing the urine, the tests discussed in section 8.1.2 required the practitioner to test its quality by floating pine wood within it, or by filtering it to search for particular contents. Rather than simply asking a woman about her bodily sensations, the tests discussed in section 8.2 involved administering substances to the woman's body in various ways, and assessing how she reacted. Her answers might then be used to assess the internal state of her body, indicating whether she was pregnant or not.⁵⁷²

Tests like these were common in later medieval medicine: they appeared in various medical texts, and could be used by physicians, other medical practitioners, and ordinary lay people. Tests were recommended for identifying various medical conditions, not just for pregnancy. In Chapter Two, a test for infertility was discussed – this involved testing a childless couple's urine to see which of them was infertile.⁵⁷³ Additionally, Moulinier-Brogi describes a test for leprosy devised by Arnaud de Villanova, which involved placing urine onto blood taken from a potentially leprous person: if the urine flowed, this was a sign of pregnancy.⁵⁷⁴ Gilbertus Anglicus recommended testing the water in a person's eye to assess whether it was possible to treat their cataracts, and various tests for determining whether a patient would die appeared in later medieval manuscripts.⁵⁷⁵ Diagnostic tests like these

⁵⁷² Examples discussed in this chapter are included in Appendix 4, in tables corresponding with each section number.

⁵⁷³ Green, *Trotula*, pp. 94-95; Bodleian, MS Add A. 106, f. 136v

⁵⁷⁴ Moulinier-Brogi, *L'uroscopie*, p. 16.

⁵⁷⁵ Demaitre, *Medicine*, p. 166; One fifteenth-century example appeared in a manuscript owned by St Augustine's Abbey, Canterbury: 'For man that es wounded ... take the syke pysse & lat a woman mylke there on that hasse a cnawe childe for a man & if it be a woman that es seke the mylke of a maydin chyld & if he mylke falle to grownde he schal die & if it flete he schal live', MS Wood Empt. 18, f. 45r.

provided certainty by differentiating between possible causes and conditions, allowing medical practitioners to diagnose their patients accurately, and administer appropriate treatments for ambiguous conditions.

A variety of diagnostic tests for pregnancy circulated in later medieval medical texts, developed to assist medical practitioners with the difficult task of identifying pregnancy in women's bodies. As several of the key signs and symptoms of pregnancy might also indicate other potentially fatal conditions, diagnostic tests would help practitioners to confirm an initial diagnosis of pregnancy. Tests to identify the sex of an unborn child would offer more information about this hidden process. By testing the woman's bodily fluids, and her reactions to certain substances, these diagnostic texts provided another means of identifying changes to the body brought about by pregnancy, and the influence of the sex of the foetus.

The diagnostic tests discussed in this chapter exhibit some seemingly odd or unorthodox features, but they would not have been categorised as magical, or divinatory like the methods discussed in Chapter Nine. These diagnostic tests did not reject learned medical theory: while they often appeared in medical texts without explanations of their functions, they corresponded with accepted theories of humoral and complexional medicine. Diagnostic tests for pregnancy could have been related to the category of *experimenta*: medical remedies or procedures which circulated in medical texts and amongst medical practitioners, which were recommended on the basis of experience or empirical proof alone.⁵⁷⁶ But more frequently these procedures were related to the principles of complexional medicine, even if these underlying principles are not stated explicitly, and they may have been copied from earlier theoretical medical texts.⁵⁷⁷

This chapter explores the underlying principles behind the diagnostic tests for pregnancy included in the manuscripts viewed for the purposes of this thesis. In total, thirty-four manuscript volumes contained at least one diagnostic test for pregnancy. These tests relate to the woman's body, or its bodily fluids – characteristic of medical tests. Sometimes particular objects or substances were required to test women's bodily fluids, but not so that operators could draw on occult, hidden powers inherent in these items. Instead, their

⁵⁷⁶ Jones, 'Complexio', pp. 108-110.

⁵⁷⁷ Ibid, p. 124.

properties were used to assess the quality of the bodily fluids, which were the focus of these tests. Some tests employed *materia medica*, administered to a woman's body to test her reaction. Several of these procedures are derived from the principles and practices employed in ancient medical texts, particularly the Hippocratic *Aphorisms*, but medieval authors and copyists often omitted explanations and did not always copy procedures accurately. This might create doubt about the orthodoxy of these procedures, but where the origins and explanations of these tests can be reconstructed, they relate back to the principles of learned medical theory.

The use of diagnostic tests can be understood as part of an active process of pregnancy diagnosis. Practitioners would subject women's bodies to diagnostic procedures, actively manipulating, testing and observing bodily fluids for indications of pregnancy. One text even recommended that these diagnostic interventions should occur without a woman's knowledge or consent. The efficacy of these tests might appear doubtful with the benefit of modern biomedical knowledge about pregnancy, but these procedures demonstrate a strong interest in recognising a pregnancy and identifying foetal sex in the later middle ages, as well as the commitment of practitioners to achieving a diagnosis. This chapter will assess the active tests carried out on women's bodily fluids to identify a pregnancy and the sex of the unborn child, before considering the tests a practitioner might carry out on a woman's body for indications of the same.

8.1. Testing Bodily Fluids

Visual inspection was the most common method of assessing the qualities of bodily fluids for indications of medical conditions, as discussed in Chapter Seven on uroscopy. However, active tests of a potentially pregnant woman's urine and her breast milk also circulated in later medieval medical texts. Using these procedures, the medical practitioner would be able to identify qualities in these bodily fluids which were associated with bodily changes during pregnancy, and these signs were interpreted to identify a pregnancy and the sex of a foetus.

8.1.1. Urine

I have encountered four methods for actively testing the urine for indications of pregnancy and the sex of an unborn child in later medieval medical manuscripts: two of these required ageing the urine, to identify certain changes and substances within it; and

two required the operator to place particular objects – metal items, or a piece of pine wood – into the urine. The way the urine interacted with these objects would depend on the internal conditions of the woman’s body, and by interpreting these interactions, it would be possible to identify whether a woman was pregnant, or the sex of the foetus.

Storing Urine

The simplest active test of a potentially pregnant woman’s urine required storing the urine for a certain amount of time before examining it visually, rather than examining it immediately as in normal uroscopic practice. ‘Aged’ urine as an indicator of pregnancy was recommended by Avicenna and the Hippocratic authors, and the procedure outlined in the *De signum conceptionis* text in MS Sloane 284 is typical of this.⁵⁷⁸ The operator was to place a woman’s urine by a window for a certain length of time before inspecting it:

And if the urine, in a translucent urinal, shall be placed in the window and remains there without disturbance for a period of half a league [a measurement of distance – perhaps here, the time taken to walk half a league] and looseness will appear within it and there may be small atoms everywhere which are moving.⁵⁷⁹

This procedure suggested that leaving urine in sunlight would change the urine, allowing the practitioner to judge whether the woman was pregnant or not. The term *leuca*, league, is a traditional measurement of distance which could mean anything from 2.29 km to 4.57 km in the middle ages.⁵⁸⁰ Perhaps in this context, this refers to the length of time taken to walk half a league. According to Forbes, texts usually recommended storing urine for a few days before additional signs of pregnancy became visible, and suggested that these additional changes in pregnant women’s urine could be explained by bacterial growth in the urine, stimulated by the hormones of pregnancy.⁵⁸¹

One procedure recommended testing the aged urine further by filtering it through cloth, and examining the substances found within. Anthonius Guainerius described this procedure in his *Tractatus de matrice*:

⁵⁷⁸ Thomas Forbes, ‘Early Pregnancy and Fertility Tests’, *Yale Journal of Biology and Medicine* 30 (1957), 16-29 (p. 16).

⁵⁷⁹ ‘Et si urina in urinali vitreo ponatur in fenestra & resedeat ibidem tranquillo per spatium dimidium leuce & apparebunt in ea resolutiones at si essent attomi paulatim ubi quae moventes’, MS Sloane 284, f. 76r.

⁵⁸⁰ Ronald Edward Zupko, ‘Measurement of Distances’, in *Trade, Travel, and Exploration in the Middle Ages*, ed. by John Block Friedman and Kristen Mossler Figg (Abingdon: Routledge, 2016), pp. 386-387 (p. 387).

⁵⁸¹ Forbes, ‘Early Pregnancy’, p. 16.

Collect urine of a woman in a properly cleaned vessel... put it away in shadow. Then filter it with a piece of very clean linen, in which, if animals like lice are found, for that reason you will know that the woman is pregnant. And if they are reddish, it is a male, white declares a female.⁵⁸²

The expectation that small animals or lice would be found in the pregnant woman's urine is perhaps surprising. Stolberg describes a similar early modern filtration test which sought to identify small creatures within the woman's urine as a sign of pregnancy.⁵⁸³ It appears there was a belief that the generative properties of a pregnant body might create life within her urine, which may relate to the sterility test involving placing urine in pots of grain and checking for germination of the seeds as a sign of fertility, as discussed in Chapter Two. The idea that these lice-like animals would be red for a male child and white for a female child relates to the uroscopic sign of the sex of the child discussed in Chapter Seven, in which red particles in the urine indicated a male child, and white or blue indicated a female child.

This test required multiple different actions from the operator, and the time taken to age the urine. A test like this would be far more time consuming and difficult to carry out than a cursory bodily examination for signs of pregnancy, or even a conventional diagnosis via uroscopy. Practitioners may have made use of diagnostic texts like these to double check their conclusions about a pregnancy when they were not certain of a judgment, but it is possible there was an element of performance here: a complicated procedure might impress the audience of a patient and their family members, thereby emphasising the practitioner's learning and status, and perhaps justifying an inflated fee for his services.

Iron

A pregnant woman's urine might be identifiable by the way it interacted with iron: urine which rusted the iron would indicate pregnancy. Anthonius Guainerius followed his discussion of filtering the urine with the following procedure:

Another: place the urine of a woman in a round shallow basin in which natural polished iron is scattered, for a day: if the colour is changed, or if the basin takes on

⁵⁸² 'Urinam mulieris in vase bene mundo recollige...in umbra reconde. Deinde eam petiam lini mundissimam coler[colare] quae in ea animalia veluc pediculi inventi sicut mulierem pregnantem causae scito. Et ut ea rubea fuerunt masculum albumino Feminam denunciat', Wellcome MS 557, f. 77v.

⁵⁸³ Stolberg, p. 83.

the colour then you declare the woman to be pregnant. If in truth the polished iron has remained as before, the urine is not from a pregnant woman.⁵⁸⁴

Rust caused by the pregnant woman's urine would change the colour of the urine, leaving behind impressions on the basin.⁵⁸⁵ There is some evidence that the capacity of bodily fluids to rust metals may not have been a positive thing: amongst the many negative qualities of menstrual blood, Aristotle and Pliny the elder both claimed that this substance would cause metal to rust.⁵⁸⁶ Perhaps there may be a link between these ideas: the menstrual blood retained during pregnancy may have influenced the urine, causing it to rust the iron.

It seems probable, given the lack of explanation or attribution to an authority, that Guainerius was treating this procedure as an *experimentum*, a proven procedure which he believed to be effective without knowing why. The status of this procedure as an *experimentum* is perhaps supported by the different variations and corruptions which appeared in texts circulating in the fifteenth and sixteenth centuries. Some texts apparently specified the use of iron needles, which led to the confusion of needles with nettles, as in the version included in a popular medical handbook, composed by Nicholas Culpeper in the sixteenth century:

To know if a Woman be with Child. If a woman desired to know whether she be with child or not, let her make water in a clean copper or brazen vessel at night when she goes to bed and put a nettle into it, if the nettle have red spots in it next morning, she is with child, else not.⁵⁸⁷

Bayon suggested that this was a translation error relating to the transmission of a version of this text from German, where the term for needle – 'nadel' – is mistranslated as 'nettle'.⁵⁸⁸ I have identified an example of similar confusion in a test for recognising whether a sick person would live or die in a fifteenth-century recipe collection:

⁵⁸⁴ 'Aliud mulieris urinam in pelui cura rotunde in qua per diem naturalem politum ferrum dimitte quod si colorem mutaverit vel peluis colorem suscepit mulierem pregnantem esse dicis ubi vero politum ut prius manserit nequaquam a pregnantium urinis aliarum', Wellcome MS 557, f. 77v.

⁵⁸⁵ This test also appears in several early modern texts. Stolberg, p. 83.

⁵⁸⁶ Cadden, *Sex Difference*, p. 66.

⁵⁸⁷ Bayon, p. 70.

⁵⁸⁸ *Ibid*, p. 70.

Item take the uryne of he sek & cast it upon a red netill & even when the uryne is hote a non as he has ^mad^ water that is seke & come a gayn on the morn & if the netyll be ded he may noght lyfe & if it be noght ded he sall lyfe.⁵⁸⁹

The corrupted translation and altered purpose here offers some insight into the circulation of diagnostic medical texts like this. The subtleties of the original test have gone: the purpose of the text is changed, and the substances involved have been mixed up in translation. This suggests that the users, readers, and compilers of later texts may not have had access to earlier source texts, and if they did, copyists did not necessarily understand the intricacies of the procedures they described. But people still valued these diagnostic procedures enough to record and copy them, even when no explanation was included. Perhaps some thought they would be effective on the basis of their own personal experience, or deference to the authorities who had originally compiled these texts.

Pine Wood

The final active test of urine for information about pregnancy involved assessing whether a piece of pine wood would float or sink within it. This appeared in John of Gadsden's *Rosa Anglica* in MS Bodley 608:

Wood of pine placed in urine and if it descends the conceived is female, if it ascends the conceived is male. If it stays in the middle, there is no conceived child.⁵⁹⁰

As in the uroscopic signs of mottes in the urine, discussed in Chapter Seven, upward motion was associated with a male child, and downward motion with a female child. This method of diagnosis echoes the practices of hydromancy, divination by observing substances or items floating or sinking in water. But this test appears to be diagnostic in nature, in that it was testing urine for evidence of the present bodily condition of pregnancy, rather than divining into future events.⁵⁹¹ The text does not explain why this was an effective diagnostic method, or whether the operative mechanism lay in the urine itself, or in the pine wood. Given the appearance of this procedure in a medical text, and the accepted medical principle that the urine provided a valuable insight into the internal conditions of a person's body, it is most likely that the quality of the urine was the focus for this test.

⁵⁸⁹ Bodleian, MS Add. A. 106, f. 80r.

⁵⁹⁰ 'Ligni pini ponat in urina & descendat conceptum femella si ascendat conceptum masculinum si stet in medio non conceptum', MS Bodley 608, f. 158v.

⁵⁹¹ Hunt, *Writing the Future*, p. 20.

Pine resin was recommended in several later medieval recipes for plasters and ointments, but I have identified no other instances of pine wood being used in medieval medical contexts.⁵⁹² Pine trees grew in many parts of Europe, and pine wood would probably have been easily accessible. It is a light, low density wood, which would be expected to float on water, making it useful in testing the quality of the urine.

8.1.2. Breast Milk

Breast milk was a focus for attempting to recognise whether a pregnant woman was having a male or a female child. If a woman was lactating and she was not breastfeeding a young child and had not recently given birth, this was a reliable sign that she was pregnant. As discussed in Chapter Three, later medieval medical theory viewed breast milk as a natural substance made from menstrual blood, which would be excreted from the body to nourish a child after birth. While not all women experience lactation during pregnancy, modern understandings of lactation agree that it begins from the second trimester of pregnancy: by this stage it is usually quite evident that a woman is pregnant.⁵⁹³ This is probably why medieval diagnostic tests involving breast milk are exclusively concerned with identifying the sex of the foetus, rather than identifying a pregnancy.

These tests rely on the assumption that a woman's breast milk would be different if she was carrying a male or a female child. As discussed in Chapter Three, a male foetus was thought to generate more heat than a female foetus, and these differing levels of heat within the woman's body would influence the breast milk she produced. In the tests discussed below, the milk of a woman carrying a male child is described as thicker and more concocted than the milk of a woman carrying a female child. This influenced the way the milk moved, felt, and settled on surfaces, and these distinctions would allow a practitioner to recognise whether a woman was carrying a male or female child. Procedures for testing this substance involved manipulating a small amount of it in the hand, observing the behaviour of a drop of breast milk on a flat surface, or the way it behaved when heated or dropped into water. It would be possible to employ these procedures with limited

⁵⁹² Norri, pp. 850, 946, 1148.

⁵⁹³ 'Breast Changes During Pregnancy', American Pregnancy Association <<http://americanpregnancy.org/pregnancy-health/breast-changes-during-pregnancy/>> [accessed 6th June 2018].

understanding of the functioning of the reproductive processes, and the theory behind them. These procedures could even have been carried out by the pregnant woman herself.

Manipulation

The most basic method of testing the breast milk for signs of pregnancy instructed the operator to manipulate the breastmilk between the fingers, to assess its quality. This appears in the *De signum conceptionis* text in MS Sloane 284:

Take also milk of the woman between the fingers and if there is density or thickness in the milk, or it is sticking together strongly, they know that the conceived will be a male. If truly the milk will be flowing and thin and there will be no sticking together, and in that they know that it is a female.⁵⁹⁴

This text provides no theoretical explanation for this contrast, but it would be easy for anyone to use this procedure to identify the sex of the child. No equipment, and no understanding of the underlying principles would be required for a medical practitioner, or a potentially pregnant woman, to judge the breast milk for signs of the sex of the foetus.

Surface Tests

Another method of testing breast milk involved placing it on a flat surface to see if it congealed. Some texts recommended a mirror, as in Tornamira's *Clarificatorium*:

And if the milk is thick and viscous, so that if placed upon a mirror it is gathered together to the manner of a pearl or white grape, she is carrying a son. And if it is flowing and watery so that it is spread out upon the mirror, she is carrying a female'.⁵⁹⁵

Mirrors were luxury objects made of polished metal or glass in the middle ages.⁵⁹⁶ They were generally small and were often carried upon the person in decorative cases, or worn upon the person.⁵⁹⁷ They may have been recommended in this text because they were

⁵⁹⁴ 'Accipiunt quoque lac mulieris inter digitos & si fuerit in lactis densitas vel spissitas vel conglutinatio fortis sciunt quae conceptus sit ex masculino. Si vero fuerit lac fluxum & subtile & nulla conglutinatio fuerit & in eo sciunt quod sit femina', MS Sloane 284, f. 76v.

⁵⁹⁵ 'Et si lac fuerit grossum viscosum quae positum super speculum congregatur ad modum margarite vel argenti uvu pariet filium. Et si sit liquidam et aquosum quae expanditur super specula portat feminam', MS Sloane 246, f. 199v.

⁵⁹⁶ Angela Lucas, 'The Mirror in the Marketplace: Januarie through the Looking Glass', *The Chaucer Review* 33 (1998), 123-145 (p. 124-126).

⁵⁹⁷ Geoff Egan and Frances Pritchard, *Dress Accessories c. 1150-c.1450*, Medieval Finds from Excavations in London 3 (Woodbridge: Boydell, 2002), p. 359.

readily available, portable flat surfaces, upon which breast milk could easily be visually assessed.⁵⁹⁸

Alternative flat surfaces on which to test the breast milk were recommended in some texts: the addition to the Trotula text in MS Bodley 682 recommended placing the milk 'upon water, or a fingernail, or a sword', as did the *Breviarium* of John of Saint Paul.⁵⁹⁹ The use of water to test breast milk will be discussed further below, but the recommendation of readily available, portable items might support the conclusion that the most important element was a flat surface on which to observe the behaviour of the breast milk. Interestingly, all of these objects – mirrors, blades, fingernails, and even water – could theoretically be used in methods of divination. Onychomancy was the art of divination by peering into a fingernail anointed with oil, a practice condemned as black magic in some fifteenth-century texts.⁶⁰⁰ Water could be used in hydromancy, peering into the surface for signs of the future, and mirrors were employed in the similar process of catoptromancy – looking into the mirror for signs of the future.⁶⁰¹ Armand Delatte suggests that any polished surface could be substituted for a mirror, and refers explicitly to a sword or a nail as a possible alternative, reflecting the use of swords and nails in these medical texts.⁶⁰² These methods may have attracted some suspicion in the later middle ages, as a result of these parallels. I would suggest, however, that in these diagnostic tests, the quality of the milk was the most important element in this procedure, and this did not rely on any particular quality of the surface on which it was tested.

One other test recommended using a leaf to test the milk, appearing in a recipe included in Oxford, Bodleian, MS Wood Empt. 18 in a late fifteenth- or early sixteenth-century hand:

Lat a woman mylke on a ^red wort^ lefe that es with chyld & if it fyn sam als a crude than se [sic] [recte es] sche with a cnafe chyld & if it crud not than es sche with a maydyn.⁶⁰³

⁵⁹⁸ Eleanor Standley, 'Ladies Hunting: A Late Medieval Decorated Mirror Case from Shapwick, Somerset', *The Antiquaries Journal* 88 (2008), pp. 198-206 (p. 201).

⁵⁹⁹ 'Super aquam vel unguem vel ensem cadere', MS Bodley 682, f. 188v; 'super aquam vel unguem. vel gladium', MS Bodley 361, p. 295r.

⁶⁰⁰ Delatte, p. 49; Hunt, *Writing the Future*, p. 20.

⁶⁰¹ *Ibid.*, p. 20.

⁶⁰² Delatte, p. 8.

⁶⁰³ MS Wood Empt. 18, f. 36r.

The process and outcomes described here reflect those appearing in the other breast milk tests – the term ‘crud’ or ‘crude’ refers to the curdling or coagulating of the breast milk as might be expected for a woman carrying a male child. The only difference is the use of a leaf. The copyist or author of this text added a clarification to the text to specify that a ‘red wort’ leaf should be used, but I have been unable to firmly identify this plant: red wort may be an alternative term for ragwort, a common yellow wildflower, or this term may refer to red colewort, an alternative term for red cabbage.⁶⁰⁴ Alternatively, this might be related to references to red nettles, in the uroscopy texts discussed above. The naming of a particular leaf in this later version of this test suggest a shift in how this breast milk test was understood to function. Perhaps the author or copyist thought that the efficacy of this test was in the particular qualities of this leaf and its influence on the breast milk, rather than in an inherent quality of the breast milk. Perhaps this altered meaning can be interpreted as a result of the vernacularisation of medicine, with theoretical ideas and explanations being altered, confused or lost as texts were translated into the vernacular and disseminated for the use of less educated medical practitioners and ordinary people.

Heating Tests

Three tests for identifying the sex of an unborn child sought to assess the quality of breast milk as in the above examples, but they required the addition of heat to assess its qualities. The changes described were very similar to those described above, as in the following from the *De signum conceptionis* text in MS Sloane 284:

Put the milk of the mother upon a mirror made of iron and place it in the sun carefully, lest it is moved, and leave it there for the space of one hour. If it is collected together until it is like a pearl, they know that the pregnant woman is carrying a male. If in truth it spreads out, they know that it will be a female.⁶⁰⁵

The sun would heat the iron mirror, ensuring that the milk droplet was heated fully. Kieckhefer suggests that astrologers in medieval Europe understood the heat of the sun to

⁶⁰⁴ ‘Wort’, Middle English Dictionary Entry, <https://quod.lib.umich.edu/m/middle-english-dictionary/dictionary/MED53467/track?counter=1&search_id=1024378> [Accessed 17th May 2019].

⁶⁰⁵ ‘Ex lacte mulieris super speculum ferreum & ponunt in sole subtiliter ne moveatur & dimmittunt ibi per spacium unius horo si collectum fuerit donec sit simul margarite sciunt quae pregnans portet masculum. Si vero extensum fuerit sciunt quod erit femina’, MS Sloane 284, f. 76v.

have particular and special effects: it was seen as ‘more noble than earthly fire’, and could also ‘work in subtle and occult ways’.⁶⁰⁶

Sunlight was not required in all versions of this heating test: one version, which appeared in a recipe collection in Bodleian, MS Add. B. 60 probably owned by a medical practitioner, required the breast milk to be heated on a leaf placed on the coals of a fire:

To preve if a woman be with child of man or woman take a reed cole leef & lete the woman draw mylk oute of hyr lift brest there upon than sette it upon a cole of fyre & if it crudde she goth with a sone. And if it sprede she goth with a doghtur. Lyke preve in the right brest for a doghtur.⁶⁰⁷

This test is unusual in its association of the left breast with sons and the right breast with daughters: the opposite association is usually made. In the context of this collection of practical remedies and diagnostic aids, perhaps the compiler or reader was only interested in applying heat as quickly and practically as possible, and was not concerned with the particular powers of the sun. This version of the test is also remarkably similar to a test for identifying the sex of the foetus, included in the Hippocratic text *On Barrenness*:

Take some milk [from the woman] and mix meal into it, make this into a small loaf, and bake it on a gentle fire. If this is burned solid, the woman is carrying a male, but if it opens up, a female. Another: roll up the same [milk and meal] in leaves and bake it: if this congeals, the woman is carrying a male, if it melts, a female.⁶⁰⁸

According to Laurence Totelin, this Hippocratic text was not translated into Latin, and was not available in western Europe in the later middle ages.⁶⁰⁹ This test probably represents an independent adaptation of other surface and heating tests discussed thus far, rather than a variation on the test from the Hippocratic text.

Liquid Tests

Several tests of the breast milk involved assessing its qualities when dropped into water, to identify the sex of the foetus. This procedure first appeared in the Trotula *Conditions of Women* text, alongside information about the different signs one might expect

⁶⁰⁶ Kieckhefer, pp. 125-126.

⁶⁰⁷ Bodleian, MS Add B. 60, ff. 54r-v.

⁶⁰⁸ Hippocrates of Cos, *Barrenness*, in Hippocrates, *Generation. Nature of the Child. Diseases 4. Nature of Women and Barrenness*, ed. and trans. by Paul Potter, LCL 520 (Cambridge, MA: Harvard University Press, 2012), pp. 340-343.

⁶⁰⁹ Totelin, p. 75, fn. 4.

in a pregnant woman's body if she were carrying a male or female child. The procedure is as follows:

Ffor to wet wheder a woman be with knaf childe or maydyne tak well water & lat the woman that is with childe mylk a drope here in & if it synke to the grounde than is it takyn of a knafe child if it flot a bovn than is it takyn of a maydyn child.⁶¹⁰

As in the previous breast milk tests, this test associates milk holding together in a congealed droplet with a male child. This type of droplet would be expected to cling together and sink to the bottom of the glass vessel. The milk of a woman carrying a female child would be less congealed, and rather than clinging together it would float, or spread out within the water. This does not reflect the association of upward motion in the urine with a male child, and downward motion with a female child, discussed in reference to the pine wood tests in this chapter.

This test for the sex of the child circulated in a number of variants in the later middle ages. Some recommended using blood instead of breast milk, as in the version of the Trotula text in Wellcome MS 544:

Take water from a spring/fountain [*fontinalis*] and extract two or three drops of blood from the right side of the woman's body and pour into the water. If it makes for the bottom, she carries a male.⁶¹¹

As the male was thought to form on the right side of the body, perhaps this test is related to the possibility that heat generated by a male child could alter the quality of a woman's blood. And while most tests recommend the use of water from a well or a spring as a testing liquid, Anthonius Guainerius suggested that the woman's urine, or honeyed wine, could be used instead.⁶¹² A few other variations in versions of this test appear to be the result of scribal error or misunderstandings introduced as texts were copied and shared. Two examples I have seen reverse the conventional meaning of the congealed milk and dispersing milk, so that a congealed milk drop sinking to the bottom of the glass would mean a female child, rather than a male child:

⁶¹⁰ Bodleian MS Add A. 106, f. 137v.

⁶¹¹ 'Accipe aquam fontinalis & mulier extrahit duas guttas de sanguine vel tres ex dextro latere & funde sibi aquam si petat fundum: gerit masculum contra', Wellcome MS 544, f. 35v.

⁶¹² And if it [breast milk] is placed upon water or her own urine or honeyed wine, its weight makes straight down for the bottom', 'Et si super aquam aut urinam propriam mulsum fuerit perpendiculariter fundum petit pondus', Wellcome MS 557, f. 78v.

And whether it be male or female you may be able to prove thus: take a drop of milk of this pregnant woman and let it be milked upon fountain water and if the milk floats it will be a male, if it makes for the bottom it will be a female.⁶¹³

This reflects the association of upward motion with a male child and downward with a female in the texts involving movement in the urine.

Other variants of this procedure used the same methodology to test for different health conditions. According to Luke Demaitre, Valesco de Tarenta used a similar procedure to differentiate between a patient spitting up phlegm, and more worrying cases of patients spitting up pus. This involved placing the sputum into a vessel of water, and seeing whether it floated or sank: if it sank, this was pus, but if it floated it was just phlegm.⁶¹⁴ This test was also co-opted as a procedure to see if a sick person would die, in a fifteenth-century recipe in a manuscript held by Saint Augustine's Abbey, Canterbury:

For man that es wounded ... take the syke pysse & lat a woman mylke there on that hasse a cnawe childe for a man & if it be a woman that es seke the mylke of a maydin chyld & if he mylke falle to grownde he schal die & if it flete he schal live.⁶¹⁵

The Trotula example is the earliest I have seen of this sort of test of bodily fluids, and later authors and compilers may have drawn on this method to devise other techniques for diagnosis and prognosis.

8.2. Testing the Body

Other tests for pregnancy and the sex of the child directly tested a potentially pregnant woman's body, assessing the effects of various substances to identify traces of the changes associated with pregnancy. The disruptions to a woman's normal bodily processes caused by pregnancy would affect the way her body would react if certain substances were eaten or drunk, or applied to her womb via suppositories or suffumigations. The substances used can all be categorised as *materia medica*, natural substances derived from plants, animals or minerals, which were used for therapeutic purposes. They might be applied on their own as simple medicines or mixed with other ingredients to form a compound

⁶¹³ 'Et utrum sit masculus vel femina post probari sic Recipe una gutta lactis huius mulieris prignantis & mulgiatur super aquam fontis & si lac natat erit masculus & si petit fundum femina', MS Sloane 783 B, f. 184v.

⁶¹⁴ Demaitre, *Medicine*, p. 218.

⁶¹⁵ Bodleian, MS Wood Empt. 18, f. 45r.

medicine.⁶¹⁶ Medicines could be applied in a number of different forms: in drinks, powders, or pills to be ingested, and plasters, ointments or oils to be applied to affected body parts. Pessaries might be employed in the treatment of women's diseases. Generally, these applications were designed to treat the patient's condition, curing disease through the inherent power of the substances applied.

The use of *materia medica* to test the body, as in the procedures discussed here, was quite unusual for medieval medical practice. I have only found evidence of one other condition which could be diagnosed with *materia medica*: virginity.⁶¹⁷ This example appears in the addition to the Trotula text, in MS Bodley 682:

If you wish to know whether a woman is corrupted or not: A method for knowing whether a woman is corrupt. A magnet/lode stone, or jet, can be cut and pulverised and from that powder you should give two drachms with wine to drink and if she is corrupt then at once she will need to urinate. If not, she will not.⁶¹⁸

Like these tests for pregnancy, this test relies on the assumption that the condition of virginity would affect the way the woman's body reacted to a particular substance.

Some diagnostic tests assessed the functioning of normal bodily processes which might be disrupted during pregnancy, like digestion and levels of heat within the body. Others identify whether the unborn foetus had blocked the internal channels within a woman's body, as discussed in Chapter Three. Even though this was not made explicit, these tests were consistent with the principles of later medieval rational medical theory, and its Graeco-Roman antecedents, in terms of their underlying logic and the diagnostic methods they employed. Sometimes, the original meaning of a test, or the particularities of its procedures, were lost or misinterpreted during transmission. This can give some of these tests the appearance of *experimenta*, as discussed in Chapter Three, procedures copied because they were thought to work, on the basis of personal experience, or the experience of others.⁶¹⁹ But many of the tests discussed in this section had precedents in learned texts, or could be explained within the context of rational, complexional medicine, even if no

⁶¹⁶ Alain Touwaide and Peter Dendle, 'Introduction', in *Health and Healing from the Medieval Garden*, ed. by Alain Touwaide and Peter Dendle (Woodbridge: Boydell, 2008), pp. 1-14 (p. 2).

⁶¹⁷ Finucci, p. 87.

⁶¹⁸ 'Si vis scire an mulier sit corrupta an non. Modus ad cognoscendi an mulier sit corruptu Potest essere talem pulverizetur magnes sive gagatis et de illo pulvere dentur . 3 . ii . cum vino ad bibendum & si sit corrupta statim minget & si non. Non', MS Bodley 682, f. 186r.

⁶¹⁹ Jones, 'Complexio', p. 110.

theoretical explanations were included in the texts. These methods could be explained and situated within the traditions of licit medicine, and the category of *experimenta* may not therefore be appropriate for most of these tests.

8.2.1. Honey-Based Drinks

One of the most commonly recorded tests for pregnancy required giving a potentially pregnant woman a sweet or honey-based drink before she went to bed and assessing its effect. Pain in the stomach indicated pregnancy. This test originated in the Hippocratic Aphorisms, and was transmitted to the west via Avicenna's *Canon medicinae*.⁶²⁰ It appeared in Tornamira's *Clarificatorium* as follows:

Or for this purpose a fifth of an amphora of Ypocras should be made. Take two spoonsful of raw honey dissolved with sufficient rain water. Make the drink tepid if the weather is cold. She should drink it in a glass going to bed. If in the night or in the morning she feels pricking in the stomach/belly it is a sign that she is pregnant because it is a sign of obstruction for the aforesaid reason of the foetus.⁶²¹

'Ypocras' or hippocras was a term for sweetened spiced wine, but other variations of this test circulating in the later middle ages called for mellicratum, honey mixed with water, or mead, a fermented mixture of honey and water.⁶²² The foetus would obstruct digestion in the woman's body, causing pain in the stomach when this sweet drink was consumed before going to sleep. Some texts provided instructions for making these drinks, giving exact measurements and specifying types of honey or water; others left the operator of the text to put together ingredients according to their own knowledge or experience. The table below demonstrates these differences:

⁶²⁰ 'If you wish to know whether a woman is with child, give her hydromel to drink [without supper] when she is going to sleep. If she has colic in the stomach she is with child, otherwise she is not', Hippocrates, *Aphorisms*, pp. 168-169; 'And also the disposition of pregnant women is known through *experimenta* [tests or experience]. One of which is that they are given honey and water in a drink in the hour of sleep, two ounces mixed together with the same weight of rain water. And you should see whether she feels pricking or not', 'Et quoque cognoscitur dispositio impregnationis per experimenta. De quibus est ut in potu dentur de aqua mellis in hora dormiendi uncie due cum tanto pondere aque pluvialis per mixta et videat an punctionem sentiat an non', MS Harley 3808, f. 126r.

⁶²¹ 'Vel fiat hoc intencione ypocras quinto amphoris. Recipe duo coclearia mellis crudi dissolvatur cum aqua pluviali quod sufficit. Fiat potus tepidus si tempus frigidum fuit potet in vitro itu lecti si de nocte vel de mane sentiat punctiones in ventre signum est quod est pregnans quia signum est opilacionis illarum praedictum ratione fetus', MS Sloane 246, f. 198v.

⁶²² Norri, *Dictionary*, pp. 556, 638, 663.

Avicenna, Canon medicinae	MS Harley 3808, f. 126r	2 ounces of honey 2 ounces of rainwater Mixed through
Johannes de Tornamira, Clarificatorium	MS Sloane 246, f. 198v	2 spoons of raw honey 'Sufficient' rainwater Dissolve, make into a tepid drink if cold weather
Anthonus Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, f. 77v	2 ounces of honey 2 ounces of rainwater
De conceptione mulieris urine	MS Sloane 783 B, f. 184r	3 parts of water Honey
Sekenesse of Wymmen	MS Sloane 249, f. 198v	Unspecified – states 'mede'
Henry Daniel, Liber uricrisiarum	Bodleian MS e Mus 187, ff. 70r-v	4 ounces of raw honey 8 ounces of raw water
John of Gadsden, Rosa Anglica	MS Bodley 608, f. 158r	Unspecified – states 'mellicratum with rainwater'
Addition to the Trotula text	MS Bodley 682, f. 188v	Unspecified – states 'mellicratum with rainwater'
Pseudo-Albertus Magnus, De secretis mulierum	MS Bodley 484, f. 26v	2 spoons of wine with honey 1 spoon of with water

These were all common medicinal ingredients. Wine and water were used in mixed drinks and other remedies, and wine was thought to be beneficial to health as part of an ordinary diet.⁶²³ Honey was frequently recommended for internal remedies as well as plasters and wound dressings.⁶²⁴ In these diagnostic tests, the type of honey is rarely specified, apart from the requirement for 'raw' honey in Henry Daniel's *Liber uricrisiarum*. This is to differentiate it from boiled honey, which was recommended as a medicinal ingredient by some ancient authors, including Dioscorides.⁶²⁵ It seems that these ingredients

⁶²³ Susan Rose, *The Wine Trade in Medieval Europe 1000-1500* (London: Bloomsbury, 2011), pp. 133, 141-142.

⁶²⁴ Gene Kritsky, 'Beekeeping from Antiquity Through the Middle Ages', *Annual Review of Entomology* 62 (2017), 249-264 (p. 253).

⁶²⁵ L. Cilliers and F. P. Retief, 'Bees, Honey and Health in Antiquity', *Akroterion* 53 (2008), 7-19 (p. 14).

would have been familiar to most medical practitioners, and they would have been accessible for most ordinary people to purchase too.

There is some indication of the context in which these diagnostic drinks would have been given to potentially pregnant women. The recommendation that this drink be given to a woman before she went to bed implies a domestic context for use, and the ingredients of these preparations would have been widely known and readily available. This suggests that ordinary people could have applied these tests without the involvement of a specialist practitioner. Perhaps a physician would recommend this procedure to women who wished to know if they had conceived – or to their husbands. The physician could have either made this drink, sent his patients to an apothecary, or given them instructions on mixing it for themselves. The woman would then be able to take this drink at home before she went to bed if she thought that she might be pregnant.

This advice might also come from priests, as suggested by the tests being included in the Pseudo-Albertus Magnus *De secretis mulierum* text. As discussed in Chapter Four, this text, often owned by clerics, demonstrated a strong mistrust of women. It recommended carrying out this diagnostic procedure without telling the woman why it was being done, as in this example from MS Bodley 484. After the ingredients had been mixed together, the text recommended that they should be

Given to women without saying the cause, lest by chance she might say she does not have pain.⁶²⁶

This text implies that if women knew why they were being given this drink, and what symptoms might indicate a pregnancy, they might lie to try and hide the fact they were pregnant. They might do this because of a general mistrust of men, or a desire to conceal the pregnancy: either because they intended to end it, or because they were unmarried women or prostitutes, for whom a pregnancy might have serious consequences. This assumption of dishonesty is characteristic of the *De secretis mulierum* text but raises the possibility that pregnancy diagnosis might be attempted without the knowledge or consent of a potentially pregnant woman, with the use of this very subtle diagnostic test.

⁶²⁶ 'Et dari mulieribus non dicendo causam ne forte si dicent non haberem dolorem', Bodleian, MS Bodley 484, f. 26v.

8.2.2. Garlic

Another commonly recorded method for recognising pregnancy, also originating in the Hippocratic corpus, involved testing the potentially pregnant woman's body with garlic. But whereas the tests involving honey-based drinks were transmitted in a fairly consistent form, there were significant variations in the purpose, form, and function of the medieval garlic tests. These variations may have been deliberate adaptations, or textual corruptions during transmission. These sorts of procedures first appeared in the Hippocratic text *On Barrenness*, in which a garlic suppository was recommended as a means of telling whether a woman was capable of bearing children:

Another: thoroughly clean a head of garlic, snip it off, and apply as a suppository against the uterus: the following day, see whether it has given off an odour through the woman's mouth: if it has, she will become pregnant, but otherwise not.⁶²⁷

This test relies on the idea, discussed in Chapter Three, that the womb and the mouth were directly connected by a sort of internal passageway inside a woman's body. If the passageway was blocked, preventing the odour of garlic from passing from the uterus up to the mouth, then the woman was thought to be infertile, and unable to become pregnant.

As noted in Section 8.1.2, this text was not available in the Latin West in the later middle ages.⁶²⁸ This may account for why this procedure came to be adapted or reinterpreted as a diagnostic test for pregnancy, rather than fertility. The earliest example of this adaptation appeared in Avicenna's *Canon medicinae*:

And similarly, you can test when she is empty [not pregnant], by placing garlic under her and sleeping upon it and considering whether the taste of it and its odour enter into the mouth or not.⁶²⁹

The phrase 'supponendo allium' appears to recommend placing the garlic within the vagina as a vaginal suppository. Johannes Tornamira's *Clarificatorium* elaborates on this procedure, explaining why the taste and smell of the garlic would only be transmitted if the woman was not pregnant:

⁶²⁷ Hippocrates, *Barrenness*, pp. 338-341.

⁶²⁸ Totelin, p. 75, fn. 4.

⁶²⁹ 'Et similiter experitur cum vacuitas est supponendo allium et dormiundo super ipsum et considerando an inueniat saporem eius et odorem ipsius in ore an non', MS Harley 3808, f. 126r.

For if she finds it [the taste or smell] she is not pregnant, because she does not have an obstacle to it entering the mouth and nose.⁶³⁰

Tornamira's version of this procedure involved a more complex set of instructions – rather than just one clove of garlic, the operator of the test must string together three or four cloves with a needle and thread, before placing this within the womb or vagina.⁶³¹ However, the principle here is the same as in Avicenna's *Canon*, and the Hippocratic *On Barrenness* text: an obstacle within the body, whether a pregnancy or some impediment to conception, would prevent the taste and smell rising from the womb to the mouth and nose, and would allow the operator of this test to identify the presence or absence of a pregnancy. For the potentially pregnant woman, this test would be quite invasive. Carrying out this part of the procedure may have been difficult for a male medical practitioner, given the limitations imposed on their contact with the intimate parts of women's bodies, so perhaps a female attendant or the potentially pregnant woman herself would have been expected to insert the garlic suppository. The outcome of this test would probably be detected by the woman assessing whether she could smell or taste the garlic, but a medical practitioner may also have intervened to smell her breath for traces of garlic.

Other texts demonstrate some confusion about which outcome would indicate pregnancy. The text of John of Gadsden's *Rosa Anglica* in MS Bodley 608 demonstrates this, as a suprascript note has been added to change the meaning of the test:

Another take a woman garlic and let it be placed underneath her when she goes to sleep, and if, after sleep, she does not sense the taste of the garlic in the mouth she is ^not^ pregnant. If she senses it, it is a sign that the child is male.⁶³²

The word 'not' has been inserted into the phrase 'pregnans est' in a later hand, and this alteration inverts the logic behind this test, that a pregnancy would prevent the garlic smell from rising to the mouth. The alternative – 'if she feels it, it is a sign that the child is male' – suggests a further level of confusion.

⁶³⁰ 'Nam si invenit non videtur esse pregnans quia non habet obstaculum penetrandi ad os et nares', MS Sloane 246, f. 198v.

⁶³¹ 'Take three or four teeth [cloves] of garlic, perforate them with a needle and thread in the middle of the palm [length?] and place it in the womb in going to bed', 'accipe tres vel quattuor dentes allij perfora cum acu et filo medij palmi et imponat in matrice in introitu lecti', MS Sloane 246, f. 198v.

⁶³² 'Item accipiat mulier allium & supponatur se cum intrat dormitum & si post sompnum non sencierit saporem allij in ore pregnans ^non^ est si senciat est signa masculinitatis sunt', MS Bodley 608, f. 158r.

Some versions of this test were altered further, recommending the ingestion of the clove of garlic rather than using it as a suppository. This appears in the *Ad cognoscendum pregnantes* text, part of the *Dome of Uryne* compendium:

Another geve to her a clove of leekis to eete whan she gothe to bed and after her firste slepe yf she savour of leeke in her mouthe she is not with childe and yf she fele non she is with childe.⁶³³

The term 'leek' or 'lek' is a Middle English term for either garlic or leek: given the origins of this test and the specification of a clove, it is most likely garlic.⁶³⁴ Perhaps it was more appealing for later medieval women to ingest a clove of garlic than use it as a vaginal suppository, and it may have been more seemly for a medical practitioner to recommend this version of the test. However, the meaning and functionality of the test are completely warped here: by eating the garlic and then assessing whether the taste remained in the mouth, the theoretical explanation of detecting blockages within the body is completely removed. The test continued to circulate, despite this absence of theoretical sense. This suggests that readers and users were not concerned with rational meaning, but with whether this test was proven or effective: this test was apparently being treated as an *experimentum*, and as an appealing resource in attempts to recognise pregnancy regardless of its underlying logic.

8.2.3. Birthwort

Another method of applying *materia medica* to detect pregnancy and the sex of the child involved making a suppository with the herb birthwort, mixed with honey and spread on wool, and placing this inside the vagina. The woman would then be asked about whether her saliva tasted sweet or bitter: sweetness of the saliva was a sign of a male child, bitterness a female child. If the taste was unaltered this was a sign that she had not conceived. This test appears in Avicenna's *Canon medicinae*, and in Tornamira's *Clarificatorium*:

Birthwort [*aristologia* or *aristolochia*] should be obtained, 1 ounce. And that is to say it should be rubbed and prepared with honey in the manner of an ointment and placed underneath her with wool in the womb from early in the morning up to

⁶³³ MS Selden Supra 73, f. 111v.

⁶³⁴ 'Gar-lek (n.)', Middle English Dictionary Entry <<https://quod.lib.umich.edu/cgi/m/mec/med-idx?type=id&id=MED18221>> [accessed 13th June 2018].

midday, while she is fasting. Then if her saliva becomes sweet, she conceives a male; if it is bitter, a female; if her saliva is not altered she has not conceived.⁶³⁵

The association between bitterness and a female child, and sweetness and a male child, is probably the result of cultural associations between positive symptoms in women pregnant with a male child, and negative symptoms with a female foetus. This suppository test operated in a similar way to the garlic test discussed above – Guainerius even suggested that birthwort could be used as a substitute for garlic.⁶³⁶ It is probable that a female attendant, or the woman herself, would be expected to insert this suppository, rather than a male medical practitioner.

The herb birthwort was strongly associated with pregnancy and childbirth in ancient Greek and medieval medicine – its Greek name, *aristolochia*, means ‘best birthing’.⁶³⁷ However, its use in a pregnancy test is a little concerning, given its traditional use as an abortifacient or emmenagogue: the Hippocratic *Diseases of Women I* text and Dioscorides’s *De materia medica* both described its use as an emmenagogue and abortifacient, and Dioscorides also recommended it for helping women in childbirth to expel the afterbirth.⁶³⁸ Birthwort’s utility as an emmenagogue was known in the middle ages, in various parts of Europe. Carmen Caballero Navas refers to its use in expelling the placenta after birth in the Hebrew medical tradition.⁶³⁹ The vernacular English *Sekeness of Wymmen* text recommended birthwort to expel a dead foetus or bring on menstruation.⁶⁴⁰ These uses suggest that it would be inappropriate to apply birthwort to a pregnant woman unless she hoped to end the pregnancy. But these were not the only uses for birthwort: the Trotula *Conditions of Women* text recommended it for sores of the womb, and the text *On Women’s Cosmetics* included birthwort as part of a remedy for cracked lips.⁶⁴¹ Norri records

⁶³⁵ ‘Similiter quae sumatur aristologia 3. 1. et scilicet teratur et conficiatur cum melle in modum ungenti supponatur cum lana in matrice a mane usque ad meridiem in ieiuno tunc si dulcescit saliva eius concepit masculum si est amara concepit feminam si non alteratur eius saliva non concepit’, MS Sloane 246, f. 199v.

⁶³⁶ ‘Also a substitute for garlic is aristolochia [birthwort], pulverised and mixed with honey, for if that taste is felt in the mouth she will not be pregnant’, ‘De allei quoque suppositionem ac aristolon [aristolochia, birthwort] pulveris cum melle miste idem sit. Nam si ille sapor in ore sentitur prenans minime erit’, Wellcome MS 557, f.77v.

⁶³⁷ John Scarborough, ‘Ancient Medicinal Use of *Aristolochia*: Birthwort’s Tradition and Toxicity’, *Pharmacy in History* 53 (2011) 3-21 (p. 5).

⁶³⁸ Ibid, p. 7

⁶³⁹ Carmen Caballero Navas, ‘She Will Give Birth Immediately. Pregnancy and Childbirth in Medieval Hebrew Medical Texts Produced in the Mediterranean West’, *Dynamis* 34 (2014), 377-401 (p. 393).

⁶⁴⁰ Rowland, pp. 120-121.

⁶⁴¹ Green, *Trotula*, pp. 92-93, 184-185.

its use in a powder for head injuries, and an ointment for cleaning ulcers.⁶⁴² Perhaps the herb was recommended because it was known to be associated with childbirth, without taking into account its potentially dangerous effects.

8.2.4. Suffumigation

Suffumigation was a common technique in ancient and medieval medicine for delivering medicinal substances into the body. The patient would sit above a smoking or steaming substance, and the smoke or steam could rise up and enter the body through the anus or the vagina. Sometimes the patient was wrapped around with cloth to trap the smoke or steam.⁶⁴³ This was used to treat gynaecological problems, including applying sweet smelling smoke below the vagina to treat women suffering from suffocation of the womb, and for applying substances that could provoke menstruation or assist with expelling a dead foetus.⁶⁴⁴

John of Gadsden and Anthonius Guainerius both recommended suffumigation to test for pregnancy, following a procedure first set out in Avicenna's *Canon medicinae*. According to Guainerius, the procedure should be carried out as follows:

Second, the woman, fasting, should be well covered by cloths, so that from the opening the smell is unable to come forth to the nose. Then by a funnel they should be suffumigated, so that if she senses the smell, she will not be pregnant at all.⁶⁴⁵

If fumes were applied to the vagina, and a woman could sense them in her mouth or nose, this was a sign that she was not pregnant. If she could not sense them, then she was likely to be pregnant, and the smoke was being blocked from passing upwards within her body by the foetus. This test follows the same principle as the garlic and birthwort tests, and likely created some of the same difficulties in negotiating appropriate levels of contact between a male practitioner and a female patient – it is probable that a male medical practitioner would have delegated this task to a female attendant. The exact substances to be used in this test are not specified – John of Gadsden merely recommended the use of *aromaticibus*, 'aromatics': the substance would need to have a strong smell when burned or steamed. It is likely that the operators of these tests were expected to know what sort of herbs to use to

⁶⁴² Norri, *Dictionary*, pp. 872, 889, 1143.

⁶⁴³ Demaitre, *Medicine*, p. 268; Green, *Trotula: An English Translation*, p. 33.

⁶⁴⁴ Dean-Jones, p. 73; MS Bodley 608, f. 147r; MS Sloane 345, ff. 128v-129r.

⁶⁴⁵ 'Secundum mulier ieiuna pannis bene tegatur sit ut oroficium odor ad nares provenire nequeat deinde per embotum suffumigetur quae si odorem sensit pregnans nequaquam erit', Wellcome MS 557, f. 77v.

accomplish this test, but it is possible that the exact substance used did not actually matter, if the transference of a smell through the body was the most important operative factor in this test.

8.3. Diagnostic Tests: Conclusions

These examples demonstrate the range of methods developed to test a potentially pregnant woman's body for signs that she was pregnant, and for indications of the sex of her unborn child. They required varying levels of interaction with potentially pregnant women's bodies: tests of the bodily fluids would require minimal interaction, whereas those involving vaginal suppositories or suffumigation would require more – perhaps to a degree which it was inappropriate for male medical practitioners to carry out. These tests operated on the same principles as the signs and symptoms, and the uroscopy tests: they all intended to make the processes within a woman's body visible, to enable diagnosis. To do so, these tests use *materia medica* in an interesting way: to test the internal functioning of the body, making a judgment about women's conditions depending on their bodily reaction to these substances.

As different diagnostic methods appeared together in later medieval texts, it is very likely that several different methods may have been applied to attempt a diagnosis. This would have offered a degree of certainty for the practitioner, and the potentially pregnant woman, about her condition. The ability to carry out these diagnostic tests may have contributed to this certainty: the outcomes of these tests were not open to interpretation in the same way as the uroscopic signs or the bodily indications of pregnancy, which depended on the judgement of a practitioner, or the reports of the potentially pregnant woman. Both these people could be mistaken about the signs and symptoms they interpreted in the woman's body. These diagnostic tests, however, provided supposedly definite outcomes: the texts specify what would happen if a woman was pregnant, and what would happen if she was not pregnant – or if she was carrying a male or female child. Little interpretation was required in most of these tests: a drop of breast milk either curdled together, or spread out like water; a woman either tasted garlic in her mouth, or she did not. This would provide an extra level of certainty to those using these tests, and may also have allowed ordinary people to put them into practice, without any need for interpretative skill or experience.

We can only speculate about the experience of the women undergoing this sort of diagnostic procedure: the woman's collaboration would be required for most of these tests, and the degree of certainty they purported to offer would certainly be appealing. It is likely that most of these tests would have been taken quite seriously, particularly those involving the application of *materia medica* to the body via suppositories and suffumigation. However, some of these procedures may have been treated as novelties, particularly those used when it was certain a woman was pregnant, to identify the sex of the foetus: it is possible to imagine women and their families finding some enjoyment in experimenting with breast milk, for instance, and that this diagnostic process could play a part in celebrating the imminent arrival of a new child into the family.

Chapter 9: Prediction and Pregnancy

In the middle ages, various licit and illicit methods of divination and prediction were used to find out information about the unknown: the outcome of future events, the whereabouts of individuals or objects, and the likely outcome of health conditions. A number of these techniques were used to answer questions about pregnancy. These questions echo those asked in the medical texts, discussed in Chapters Six, Seven and Eight, but the methods used differed. Rather than focusing on the bodies or bodily fluids of potentially pregnant women, these methods used prescriptive divinatory or astrological techniques to access hidden powers inherent in the stars, the earth, or people's names to make predictions about the status of a woman's body, when she would give birth, and whether the child would be male or female.

A wide variety of divinatory methods were available in the middle ages, and for the purpose of this thesis, I am following Thomas Aquinas's definition of *divination*, that '*divinatio* means foretelling the future'.⁶⁴⁶ In the middle ages, this often related to any method of prediction by supernatural means – methods which could not be explained by contemporary understandings of the functioning of nature.⁶⁴⁷ Divinatory methods were applied across most areas of human life: familial relationships, agricultural concerns, political affairs, and medical matters – including whether women were pregnant or not, and the sex of their unborn children. This chapter will consider two different divinatory methods in relation to pregnancy diagnosis: onomancy – the art of divination by assigning numbers to the letters of names; and geomancy – casting dots in the earth or on paper, consolidating these into signs, and interpreting them to answer questions.

These methods are considered here alongside astrology, the art of identifying information about the terrestrial world by interpreting signs in the heavens. The movements of heavenly bodies were thought to influence the terrestrial world, and

⁶⁴⁶ 'Divinationis intelligitur quaedam praenuntiatio futurorum', Thomas Aquinas, *Summa theologiae*, ed. by T. F. O'Meara and M. J. Duffy, vol. 40 (2a2ae. 92-100) (Cambridge: Cambridge University Press, 2006), 2a2ae, q. 95, a. 1, p. 36.

⁶⁴⁷ David D'Avray, 'The Concept of Magic', in *The Routledge History of Medieval Magic*, ed. by Sophie Page and Catherine Rider (Abingdon: Routledge, 2019), pp. 48-56 (p. 50).

observations about the positions of the stars and planets could be used to answer questions, predict the future, or select the best time to carry out an action. While the functioning of astrology was thought to have a natural explanation, I am considering this practice alongside supernatural methods of divination for three reasons. Firstly, divinatory and astrological methods of prediction often sought to provide information about similar matters – family affairs, agriculture, politics and medicine. This included identifying whether a woman was pregnant or not. Secondly, both astrology and divination were condemned as illicit practices by the church and the secular law at various times in the later middle ages. Isidore of Seville had condemned astrology and geomancy among the many forms of magic and divination in the section on the magical arts in his *Etymologies*:

Diviners (*divinus*) are so named, as if the term were ‘filled with god’ (*deo plenus*), for they pretend to be filled with divine inspiration, and with a certain deceitful cunning they forecast what is to come for people.⁶⁴⁸

Instead, according to Isidore, the efficacy of these practices depended on demonic power:

In all these the craft of demons has issued from a certain pestilential alliance of humans and evil angels. Hence all these things are to be avoided by a Christian, and entirely repudiated and condemned with every curse.⁶⁴⁹

These practices were at times forbidden in canon law, including in Gratian’s *Decretum*. This twelfth-century compilation of authoritative statements of church fathers and papal pronouncements includes a condemnation of number divination – what we would now call onomancy. It was forbidden to enquire into ‘the life or death of the sick, or future prosperity or adversity’, ‘through certain numbers of letters, and of the moon, by Pythagorean necromancy’.⁶⁵⁰ How these methods operated, and the licit nature of astrology, would not be obvious to the uninformed individual in the later middle ages, and this led to suspicion and accusations of magical practice. The third reason for considering astrology alongside divination is that these methods promised a way of finding out information about

⁶⁴⁸ Isidore of Seville, *The Etymologies of Isidore of Seville*, trans. by Stephen A. Barney et al. (Cambridge: Cambridge University Press, 2006), VIII.ix.13-14; 22-27, p. 182; William Klingshirn, ‘Isidore of Seville’s Taxonomy of Magicians and Diviners’, *Traditio* 58 (2003), 59-90 (pp.70-71); Hunt, *Writing the Future*, pp. 19-20; Edge, p. 95.

⁶⁴⁹ Isidore, *Etymologies*, VIII.ix.31, p. 183; Klingshirn, p. 74.

⁶⁵⁰ ‘Sive per quosdam numeros litterarum, et lunae, per Pitagoricam nigromantiam egrotantium vitam vel mortem, vel prospera vel adversa futura inquirunt ...’, Gratian, *Decretum* C. 26 q. 7. c. 16, in *Corpus Iuris Canonici* ed. by Emile Friedberg and Aemilius Richter, vol. 1 (Graz: Akademische Druck –U. Verlagsanstalt, 1950), p. 1045; Edge, pp. 100-101.

pregnancy without examining a woman's body or bodily fluids, using extrinsic information to gain insights into its internal processes. They cannot therefore be classified as medical. The commonalities between divination and astrology in diagnosing pregnancy justify their consideration together in this thesis, despite the evident differences between them.

There has been no overarching study of divination in the middle ages, although various aspects have been covered in studies on the history of science and medicine, and the history of magic.⁶⁵¹ The difference between divination and magic is often emphasised: magic was concerned with manipulating natural and supernatural force to effect a desired outcome, whereas divination was a means of knowing a foreordained outcome, rather than controlling or changing it.⁶⁵² An additional distinction must be made between divination and prognostication – the art of predicting the likely outcome of events, on the basis of observing and interpreting natural phenomena according to codified procedures.⁶⁵³ Prognostications could be made about natural phenomena, but the practice was particularly significant in medicine. A practitioner could offer a prognosis as to whether a person would live or die and how a disease would progress by observing the signs and symptoms of a person's condition.⁶⁵⁴ Tony Hunt distinguishes between prognosis and divination depending on the phenomena being observed: prognostication involved the observation of *natural* phenomena, whereas divination used *supernatural* agency to reveal hidden truths.⁶⁵⁵ Astrology of course involved the interpretation of natural phenomena, in the movements of the planets, and for this reason it should be treated as different from the methods of divinatory practice discussed here.

Astrology has received the most scholarly attention of these methods of prediction. The works of Hilary M. Carey are particularly notable here.⁶⁵⁶ There was an association

⁶⁵¹ Geneviève Xhayet, *Médecine et arts divinatoires dans le monde Bénédictin médiéval à travers les réceptaires de Saint-Jacques de Liège*, *Savoirs Médiévaux* 2 (Paris: Éditions Classiques Garnier, 2010); Laszlo Sandor Chardonens, *Anglo Saxon Prognostics, 900-1100: Study and Texts* (Leiden: Brill, 2007); Hunt, *Writing the Future*, pp. 11-20; J. R. Veenstra, *Magic and Divination at the Courts of Burgundy and France, Text and Context of Laurens Pignon's Contre les Devineurs (1411)* (Leiden: Brill, 1998), pp. 184-198; Sarah Iles Johnston, *Ancient Greek Divination* (Oxford: Wiley-Blackwell, 2008).

⁶⁵² Kieckhefer, p. 85.

⁶⁵³ Hunt, *Writing the Future*, p. 11.

⁶⁵⁴ Demaitre, 'Prognostication', p. 765.

⁶⁵⁵ Hunt, *Writing the Future*, p. 11.

⁶⁵⁶ Hilary M. Carey, 'Astrology in the Middle Ages', *History Compass* 88 (2010), 888-902; *Eadem*, 'Judicial Astrology in Theory and Practice in Later Medieval Europe', *Studies in History and Philosophy of Biological and Biomedical Sciences* 41 (2010), 90-98.

between astrology and medical practice in the later middle ages, which has directed much of the scholarship on this topic.⁶⁵⁷ However, the predictive methods of judicial astrology will be the focus here: making predictions and offering advice on specific questions, on the basis of the position of the stars at the time the question was asked.⁶⁵⁸ There are also several works on geomancy in the middle ages, including Thérèse Charmasson's comprehensive study of the topic, and Laurel Braswell-Means's work comparing its use in western and eastern contexts.⁶⁵⁹ Most works on onomancy focus on its use as a means of predicting whether a patient would live or die: Joanne Edge's thesis on this subject is an invaluable resource on the specific onomancy known as the sphere of life and death, or the sphere of Pythagoras.⁶⁶⁰ There is little scholarship on other uses of onomancy, beyond brief references in Edge's thesis to its use in predicting the outcome of duels, or whether a husband or wife would die first.⁶⁶¹ However, all three methods – astrology, geomancy and onomancy – could be applied to provide answers about a wide variety of matters, from familial relationships, business matters, political and militaristic concerns, and matters of health – including pregnancy diagnosis.

These methods offered a potential means for finding more information about a pregnancy. They offered answers to the same questions as those posed in the medical texts: whether a woman was pregnant or not, what was the sex of the child, would it be a difficult birth, and whether the child had died in the womb. These different methods might present certain advantages in comparison to medical methods: none of these practices required direct contact with the potentially pregnant woman, which circumvented taboos about male-female contact. This lack of bodily contact might also facilitate diagnosis of pregnancy without a woman's knowledge or consent. In addition, some of these methods came with a certain amount of prestige: astrology required a great deal of training and education to

⁶⁵⁷ Roger French, 'Astrology in Medical Practice', in *Practical Medicine from Salerno to the Black Death*, ed. by Luis García-Ballester et al. (Cambridge: Cambridge University Press, 1994), pp. 30-60 (p. 32); Laurel Means, 'Electionary, Lunary, Destinary, and Questionary: Toward Defining Categories of Middle English Prognostic Material', *Studies in Philology* 89 (1992), 367-403.

⁶⁵⁸ John Scott Lucas, *Astrology and Numerology in Medieval and Early Modern Catalonia: the Tractat de prenostication de la vida natural dels hòmen* (Leiden: Brill, 2003), p. 34.

⁶⁵⁹ Charmasson; Braswell-Means, 'Art of Geomancy'.

⁶⁶⁰ Edge, 'Nomen omen'; Linda Ehrsam Voigts, 'The Latin Verse and Middle English Prose Texts on the Sphere of Life and Death in Harley 3719', *The Chaucer Review* 21 (1986), 291-305; David Juste, 'Non-Transferable Knowledge: Arabic and Hebrew Onomancy into Latin', *Annals of Science* 68 (2011), 517-529.

⁶⁶¹ Edge, pp. 11, 33.

perform, and the ability to tap into mysterious powers to make the unknown known was highly valued and respected in medieval Europe. This ethereal prestige might draw interest from those who sought to know more about a pregnancy, particularly members of the elites. Onomancy and geomancy required less training: onomantic techniques required no more than basic mathematics, and geomancy only required practitioners to be able to cast dots, accurately consolidate them, and interpret the outcome by comparing these to charts within the texts. There would be no need to master the concepts of anatomy or medical practice which might be needed to make sense of the medical methods of diagnosis, or the complexities of astrological theory. The following discussion seeks to understand more about these potential methods of diagnosing pregnancy and levels of interest in them in later medieval Europe.

9.1. Onomancy

While the term onomancy dates from the sixteenth century, its methods originate in the ancient world, and were apparently widely practised in the later middle ages.⁶⁶² This method of divination associated the letters of people's names with numbers, and used these to perform calculations to make predictions about the outcomes of events in which these people were involved. Names were seen to carry a great deal of meaning: they were understood by some to result from divine inspiration, revealing something essential about the person.⁶⁶³ The continued belief in what Linda Ehram Voigts calls the 'numerological residue of Pythagorean philosophy' was also influential in the development of onomancy, particularly its teaching that 'reality can be reduced to, and understood in terms of, number relationships'.⁶⁶⁴ Most commonly these involved discerning whether a patient would live or die, but they could also be used to discern whether a husband or wife would die first, whether a woman was a prostitute, whether someone would win a duel, and, most pertinent for this thesis, whether an unborn child would be male or female.⁶⁶⁵

To perform onomantic divination, numbers were ascribed to the letters of the person's name, and the names of other participants, such as a woman's husband or child, or

⁶⁶² Edge, p. 18.

⁶⁶³ Ibid, p. 46.

⁶⁶⁴ Voigts, 'Harley 3719', p. 291.

⁶⁶⁵ Edge, pp. 34-37.

the messenger bringing notification of a sickness to a practitioner. Some onomancies also use the number of the planetary weekday upon which the patient fell sick, or on which the duel was set to occur. The numbers ascribed to these letters are usually added up, and then divided by a certain figure. The outcome of the situation can then be discerned by considering the remainder. This might then be sought in a numerical table to determine whether the patient would live or die. Alternatively, the outcome might be indicated by an odd or even number remaining. Sometimes these onomancies appear as prose texts, but others appear alongside diagrams, demonstrating the numbers with which each letter was associated, or the outcome of the situation according to where the remainder fell on a chart.⁶⁶⁶

I have identified two examples of onomantic texts out of the sixty-five manuscripts concerning pregnancy diagnosis I examined for this thesis. Both of these examples offer methods of telling whether a woman is carrying a male or female child. One is a fourteenth century French manuscript, and the other is Dutch, but both appear to be using the same method. The French example, from Wellcome MS 546, appears as follows:

If you wish to know whether a pregnant woman is carrying a son or daughter, add together the letters of the name of the woman and of her youngest child, or her husband if she does not have a child, and add 15. And divide it by nine. If an even number remains, she is carrying a son. If not, a daughter.⁶⁶⁷

The number equivalent to letters of the mother's name, added to those of the name of her husband or youngest child would provide the prediction about whether she was carrying a male or female child. The direction to use the child's name if the couple already had children would prevent a couple from receiving the same answer for this onomancy every time they tried it, while still incorporating some vestige of the father's 'essence' by using the name of his child.

This text does not indicate how the letters of the names should be ascribed numbers, suggesting that the operator of this text might be expected to know how to do

⁶⁶⁶ This is particularly the case for the 'Sphere of Life and Death' onomancy, used to discern whether a person would live or die, and discussed by Joanne Edge in her PhD thesis. This diagram usually featured tables of remainders, divided between the upper and lower halves of the sphere. Those in the upper half would indicate that a person would live, while those below would indicate death. Edge, p. 13.

⁶⁶⁷ 'Si vis scire an mulier pregnans pariat filium vel filiam computa litteras nominis mulieris pregnantis et minoris filii vel mariti si non habet filium et adde . XV. Et divide per novem. Si par numerus remanserit pariet filium. Si non filiam', Wellcome MS 546, f. 91r.

this. The most obvious way to do this would be to assign an Arabic numeral to each letter of the alphabet, on the basis of 1 for a, 2 for b, 3 for c and so on, but it was not usually so simple. In the original Greek and Arabic, there had been an accepted system of correspondences between numbers and letters, where the first nine letters of the alphabet correspond to the units (1-9), the next nine letters correspond to the tens (10, 20, 30...), and the final letters to the hundreds (100, 200, 300...) up to 1000. The Latin alphabet presented problems for translators as this original system of equivalents was lost. Only the seven letters of roman numerals had an accepted value (I = 1, V = 5, X =10). Additionally, there were not enough letters in the alphabet to adopt the original system of equivalences.⁶⁶⁸ It was therefore up to the translators to decide how to assign numbers to the letters.

These assigned associations between numbers and letters might be quite random or very complex: the inclusion of a table of equivalences was invaluable. This is the case in the second example I have identified, which appears in a late fifteenth-century manuscript, Wellcome MS 349, alongside the *Ars computistica* of Heymandus de Veteri Busco:

If you wish to know what a woman is carrying, that is to say a male or female &c. Add together her name itself, and that the youngest son or daughter. And if she does not have a son or daughter then calculate the name of the woman's husband instead of the child's name and add to the name 15. The outcome is worked out by dividing by the name. And if there remains an even number from subtracting the number of the alphabet, she carries a male. If it is uneven, she carries a girl.⁶⁶⁹

This version of the text appears in a diagram below, specifying which numbers correlate to which letters:

⁶⁶⁸ Juste, pp. 518-520.

⁶⁶⁹ 'Si vis scire quid mulier paritura sitis scilicet filium vel filiam &c computa nomen ipsius scilicet filii vel filie minorum. Et si non habuerit filium vel filiam. Tunc computa pro puero nomen mariti mulierum et adde nomini 15. Tunc consequentur dividendo tale nomen. Et si manserit numerus par de subtracto numero alfabeti masculus parietis si impar femellam parietis', Wellcome MS 349, f. 25r.

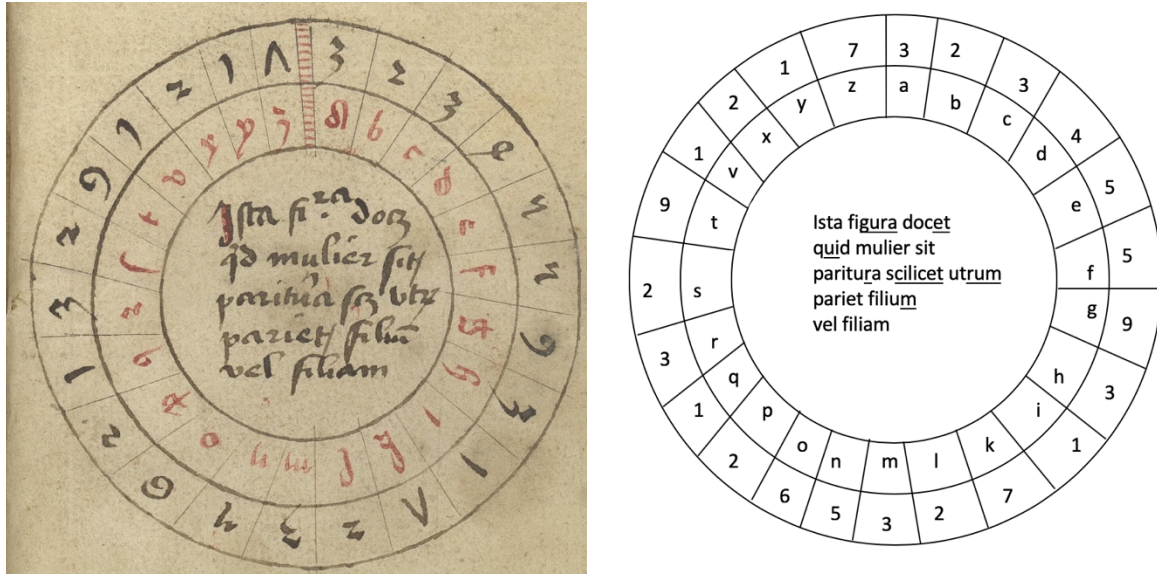


Figure 2: Onomantic sphere diagram, Wellcome MS 349, f. 25r.⁶⁷⁰

The table of correspondences is as follows, in alphabetical order:

a	b	c	d	e	f	g	h	i	k	l	m	n	o	p	q	r	s	t	v	x	y	z
3	2	3	4	5	5	9	3	1	7	2	3	5	6	2	1	3	2	9	1	2	1	7

And in numerical order:

1	1	1	1	2	2	2	2	2	3	3	3	3	3	4	5	5	5	6	7	7	9	9
i	q	v	y	b	l	p	s	x	a	c	h	m	r	d	e	f	n	o	K	z	g	t

These correspondences are not simple, or apparently logical: anyone using this text would have relied on the chart to perform this calculation. It would not be possible to perform this calculation without its support, unless the operator had memorised the correspondences. The written text was therefore key to diagnosing pregnancy.

These examples demonstrate that some elements of pregnancy diagnosis, particularly predicting the sex of the child, could be conducted without the involvement of the woman's body, or bodily fluids. All that was needed was her name, and the name of either her youngest child or her husband, to attempt to ascertain whether she was carrying a male or female child. This lack of contact with a woman's body might explain the appeal of onomancy. Male practitioners might use them to find out about a pregnancy even if they

⁶⁷⁰ 'This figure teaches what a woman will bear, that is to say whether she is carrying a son or a daughter', Wellcome MS 349, f. 25r.

were prevented from touching their female patients. The simplicity of these methods might have made these sorts of texts accessible to ordinary lay people too, and as discussed in Chapter Four, there is some evidence of gentry ownership of this sort of material. This, in addition to the utility of onomancy as a method of prediction in other matters, would have encouraged the use of onomancy as a divinatory means for finding out more information about a pregnancy.

9.2. Geomancy

Geomancy is a divinatory practice which seeks to answer questions and predict future events through the interpretation of signs made from four lines of one or two dots. The operator makes sixteen lines of dots, cast at random on paper, parchment, or in the earth – the term geomancy literally means earth divination.⁶⁷¹ These dots are then consolidated and combined to produce four figures, each composed of four lines of one or two dots. There are sixteen mathematically possible combinations of these, which form sixteen named figures, as below:

• • • •	• • • • • • • •	• • • • • •	• • • • • •	• • • • •	• • • • •	• • • • •	• • • • •
Via	Populus	Conjunctio	Carcer	Caput Draconis	Cauda Draconis	Puella	Puer
• • • • • •	• • • • • •	• • • • • • •	• • • • • • •	• • • • • •	• • • • • •	• • • • • • •	• • • • • • •
Fortuna Major	Fortuna Minor	Rubeus	Albus	Acquisitio	Amissio	Tristitia	Laetitia

Figure 3: Geomantic figures

The practice of geomancy originated in Arabic traditions, but was adapted by later medieval European authors. These adaptations included attempts to associate the practice with astrology: Martin of Spain, the author of the thirteenth-century text *De geomantia*, claimed

⁶⁷¹ Skinner, p. 13.

that the dots represented the stars, and each figure was intended to signify the planets and signs of the zodiac.⁶⁷²

To make a prediction using geomancy, the initial four figures would be consolidated and combined in a set sequence to eventually create eleven more figures. These figures would then be displayed in a triangular or shield shaped diagram known as a geomantic theme, as in Figure Four below.

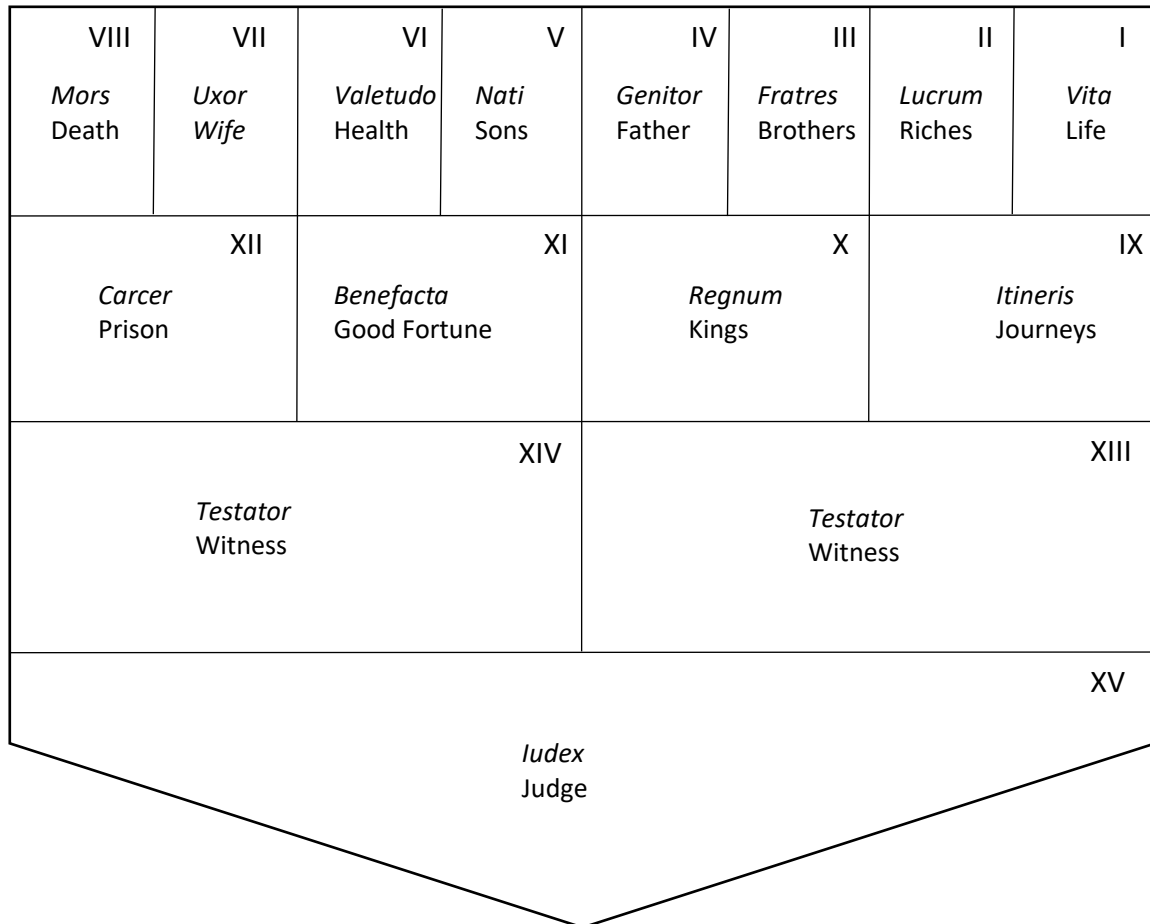


Figure 4: Geomantic Theme

This layout was read right to left, perhaps suggesting Arabic origins, and could be interpreted to provide an answer to a question. It was divided into fifteen sections: the first twelve were known as houses – like the astrological houses. The final three figures, the two witness figures and the judge figure which derives from them, were placed at the bottom of the geomantic theme. These final three were sometimes considered the most important and could be interpreted on their own to provide an answer to a question.

⁶⁷² Means, p. 137.

Geomancy was thought to function on the basis of hidden powers in the earth, which the practitioner would tap into while casting the dots. These forces would provide the answer to the question, which could be interpreted by assessing the signs which appeared in the geomantic theme. The geomantic houses echo the zodiacal houses, and a practitioner drawing up a geomantic theme was creating a microcosm of the universe and the zodiacal system, uniquely tailored to answer the question at hand.⁶⁷³ Some geomancers even placed their figures on an astrological chart.⁶⁷⁴ This astrological connection would have appealed to potential practitioners in the fourteenth and fifteenth centuries. At this time, astrology was at the cutting edge of medieval science – as discussed in Chapter Four. However, geomancy was far simpler than drawing up an astrological chart, requiring no complex calculations or celestial observations. This simplicity meant that it was possible for individuals to draw up charts and interpret them themselves, with no need for the interventions of a professional practitioner. The power inherent in numbers is also important to geomancy – as in onomancy. The emphasis is always on the number four: four lines of dots, and sixteen possible figures, each corresponding to one of the four elements of earth, fire, water and air.

There were a number of possible ways of attaining an answer to a question from a geomantic theme: looking at the final judge figure alone; assessing the two witnesses, in conjunction with the judge; or interpreting the geomantic chart as a whole, assessing particular houses or looking out for signs depending on the question at hand. Assessing the final three figures seems to be the most common way of doing this, as in Rolandus Scriptoris's *Compilatorium geomancie*. Rolandus Scriptoris was physician to John, Duke of Bedford (1389-1435), and the text was possibly commissioned by the Duke – as discussed in Chapter Four.⁶⁷⁵ I have examined two manuscript copies of this text, in British Library, Royal MS 12. C. xvi, and MS Sloane 3487 – both fifteenth-century manuscripts, the former from England and the latter from France.⁶⁷⁶ The first part of the text explains geomantic divination, and this is then followed by a set of tables addressing a series of pre-set questions, according to the layout of the final three figures, the witnesses and the judge.

⁶⁷³ Charmasson, p. 48.

⁶⁷⁴ This is demonstrated in the Roland Scriptoris text, in British Library MS Royal 12 C. xvi, f. 7v.

⁶⁷⁵ Carey, *Courting Disaster*, p. 106; Charmasson, pp. 177-178.

⁶⁷⁶ BL, Royal MS 12. C. xvi; BL, MS Sloane 3487.

There are only a limited number of figures which can appear as judges: as this figure is derived from all the other figures in the table, they are ultimately a combination of the original four mother figures and the four daughter figures. Mathematically speaking the possible figures must therefore be made up of an even number of points.⁶⁷⁷ This means there are only eight possible figures which can appear as a judge: Populus, Via, Carcer, Coniunctio, Fortuna Maior, Fortuna Minor, Acquisitio, and Amissio. For six of the eight possible judge figures, there are sixteen possible combinations of witnesses. For the other two, there are only eight possible combinations of witnesses. For each question, the *Compilerium* sets out the meaning of each of these possible combinations of figures – a total of 112 possible combinations. This means that for each question, the table contains 112 possible answers.

The content of the questions reflect a wide variety of concerns, including whether a besieged city would be captured; whether a sick person will recover; whether marriage will be proposed; and of most relevance for this thesis, whether a woman is pregnant and what she is bearing – a male or female child. In relation to the pregnancy question, the answers provided in the table consider a wide range of possibilities. These include whether a woman is currently pregnant, and the likelihood of conceiving in future. They offer insights into the sex of the child, and consider whether a child is dead in the womb, or if the child will be delivered safely. For example, Laetitia appearing in each of the witnesses, leading to the creation of Populus as the judge, would signify that ‘the woman will be pregnant and will deliver a blessed male child.’⁶⁷⁸ These are the sorts of possibilities considered in contemporary medical texts, but given the sheer range of possibilities, the authors of these geomantic texts offer a much broader range of possible answers than the medical texts do. They often offer a prediction about the possible conditions for a woman’s labour. For instance, a judge figure of Via, formed from Via and Tristitia as witnesses, would indicate that ‘the pregnancy will be completed without doubt, and her labour will be easy’.⁶⁷⁹ It appears that even the character or behaviour of the child could be predicted. A judge figure

⁶⁷⁷ Marcia Ascher discusses the mathematics behind this, in relation to Magadascan *sikidy* divination, a divinatory practice which derives from the same Arabic roots as western medieval geomancy and follows a similar process. Marcia Ascher, ‘Malagasy *Sikidy*: A Case in Ethnomathematics’, *Historia Mathematica* 4 (1997), 376-395 (pp.382-383).

⁶⁷⁸ ‘Erit pregnantes incolumis pariet masculum benedictum’, BL, MS Royal 12. C. xvi, f. 93r.

⁶⁷⁹ ‘Perficietur pregnantes sine dubio & partus eius facilis’, *ibid*, f. 96r.

of Populus, composed of Puer in each of the witnesses, would indicate that ‘her pregnancy will be difficult, she will give birth to a quarrelsome and verbose boy.’⁶⁸⁰ This could be a positive thing – if the child was loud and active this would be a sign that it was healthy.

The many and varied answers to these questions offer a fascinating insight into the presumed powers of geomancy as a predictive mechanism, but they also hint at the sorts of information people were concerned to know about a pregnancy, reflecting the decisions of the compiler, and his knowledge of the interests of his intended audience, members of the nobility and even royalty. As such, this text offers an opportunity to consider the concerns (or supposed concerns) of a noble audience, by considering the sorts of questions they might want answered, and assessing the multitude of answers provided. The very fact that the question of whether a woman was pregnant or not was included in this list of formulaic questions suggests that this would be a topic of interest. It may not have been the focus of the text, but it was clearly a priority to be given a place in this list. The sex of the child is also included in the question heading, demonstrating that ascertaining this was also a strong priority. These inclusions apparently reflect the interest of the upper classes in producing children to further their lineages and promote family concerns, as discussed in Chapter Two. The inclusion of comments on the conditions of labour and the woman’s health demonstrate that those casting these questions were concerned not only with the production of children and heirs, but also the health and fate of the women bearing those heirs. This text therefore provides a fascinating insight into the attitudes of nobility, aristocracy, and gentry towards childbearing. A desire to know more about the state of a pregnancy demonstrates an active interest on the parts of these (predominantly male) readers in the experiences of women in childbearing.

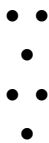
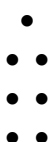
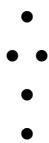
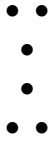

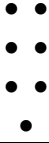
Scriptor’s use of tables of possible questions presents a rigid and prescribed approach to prediction. A more flexible approach to geomantic questioning and interpretation was also possible. This is demonstrated in the text of British Library, MS Harley 671, a fifteenth-century vernacular English manuscript which features a geomantic text, broken up into sections apparently written in two different hands, which appear alongside texts on astrology and onomancy.⁶⁸¹ The text in MS Harley 671 includes a

⁶⁸⁰ ‘Erit pregnantes eius difficilis pariet masculum rixitorem [rixitorum] verbosum’, BL, MS Royal 12. C. xvi, f. 93r.

⁶⁸¹ BL, MS Harley 671.

discussion of a sixteenth geomantic figure, known in some texts as the super judge. This was generally made as follows: two figures were made, one by combining the first figure in the geomantic theme with the fifteenth figure (the judge), and one by combining the second figure with the eighth figure. These two figures were then combined to form a sixteenth figure. This figure, assessed alone, could be interpreted to make a prediction, answer a question, or identify the interest of the person asking the question. The text addresses a number of themes, and explains the meaning of each figure in relation to them. These themes include sickness, journeys, the fate of prisoners, associations with kings, felling trees, charters, livestock, weddings, and the activities of merchants. The text was composed in the vernacular, perhaps making it more accessible for ordinary people.

Amongst these possible meanings of the sixteenth figure in MS Harley 671 are several references to pregnancy:

	Acquisitio in the 16 th house	'And yf it fall in ye .16. haws to qwome it fallto edir he schal take a woman or monay or for sum prisoner or sum woman with child... ye woman with chyld schall have a son after a tyme' (f. 11r)
	Laetitia in the 16 th house	'And yf yis [LAETITIA] fall in ye .16. ... ye wedding schal nat in dure ye woman schalbe delyverd of child' (f. 11r)
	Puer in the 16 th house	'And yf yis [PUER] fall in ye .16. ... ye woman with child schal ber a son' (f. 11r)
	Conjunctio in the 16 th house	'And yf yis [CONJUNCTIO] fall... yf it be spird of a woman with child sche is seke'. (f. 11v)
	Amissio in the 16 th figure	'And yf yis [AMISSIO] fall... ye woman schalbe delivered' (f. 11v)
	Tristitia in the 16 th figure	'And yf yis [TRISTITIA] aper... ye woman with child schal have a dowghter' (f. 12r)

<ul style="list-style-type: none"> • • • • • 	<p>Cauda Draconis in the 16th figure</p>	<p>'Yf yis [CAUDA DRACONIS] fall... ye woman schalbe delyvered' (f. 12r)</p>
<ul style="list-style-type: none"> • • • • • • 	<p>Carcer in the 16th figure</p>	<p>'And yf yis [CARCER] in .16. it is askid for a sekeman or woman or for a woman with child... and ye woman with child schall have a man child' (f. 12v)</p>

Within the framework of this text, pregnancy is considered as one of many possible affairs of the world, about which an individual might wish to know more. The information provided here is largely positive. In two instances it is explicitly stated that the woman will be delivered, which would have been a relief to hear before the dangers of childbirth. While one sign is said to signify sickness in a pregnant woman, no mention is made of the very real possibility that a woman might die in childbirth. The text's author may have been reluctant to scare the questioner. Much of the information relates to the sex of an unborn child. Reassurance of safe delivery, and information about the child's sex were clearly the two topics of most significance and interest to those who wanted to know more about pregnancy through geomantic means.

The concerns reflected in this discussion of the super-judges are repeated later on in the text of MS Harley 671. The main section of the text, ff. 94v-150r, takes the form of a long series of possible questions which a querent might ask, and ways of interpreting the geomantic diagram to answer them. Laurel Means refers to this type of text as a questionnaire, a work concerned with offering answers to specific questions, through prescribed means.⁶⁸² These questions reflect concerns with family matters, business, politics, warfare, and lost items. Questions include 'qwat schall happine to thi fadir', 'qwat schall happine to thi brodir', 'to dwell in an hows', 'qwedir ther be any treasure in that plas or no', 'of battel or of pece', 'how long seknes schall indure' and 'yf ye seke schalle lefe or dye'.⁶⁸³ Several questions relate to pregnancy and conception: 'qwedir a woman be with child and qwedir sche may nat'; 'yf it be askid yf a man or a woman schall have a child';

⁶⁸² Means, 'Electionary', p. 395, pp. 401-402.

⁶⁸³ MS Harley 671, f. 3v.

‘qwedir ye child be qwike or nat’; and ‘yf a man aske qwedir a woman be with chyld or nat’.⁶⁸⁴

Answers to these questions were attained by assessing the whole of the geomantic theme, paying particular attention to the signs appearing in particular positions. The first twelve positions of the theme are referred to as houses – a concept borrowed from astrology. Each of these houses was thought to correspond to a different aspect of life, including health, journeys, kings, sons, daughters, and wealth.⁶⁸⁵ These are set out in Figure 4. By considering the whole theme, including the positions of particular signs, and the houses with particular relevance to the question at hand, it would be possible to obtain an answer to almost any question one wished to ask. There are tens of thousands of possible combinations of signs in a geomantic theme, so the range of possible answers was very varied.

This complexity is demonstrated in answering the question of whether a woman is with child. On f. 99v, the operator is instructed to look at which figure is in the fourth house of the theme, which relates to the father, *genitor*. If it is a ‘gud’ figure, such as Fortuna Major, Acquisitio, or Caput Draconis, and another good figure appears in the first house (representing *vita*, life), this is a sign that she is with child.⁶⁸⁶ The fifth house, associated with *nati*, sons, is then scrutinised: the appearance of Albus in this house demonstrates that ‘sche schal have frut and sche schal have a woman child’. Additionally, it was significant if the figure which appeared in the fifth house (*nati*, sons) also appeared elsewhere in another house in the diagram:

yf ye .5. fegur dobil him in a strong hows as in ye .1. ye .10.7. ye chyld schal lefe. And yf ye .5. dobill him in an evill haws and be ane evill feure ye chyld schal nat leffe.⁶⁸⁷

Three other possibilities follow: if Puella, or Amissio appear in the fifth house, she will not have a child; if Rubeus appears in the fifth house, and appears again in ‘a strong house’ she will have sons. If Albus appears in the fifth house, and appears again in the Third (*fratres*, brothers) or the seventh (*uxor*, wife), the woman will have two daughters. Taking

⁶⁸⁴ MS Harley 671, f. 99v, ff. 121r-122r.

⁶⁸⁵ Elizabeth Z. Bennett, ‘Medieval Geomancy’, *Princeton University* 1998, 2012
<<https://www.princeton.edu/~ezb/geomancy/geostep.html>> [accessed 17th September 2018].

⁶⁸⁶ ‘Se ye .4. fegur and yf yat be gud as yis schalbe with child’, MS Harley 671, f. 99v.

⁶⁸⁷ MS Harley 671, f. 99v.



[fortuna major] or adquisicio de caput and ye .1. also . sche

into account a variety of different factors like this allowed a number of possible answers to be derived from a diagram. For some questions, it was also necessary to consider the associations between figures and the elements – for example, on f. 122r, for the question of ‘qwedir ye woman schall bring forth a man child or a woman’, the operator is instructed to consider the elements with which the figures are associated, and predict the sex of the child on this basis.⁶⁸⁸ All of these different steps would complicate the interpretation of these diagrams, but the texts’ specificity in guiding the operator through the stages of interpretation would have enabled even untrained individuals to make use of these methods.

The inclusion of information about pregnancy and pregnancy diagnosis in geomantic texts owned by and composed for the nobility and royalty demonstrates the interests of these groups, as they engaged with this divinatory art to answer questions about political affairs, business interests, and the health of their families. These are of course prescriptive, instructional texts, so it is possible that interest in these methods was only theoretical. However, given the presence of roughly drawn geomantic themes, and arrays of dots in the flyleaves of the geomantic manuscripts considered here, it seems likely these methods were attempted by some readers of these texts. At least one individual used geomancy to identify the sex of a foetus. Cambridge, Trinity College MS O. 7. 40 is not a geomantic manuscript, but a twelfth- and thirteenth-century collection of philosophical texts, once in the possession of a house of Canons.⁶⁸⁹ Despite the lack of geomantic material, someone has used this volume to cast several geomantic diagrams. One of these, on f. 254v features the caption: ‘Quaestio. An filium pariat’ – ‘Question. Whether she would bear a son’, in a late fifteenth-century hand.⁶⁹⁰ Whoever was using this manuscript at this time sought to identify whether a pregnant woman was carrying a male child or not, using geomancy. Without knowing which geomantic text this person was using, it is difficult to interpret the answer they may have read from this theme, but according to the Rolandus Scriptoris text, as the

⁶⁸⁸ ‘Qwedir ye woman schall bring forth a man child or a woman yen se ye .5. and his coniuncion that yf yai be fire and wattire or erthye and wattyre yen sche bringis forth a woman. And yf yai be of ye ayer and fyre yen sche schall have a man. And yf yai be commixt .yat. yat is strongest. hald you principally yat yf ayre or fir be strengest a man and yf wattir or erthe be frest strongest a woman’ MS Harley 671, f. 122r. Elizabeth Z. Bennett presents a table which delineates the associations between the elements and the figures, also indicating the degree of goodness and badness associated with each of the figures. Bennett, ‘The Geomantic Figures’.

⁶⁸⁹ Montague Rhodes James, *The Western Manuscripts in the Library of Trinity College, Cambridge: A Descriptive Catalogue* vol. III (Cambridge: Cambridge University Press, 1902), pp. 376-379.

⁶⁹⁰ Cambridge, TC, MS O.7.40, f. 254v; Charmasson, p. 231.

final three figures feature Puer and Cauda Draconis in the witnesses, and Acquisitio in the judge position, this would suggest that:

She will bear a male and there will certainly be, on account of this, there will be much reverence.⁶⁹¹

9.3. Astrology

The terms *astrologia*, ‘astrology’ and *astronomia*, ‘astronomy’ were treated interchangeably in the later middle ages to refer to the science of the stars. The only distinction between them came when authors wanted to refer to two complementary aspects of this science: astronomy was used to denote the theoretical knowledge of the planets and the stars, and astrology referred to the practical use of this knowledge.⁶⁹² There was a concern to understand the ways in which the stars influenced events on earth, and astrologers attempted to harness their knowledge of the stars to make predictions about the outcome of future events. They claimed to be able to provide answers to questions based on the positions of the stars and their knowledge of what these positions might mean. These ideas came from ancient understandings of the topic, shaped by Arabic authors and translators. These texts came to the west around the twelfth century and were incorporated into the liberal arts curriculum of the universities, the *Quadrivium*.⁶⁹³ By the later middle ages, it was widely believed that the influence of the stars on earthly affairs was extensive, affecting the weather, political affairs, and individual dispositions and actions. The ability to make predictions on the basis of this knowledge was highly valued, in medicine, natural philosophy, and in more secular contexts.

Another widely recognised relationship between pregnancy and astrology in the middle ages related to natal astrology.⁶⁹⁴ This was a significant branch of medieval astrological practice, understanding the influence of the planets on a person’s fate or character depending on their position at the moment of conception by drawing up nativity charts.⁶⁹⁵ Determining the precise moment of conception was a difficult task, but an

⁶⁹¹ ‘Pariet masculum & erit propter certum multi timoris’, BL, Royal MS 12. cxvi, f. 118v.

⁶⁹² Sophie Page, *Astrology in Medieval Manuscripts* (London: British Library, 2002), p. 7; Keith Thomas, *Religion and the Decline of Magic: Studies in Popular Beliefs in Sixteenth and Seventeenth-Century England* (London: Penguin, 1991), p. 337.

⁶⁹³ Carey, *Courting Disaster*, p. 52.

⁶⁹⁴ Means, ‘Electionary’, p. 367.

⁶⁹⁵ Lemay, ‘Stars’, p. 135.

estimation was necessary to calculate the planetary positions accurately. Most astrologers waited until a child had been born, then calculated backwards from the position of the moon at birth to draw up the chart: 'nativity teaches of conception, and conception teaches of nativity', according to Leopold of Austria, a thirteenth-century Latin astrologer.⁶⁹⁶ Attempts were made to estimate the moment of conception during pregnancy: Leopold provides information on the signs of conception within this section of his text, reflecting the medical ideas of signs of pregnancy and the sex of the child discussed elsewhere in this thesis. They included changes to the body, the breasts and the eyes, even the use of a mirror to test the breast milk for signs of a male or female child.⁶⁹⁷ By observing a potentially pregnant woman, or asking her to report on her own symptoms, it would be theoretically possible to estimate the moment of conception, and perform calculations accordingly. This information about the signs of pregnancy was clearly deemed useful for those interested in conducting natal astrology, and may demonstrate how widely known these signs were in the literate culture of the later middle ages.

Judicial astrology refers to the use of astrological charts to answer questions about occurrences in the past, present or future, and this could be used to provide information about a pregnancy.⁶⁹⁸ These questions might ask whether a woman was pregnant, what sex her unborn child might be, and when she would give birth.⁶⁹⁹ A specific question would be asked, and an astrological chart would be drawn up to map the position of the planets at the precise moment of questioning. This chart would then be interpreted to provide an answer, and treatises on interrogations gave advice on how to do this in relation to particular questions. Despite the expertise required to draw up and interpret these charts, this branch of astrology was seen as somewhat inferior to the more prestigious exercise of drawing up nativities and conjunctions.

Judicial astrology in respect to pregnancy was potentially useful in natal astrology, if someone wished to draw up a natal chart for a child before it had been born. If one could

⁶⁹⁶ 'Nativitas docet conceptionem: & conceptio docet nativitatem', Leupoldus Dux Austriae [Leopold of Austria], *Compilatio de astrorum scientia* (Augsburg: Erhard Ratdolt, 1489), Source Library Biblioteca Nazionale Centrale di Firenze, p. g 3 r, accessed via Early European Books

<http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:europa-us:&rft_dat=xri:europa:thumbnails:ita-bnc-in2-00001597-001> [accessed 3rd October 2018].

⁶⁹⁷ Lemay, 'Stars', p. 135.

⁶⁹⁸ Means, 'Electionary, Lunary', p. 367.

⁶⁹⁹ Carey, 'Astrology', p. 893.

work out via judicial astrology when this child would be born, it would be possible to then work backwards to calculate the time of conception – with no need to take into account the physical symptoms or signs of a woman’s pregnancy outlined in the Leopold of Austria text. Such a method is discussed by Sahl b. Bishr, a Jewish astrological writer of the ninth century. He was known in the west as Zahel, and his Arabic writings on astrology were translated into Latin in the thirteenth century, and circulated widely.⁷⁰⁰ Sahl's treatise *De interrogationibus* offers a method for calculating when a woman will give birth according to the position of the planet ruling the fifth house, the house of sons:

Chapter on the house of sons. When you have been asked by a pregnant woman when she will give birth: observe how many degrees are between the ruler of the house of sons and the angle from the signs and degrees: and put to each sign a month: and to each degree a day: and that same hour she will give birth if God wills it.⁷⁰¹

This required skill on the part of the practitioner in performing calculations. To answer a question, they had to make an assessment of the arrangement of the entire sky at the random moment when the question was asked.⁷⁰² Later medieval astrological practice makes it difficult to assess whether astrological methods were used to predict when a woman would give birth, or to identify whether her child was male or female. However, given the evidence for the consultation of astrological practitioners for information about pregnancy discussed in Chapter Four, the ability of practitioners like Richard Trewythian, to reveal information about pregnancy from the movements of the stars was clearly appealing. This use of judicial astrology to seek information about pregnancy demonstrates the potential of this method to offer up information about women’s bodies during pregnancy, without the need for direct bodily engagement and examination.

⁷⁰⁰ Carey, ‘Judicial Astrology’, p. 91.

⁷⁰¹ ‘Capitulum domus filiorum. Cum interrogatus fueris de muliere pregnante quando pariet: aspice quot gradus sunt inter dominum domus filiorum & angulum ex signis & gradibus: & pone unicuique signo mensem: & unicuique gradui diem: & eadem hora pariet si deus voluerit.’, Sahl, *De interrogationibus*, in H. S. Faventinus, ed., *Liber quadriparti Ptolomei*, (Venetius: Heredes Scoti, 1590), f. 129v. Accessed via Österreichische Nationalbibliothek <http://digital.onb.ac.at/OnbViewer/viewer.faces?doc=ABO_%2BZ18416640X> [Accessed 2nd October 2018]; Carey, ‘Judicial Astrology’, p. 92.

⁷⁰² Lemay, ‘Stars’, p. 128; Carey, ‘Judicial Astrology’, p. 91.

9.4. Conclusion

Divinatory methods of pregnancy diagnosis present a completely different picture of use, compared to the medical methods discussed in Chapters Six, Seven and Eight. Medical methods focused firmly on the pregnant woman's body, examining and testing the body and its secretions to reveal evidence of the ongoing processes hidden within. Divinatory and astrological methods turned their focus away from the woman's body. Instead, they sought to access other types of information and powers to find out more about the processes of pregnancy: onomancy made use of the power inherent within names; geomancy made use of the powers inherent within the earth; and astrology assessed the movements of the stars to find out more about the processes ongoing within women's bodies. Efforts to condemn these practices as illicit did not curtail interest in these techniques, and these methods were clearly appealing to later medieval people from a range of social classes: clerics, members of the gentry, the nobility, and royalty, but also people of the merchant classes, who consulted Trewythian for astrological advice. They may have been perceived as offering a different type of knowledge about pregnancy, which connected the functioning of a woman's body to the wider operations of the cosmos.

Part 4. Laws

Part Four consists of a single chapter, Chapter Ten, which examines methods of pregnancy diagnosis in the context of the law. This chapter provides a case study of the use of these methods in English common law, in criminal trials and inheritance cases. The diagnostic methods used in these cases differed quite significantly from those discussed in Part Three. The expertise of medical practitioners played no apparent role, and the prescriptive methods of medicine, divination or astrology were not mentioned. Instead, juries of ordinary women were sworn in to recognise whether women were pregnant or not. They were not chosen because of any particular medical knowledge or expertise, but were selected for their respectability, social standing, and law-worthiness. This chapter explores why confirmation of a pregnancy was necessary in these cases, and considers the procedures used to select these examining women, their likely levels of medical knowledge, and the methods of diagnosis they may have used. The assumption that these non-expert lay women would have been able to diagnose pregnancy presents evidence of the sort of informal knowledge of pregnancy which ordinary women might have been expected to possess at this time. This part of the thesis addresses the question of who would have tested for pregnancy in the middle ages, assessing the sorts of knowledge and techniques these women would have used for evidence of the diffusion of vernacularized medical knowledge in later medieval England, and the ways in which ordinary women might recognise pregnancy.

Chapter 10: Pregnancy Diagnosis and the Law

In later medieval English common law, the diagnosis of pregnancy played a crucial part in certain legal cases, which frequently had life or death implications. If a woman was pregnant at the death of her husband, their unborn child might stand to inherit his lands, to the disadvantage of the husband's heirs presumptive. Additionally, if a woman was convicted of a felony, for which the sentence was death, she could claim to be pregnant and this punishment would be deferred. In both these instances, pregnancy would offer significant advantages, by temporarily saving her life or securing her interests by bearing the legitimate heir. However, a woman's word alone was not enough to convince the legal authorities, or her husband's family, that she was actually pregnant. Procedures of proof were therefore devised to diagnose whether a woman was pregnant or not, meeting the standards required in English common law. Groups of women, often referred to as matrons, would be sworn in like a trial jury so they could examine whether a woman was pregnant or not. These were ordinary women chosen because they were trust-worthy and law-worthy, not because they were experts in gynaecological matters. They were expected to draw on their own general knowledge of pregnancy, to conduct an examination of a potentially pregnant woman's body for indications that she was pregnant. It is possible that the processes of vernacularisation may have made some of the medical and divinatory methods of diagnosis discussed in the rest of this thesis available to these women, particularly after the fourteenth century. However, they probably relied a great deal on their own experiential knowledge of pregnancy.

This use of juries of non-expert women to diagnose pregnancy differentiated the English legal system from legal systems in continental Europe. Historians have often stated that professional 'midwives' were used to provide expert advice in continental legal cases: Ackerknecht discussed the use of midwives as experts in court in French legal cases, presenting evidence that women who had been assaulted were still pregnant, for example; and claimed that Gregory IX had recommended that 'midwives' examine women in divorce

cases, where it was important to establish the woman's physical inability to consummate the marriage.⁷⁰³ Examining Ackerknecht's sources presents a less definitive picture: Gregory's IX's decretals actually recommended examination by 'matronas suae parochiae', matrons of her parish, rather than specifically midwives or *obstetrices*.⁷⁰⁴ But many of the French cases do appear to involve expert women who were called in to testify about pregnancy and gynaecological matters on multiple occasions – Wolfgang Müller cites the example of a woman named Emmeline la Duchesse, who appeared several times in the criminal registers of the Abbots of Saint Martin-des-champs in the 1330s. While Emmeline was referenced as a 'matrone juree', a sworn matron, she was apparently seen as an expert on these matters to be called in repeatedly in these cases.⁷⁰⁵ Another case from Manosque, edited by Joseph Shatzmiller, involved two matrons, 'matronis', examining the body of a pregnant woman who had been attacked in the street to see if her unborn child had survived the attack.⁷⁰⁶ Annie Saunier's survey of the records of fifteenth-century ecclesiastical visitations to parishes in the diocese of Amiens demonstrates that the women registered and appointed as midwives by the Church were referred to as 'obstetrices' 'matrones', and also 'ventrières'.⁷⁰⁷ There was evidently some flexibility in the use of these different terms.

The distinction between professional midwives and non-expert women may not be clear cut, but there was certainly a distinction between the procedures of proof employed on the continent, and those in use in English common law. While these continental cases appear to rely on the testimony of only one or two matrons or midwives, the English cases brought in larger groups of women, either six or twelve at a time, to conduct an examination. This mirrored the procedures for forming a conventional male trial jury: the sheriff would be ordered by the court to bring in a group of women for this purpose, who would be 'elected, tried and sworn' like a male jury would.⁷⁰⁸ The use of juries of women for

⁷⁰³ Erwin Ackerknecht, 'Midwives as Experts in Court', *Bulletin of the New York Academy of Medicine* 52 (1976) 1224-1228 (p. 1225).

⁷⁰⁴ Gregory IX, *Decretals*, Lib. IV, Tit. 16, Cap. VI, in *Corpus Iuris Canonici, Pars Secunda: Decretalium Collectiones*, ed. by Aemilius Ludovicus Richter and Emil Friedberg (Leipzig: Bernhard Tauchnitz Junior, 1839), p. 681.

⁷⁰⁵ Müller, p. 153.

⁷⁰⁶ Shatzmiller, p. 131.

⁷⁰⁷ Saunier p. 44.

⁷⁰⁸ An example of the parallel procedures and language used appears in the 1458 case of Katherine Scayse of Lawesdale: both the male jury who found her guilty, and the jury of matrons who identified her pregnancy,

pregnancy diagnosis was a particularly English phenomenon, and reflects the conventional use of juries as a mechanism of proof in English legal cases. When trials by ordeal were effectively abolished by Papal prohibitions on clerical involvement with them, legal systems across Europe sought other means of establishing proof in criminal trials. Legal systems in continental Europe turned towards procedures of proof established in Roman Law, including the use of torture, and the consultation of medical experts. English common law, on the other hand, expanded the role of the traditional inquest jury to investigate matters in dispute in criminal trials.⁷⁰⁹ Other circumstances contributed to the use of lay people to provide medical testimony: whereas cities on the continent often retained municipal physicians to serve the poor and provide their expertise in medical cases, English towns did not.⁷¹⁰ In England, a physician's fees would therefore be expensive, but a jury of ordinary people could be summoned to serve for free. Additionally, the right of physicians to be involved in legal cases may have been defended by powerful university medical faculties in continental Europe, in a way that the smaller medical faculties of England could not.⁷¹¹ This combination of factors led the English common law courts to rely on non-expert panels of jurors to testify about medical matters, instead of medical practitioners or perceived experts. The use of juries of ordinary women to conduct pregnancy diagnosis, rather than midwives or experts, reflects this.

Because of these differences between English common law and continental legal practices, and the exceptional survival of medieval English legal documents, this chapter focuses on procedures of pregnancy diagnosis in the English legal system. A selection of cases dating from c. 1200 to c. 1500 involving claims of pregnancy and procedures of pregnancy diagnosis will be used. The first section of this chapter will consider the procedures used in inheritance cases, before moving on to discuss criminal cases in section two. Each section will include a discussion of the formation of juries of women, and exemplary cases will be used to suggest that these women were not selected for their

were 'elected, tried and sworn', 'electe triate & iurate', London, The National Archives (hereafter TNA), JUST 3/213, m. 16d.

⁷⁰⁹ Ian Forrest, *Trustworthy Men: How Inequality and Faith Made the Medieval Church* (Princeton: Princeton University Press, 2018), p. 100; Sara M. Butler, *Forensic Medicine and Death Investigation in Medieval England* (Routledge: London, 2015), pp. 3-5.

⁷¹⁰ *Ibid*, p. 11.

⁷¹¹ Rawcliffe, *Medicine and Society*, p. 108; Eadem, *Urban Bodies: Communal Health in Late Medieval English Towns and Cities* (Woodbridge: Boydell, 2013), p. 302.

medical knowledge, but were instead chosen for their social standing and respectability. Where possible, consideration will be given to the actual diagnostic actions of these women, and the knowledge they were assumed to possess about pregnancy. For pregnancy and inheritance law, one exemplary case from the Court of Common Pleas will be discussed – this court was intended to deal with litigation between the King’s subjects, usually about landed property or debt.⁷¹² Eleven criminal cases will also be discussed in section two, taken from the records of the Court of King’s Bench at Westminster, and gaol deliveries carried out by itinerant justices.⁷¹³ These case records will be supplemented by entries in the Year Books, collections of law reports written in law French. They were compiled to aid in teaching lawyers the art of legal argument and had a role in setting precedent in legal cases.⁷¹⁴

Most scholarship on the topic of pregnancy diagnosis in English law has focused on criminal trials, and the later history of juries of matrons in the seventeenth century and beyond. Thomas Forbes’s study refers to a few thirteenth-century examples, and James Oldham briefly touches on the middle ages.⁷¹⁵ An article by Sara M. Butler on juries of matrons in criminal cases was published in May 2019, when this chapter was already in final draft.⁷¹⁶ While I have been unable to take this article into account fully, Butler does come to some similar conclusions about the use of juries of matrons in criminal cases, as discussed in section 10.2 of this chapter.

Additionally, other scholars have examined the role of women brought in to make judgements about people’s bodily conditions in other types of legal cases. In the Church Courts, women were called in during divorce cases not only to examine women for signs of virginity, as Gregory IX’s *Decretals* suggested, but also to assess whether a man was impotent or not. Jacqueline Murray cites two English cases in which women did this by stimulating the man’s genitals, and Jeremy Goldberg refers to fifteenth-century cases in which women were expected to expose their breasts and lift up their skirts to attempt to arouse these men. While Murray maintains that the women involved in these cases were

⁷¹² J. H. Baker, *An Introduction to English Legal History*, 4th edn (Oxford: Oxford University Press, 2007), p. 38.

⁷¹³ R. B. Pugh, *Imprisonment in Medieval England* (Cambridge: Cambridge University Press, 1968), p. 255.

⁷¹⁴ Thomas Lund, *The Creation of the Common Law: The Medieval Year Books Deciphered* (Clark, NJ: Talbot Publishing, 2015), p. 1.

⁷¹⁵ Forbes, 'Jury of Matrons'.

⁷¹⁶ Sara M. Butler, 'More Than Mothers: Juries of Matrons and Pleas of the Belly in Medieval England', *Law and History Review* 37 (2019), 353-396.

'honest women', Goldberg argues convincingly that some were prostitutes.⁷¹⁷ The thirteenth-century legal text *Bracton* also suggested that women might be required to examine for signs of virginity in rape cases, and Masschaele cites an example of a group of women called in for this purpose examining a woman named Amicia le Roer in London in 1282.⁷¹⁸ The acts of pregnancy diagnosis discussed in the following two sections of this chapter were therefore not the only diagnostic acts which ordinary women might be expected to perform in the English legal system.

Procedures for recognising pregnancy in legal cases operated within very different parameters to the medical and divinatory methods of diagnosis discussed in Part Three of this thesis. As will be demonstrated in the following, the women brought in to recognise pregnancy were not expert practitioners, and did not need to demonstrate practical or theoretical knowledge about pregnancy. This raises the question of whether recognising a pregnancy in legal cases should be categorised as an act of pregnancy diagnosis, rather than an exercise in establishing legal proof. Tactile examinations of the woman's body were required in these cases, and while the examining women were not professionals, they apparently followed conventional medical diagnosis by examining a person's body and symptoms to recognise a condition. They were not required to rely on prior knowledge of the woman's life and circumstances to attest to whether she was pregnant or not, which might be expected if this was merely a procedure for proving the truth of a woman's claims by bringing in witnesses. For this reason, I would argue that these acts can be categorised as diagnosis, even if carried out in very different circumstances to the diagnostic acts discussed in Part Three of this thesis.

⁷¹⁷ Jacqueline Murray, 'On the Origins and Role of "Wise Women" in Causes for Annulment on the Grounds of Male Impotence', *Journal of Medieval History* 16 (1990), 235-249 (pp. 240-241); Jeremy Goldberg, 'John Skathelok's Dick: Voyeurism and "Pornography" in Late Medieval England,' in *Medieval Obscenities*, ed. by Nicola McDonald (York: York Medieval Press, 2006), pp. 105-23 (pp. 118-119); Karras, *Common Women*, pp. 97-98;

⁷¹⁸ 'In that case let the truth be ascertained by an examination of her body, made by four law-abiding women sworn to tell the truth as to whether she is a virgin or defiled', 'Et quo casu probetur veritas per aspectum corporis, et per quatuor legales feminas iuratas de dicenda veritate utrum virgo sit vel corrupta', *Bracton on the Laws and Customs of England*, trans. by Samuel Thorne (Cambridge: Harvard University Press, 1968), II, p. 416; Murray, p. 239; Kathleen Coyne Kelly, *Performing Virginity and Testing Chastity in the Middle Ages* (Routledge: London, 2000), p. 36; Hiram Kumper, 'Medical Expertise and the Forensics of Rape in the Middle Ages', in *Medicine and the Law in the Middle Ages*, ed. by Wendy Turner and Sara M. Butler (Leiden: Brill, 2014), pp. 88-108 (p. 105); Masschaele, p. 103.

10.1. Pregnancy Diagnosis and Inheritance Cases

When a free man of property died in later medieval England, this property would be inherited by his descendants. If he had sons, then the first born of these would inherit his land. If he had only daughters, they would inherit equal portions of the land. If he had no 'heirs of his body', the next relative in the male line would inherit, and the widow would be entitled to claim her dower – a right for life to some of her husband's lands, to provide her with financial support.⁷¹⁹ However, if a wife was pregnant at the time of a childless man's death, a posthumous child would be his heir – likewise if he had only ever had daughters, they could be superseded by a male sibling.⁷²⁰ The birth of a posthumous child might therefore disinherit a landowner's brother or other male relative, or an elder daughter.⁷²¹ Distributing lands to the rightful heirs would have to be delayed for the duration of a woman's pregnancy, to protect the rights of any potential unborn heir and ensure land was distributed as it should be.

After a man's death, the body of a widow of potentially childbearing age might be scrutinised for indications of pregnancy. The family would want to confirm a pregnancy, so lands could be transferred to the appropriate heir, and a woman's own hopes of a child might also be considerable. Such a birth might demonstrate her fertility, improving her chances of finding a second husband, but she might also benefit financially and socially from being mother to the heir.⁷²² In these circumstances, household commonplace books maintained by gentry families might be particularly useful – volumes like Trinity College MS O.1.57, and MS Rawlinson C. 506, discussed in Chapter Four. Pregnancy diagnosis texts in

⁷¹⁹ Frederick Pollock and F. W. Maitland, *The History of English Law Before the Time of Edward I* vol. II 2nd edn (Cambridge: Cambridge University Press, 1968), p. 260; Baker, *Legal History*, pp. 269-271; Brand, 'Earning and Forfeiting Dower', p. 1.

⁷²⁰ Pollock and Maitland, p. 261. Posthumous children were apparently relatively common in the middle ages – a number of examples can be found in the biographies of parliamentarians, for example John Wybbury died in 1423, leaving his widow Lena 'great with child' with a posthumous daughter; and Richard Goslyn (d. 1428), an MP for London whose widow gave birth to a son after his death. 'Wybbury, John (c. 1364-1423), of Otterham, Cornw. and Chagford, Devon', in *The History of Parliament: the House of Commons 1386-1421*, ed. J. S. Roskell, L. Clark, C. Rawcliffe, 1993 <<https://www.historyofparliamentonline.org/volume/1386-1421/member/wybbury-john-1364-1423>> [accessed 11th June 2019]; 'Goslyn, Richard (d. 1428), of London', in *The History of Parliament: the House of Commons 1386-1421*, ed. J.S. Roskell, L. Clark, C. Rawcliffe, 1993 <<https://www.historyofparliamentonline.org/volume/1386-1421/member/goslyn-richard-1428>> [accessed 11th June 2019]. My thanks to Linda Clark for these references.

⁷²¹ An elder sister and her husband were disinherited in the case of Maria de Camberton, discussed below. TNA, CP 40/86, rot. 73.

⁷²² Thomas Lund, 'Women in the Early Common Law', *Utah Law Review* 1 (1997), 1-62 (p. 9).

these volumes may have been used to identify whether a widow was pregnant or not, and perhaps the sex of an unborn child. It is possible that information gathered in this way may have influenced decisions about whether to distribute lands to the heirs presumptive, or whether to wait and see whether the woman would give birth to an heir or not.

Given the advantages for a widow of being pregnant after her husband's death, contemporary commentators and legal theorists were concerned that she might try to simulate a pregnancy. She might bring in another woman's baby and pretend it was her own, or become pregnant with another man's child and claim the deceased was the father.⁷²³ In this legal context, the primary concern was to ensure land was passed on to the proper heir, to prevent future disputes over its distribution. This sometimes created a mistrust of women and their motives, reflecting some of the assumptions about women in the texts of the *De secretis mulierum* texts, discussed in Chapter Four, which claimed that women might lie about their reproductive status to attempt to conceal a pregnancy. In these texts, concerns about women's motives were relatively theoretical, evidence of a clerical tendency to mistrust women. However, the similarities between the language used in the *De secretis mulierum* text and legal texts on supposititious birth suggests that this mistrust appeared in less theoretical contexts too.

The most significant reference to such concerns appears in *Bracton*, a legal text dating from around the 1230s-1250s. It has been attributed to Henry de Bracton but was most likely the work of several authors.⁷²⁴ The text exhibits particular concern with supposititious births:

Since a child sometimes is substituted by a wife who pretends to be pregnant when she is not, ... we must therefore consider supposititious births and how fraud of that kind may be proved in the King's court.⁷²⁵

Some women did apparently do this: in 1211 Robert Trian filed a suit against his aunt Juliana, accusing her of raising someone else's child as her own to disinherit him. Juliana was examined by an inquest jury of 'lawful men and women' who concluded that she had

⁷²³ Thomas Duffus Hardy, *A Description of the Close Rolls in the Tower of London with an Account of the Early Courts of Law and Equity, and Various Historical Illustrations* (London: Eyre and Spottiswoode, 1833), p. 125.

⁷²⁴ Paul Brand, "The Age of Bracton", in *The History of English Law: Centenary Essays on 'Pollock and Maitland'*, Proceedings of the British Academy 89 (Oxford: Oxford University Press, 1996), pp. 65-90 (pp. 66-67, 73-76).

⁷²⁵ 'Et quoniam aliquando supponitur partus ab uxore quae se facit praegnantem cum non sit ... ideo de partu supposito videndum, et qualiter huiusmodi malitia in curia regia convicatur,' Thorne, *Bracton*, II, p. 201.

never borne a child; she then confessed to adopting the child from a poor woman in London to spite her nephew.⁷²⁶ There was a very real fear that women would bring in another woman's child to serve their own interests – or their family's – in inheritance cases. *Bracton* supports its concerns about false claims to pregnancy with a discussion of the case of Muriel of Melton. In 1221, her dead husband's brother, Peter Constable, accused her of falsifying a pregnancy. She was supposed to be examined by 'law-worthy women', *legales feminas*, of Norfolk for signs of pregnancy, but instead she was examined by 'law-worthy ladies', *legalibus dominabus*, of the city of London. They said she was pregnant, but when it was clear that too much time had passed for her to be pregnant, Peter renewed his complaint and she confessed that she was not, and never had been pregnant, 'but so much had she previously felt weighed down with this infirmity she supposed herself to be pregnant'.⁷²⁷ It is likely that Muriel and the law-worthy ladies of London had mistaken another condition like uterine mole or suffocation of the womb for pregnancy, as discussed in Chapter Two. This case evidently caused a great deal of disquiet given its inclusion in *Bracton*. It played perfectly to the stereotype of a dishonest woman attempting to manipulate inheritance to the detriment of the true heirs of the deceased, but perhaps more accurately reflected the mistake of a grieving widow, hopeful of a pregnancy.

These fears are repeated in a 1315 Year Book entry, which suggested a penalty for false claims of pregnancy:

Note that if a woman says [falsely] after the death of her husband that she is enceinte, whereby the next heir is disturbed, she shall lose her dower if she makes the declaration before justices.⁷²⁸

The consequence of the loss of dower was severe. Without this provision, widows would find themselves in dire financial circumstances, as their husband's lands would be assumed by his heir in their entirety. Women would have to be absolutely certain before claiming a pregnancy, demonstrating the importance of knowledge about how to diagnose pregnancy

⁷²⁶ Masschaele, p. 31.

⁷²⁷ 'Set tanta se dudum sensit infirmitate gravatam quod putavit esse pregnans', *Curia Regis Rolls of the Reign of Henry III Preserved in the Public Record Office*, 5 and 6 Henry III, ed. by C. T. Flower, vol. 10 (London: H. M. Stationery Office, 1949), pp. 36-37. This reflects the concerns of medical men that women might be genuinely unwell and assume they were pregnant.

⁷²⁸ 'Nota si vne femme die qele est enceynte apres la mort son baroun par qei lentiere [sic] del plus procheyn heir est destourbe ele perdra dower si ele face la conisaunce deuant lustices etc.', in *Year Books of Edward II vol. 18, 8 Edward II, A.D. 1315*, ed. by William Craddock Holland, Selden Society Volume 37 (London: Quaritch, 1920), pp. 220-221.

– either with the support of textual knowledge, or through means of their own experiential or communal knowledge. Some women may have suffered unduly as a result of this provision, if a pregnancy was lost after such a declaration was made, or if they were suffering from another condition resembling pregnancy, like Muriel of Melton.

This provision also hints at the context in which a claim of pregnancy might occur: the idea that a woman would *face conisaunce deuant iustices* – make a declaration before justices – demonstrates the public and official nature of a claim to pregnancy. The formal conditions for confession may have been intended to discourage women tempted to claim a false pregnancy, and perhaps this was sufficient to prevent spurious claims. The additional threat of the loss of dower would have been even more sobering. This might reflect contemporary assumptions that women would want to deceive others about their reproductive status and conceal a pregnancy, but in this context it was most likely just the first stage of a legal process. If the existence of a pregnancy, or the paternity of the unborn child were disputed, a public declaration before justices brought the dispute before the courts at the earliest possible moment.

10.1.1. Procedures for Pregnancy Diagnosis

The possibility that a widow might lie, or make a mistake, about a pregnancy in these circumstances led to the development of legal mechanisms for family members to question whether women were pregnant or not. After discussing the Muriel of Melton case, *Bracton* outlines a procedure for conducting diagnosis:

On the complaint of the true heir [and] by order of our lord the King, the sheriff shall cause the woman to appear before him and before the keepers of the pleas of the crown (or before one whom our lord the King has appointed a judge) and to be examined by responsible matrons [*discretis mulieribus*], by feeling her breasts and abdomen, in order to discover the truth. If there is the slightest suspicion of fraud she ought to be kept in custody.⁷²⁹

No indication of the intended identity for the 'responsible' women is given. Thorne has rendered the term *mulieribus* as 'matrons', but it simply refers to 'women' or 'wives'. The

⁷²⁹ 'Ad querelam veri heredis, per praeceptum domini regis, faciet vicecomes talem mulierem venire coram eo et coram custodibus placitorum coronæ, el coram aliquo quem dominus rex iustitiarum constituerit, et faciet eam videri a discretis mulieribus, et tractari per ubera et per ventrem, ad inquirendam veritatem, et si suspicio habeatur alicuius falsitatis qualiter debeat custodiri, faciet vicecomes', Thorne, *Bracton*, II, p. 201.

same noun, in the form *mulierem*, is also used for the potentially pregnant woman, for which Thorne has chosen the term 'woman'. This appears to be an instance of the translator reading his knowledge of the term 'jury of matrons' into this text, which appears in other medieval trial records, and continued to be used in the English legal system into the nineteenth century. *Bracton* does not identify these women with any particular status or position other than their femininity: they are not midwives or experts, but merely women.

The origins of this legal procedure probably lie in Roman law: in ancient Rome, midwives might be brought in to diagnose a pregnancy if a woman's husband died and she claimed to be pregnant.⁷³⁰ The procedures of ancient Roman Law filtered through into the English Common Law, particularly after the concepts of Roman Law were rediscovered by continental legal scholars in the twelfth century. The author of *Bracton* was aware of legal developments on the continent, and sought to bring these into the common law.⁷³¹ But whereas professional midwives were commonplace in ancient Roman society, this was not the case in thirteenth-century Europe – as discussed in Chapter Two, the ancient system of professional midwives did not survive the contraction of urban centres after the fall of the Roman Empire. As we have seen, continental courts appear to have bridged this gap by drawing on the expertise of one or two women, who may have been experienced birth attendants. English common law apparently instead merged this earlier procedure into contemporary procedures for calling trial juries. This meant that groups of ordinary women were most likely selected on the same terms as ordinary men acting on trial juries, on the basis of their discretion, respectability, and law-worthiness. These characteristics were prioritised over medical knowledge, and it seems unlikely that these women performed diagnostic tests within these circumstances.

Despite this lack of medical expertise, these women were expected to conduct a tactile examination of a potentially pregnant woman. Her breasts, *ubera*, and her abdomen or stomach, *ventre*, were to be handled or touched, *tractari*, by these women, to identify a pregnancy. It is not stated explicitly what they should look for, just that they ought to discover the 'truth'. This implies that the women were expected to know how to recognise pregnancy. In its later stages, this might be easy, when an obvious 'bump' and expanded

⁷³⁰ Ido Israelowich, 'Physicians as Figures of Authority in the Roman Courts and The Attitude Towards Mental Diseases in the Roman Courts During the High Empire', *Historia* 63 (2014), 445-462 (p. 458).

⁷³¹ Samuel Thorne, *Henry de Bracton: 1268-1968* (Exeter: University of Exeter Press, 1970), p. 8.

breasts might be visible, and foetal movements might be perceived. While some length of time would have passed between a woman's declaration of pregnancy and a doubting relative filing a writ to bring this woman to court, it is possible that these women would attempt to identify a pregnancy earlier in the process.⁷³²

These women may have drawn on specific medical knowledge about pregnancy to make their diagnosis, of the sort discussed in Chapter Three: textual medical knowledge transmitted by communal reading or oral circulation. This knowledge may have become more accessible from the fourteenth century, with the circulation of vernacular medical texts. However, given the lack of explicit instructions, and the use of the generic term 'mulieribus', it is perhaps more likely that these women were simply expected to use their own personal, communal and experiential knowledge of pregnancy, accumulated through their own experience of pregnancy, and that of their families, friends and communities. In this context, while the directions to examine the breasts and abdomen would allow the identification of some of the signs of pregnancy discussed in Chapter Six, this would also permit them to identify commonly known signs of pregnancy they had seen in their own bodies or those of other pregnant women. It seems most likely that these women were expected to deploy their general knowledge about pregnancy and its impact on the female body, rather than detailed medical knowledge.

There were two forms of writs for summoning potentially pregnant woman to be inspected, known as writs '*de ventre inspiciendo*'. The 'writ for viewing a woman to discover whether or not she is pregnant' aligns with the initial instructions set out in *Bracton*.⁷³³ This offers a slightly different picture of the proceedings than the 'writ at the complaint of the heir that she be examined', issued specifically at the suit of the heir presumptive.⁷³⁴ This writ represents a higher level of suspicion: operating from the presupposition that the woman's claim to pregnancy is fraudulent, it outlines a diagnostic procedure which required a group of knights to supervise the diagnosing women:

⁷³² Forbes, 'Jury of Matrons', pp. 24-25.

⁷³³ 'Cause her to be examined by lawful and discreet women through whom the truth may the better be known, and let the same women carefully [examine] her by feeling her breasts and abdomen and in every way whereby they may best ascertain whether she is pregnant or not', 'Facias eam videri per legales et discretas mulieres, per quas veritas melius sciri poterit, et diligenter tractari a praedictis mulieribus per ubera et per ventrem, modis omnibus quibus inde melius possint certiorari utrum praegnans sit necne', Thorne, *Bracton*, II, p. 202.

⁷³⁴ 'Breve de videnda muliere ut sciatur utrum praegnans sit vel non', 'Item de eodem ad querelam heredis quod videatur', Thorne, *Bracton*, II, pp. 201-202.

We order you [the sheriff] to go in your own person to such a woman, taking with you discreet and lawful knights and discreet and lawful women of your county, and before the aforesaid knights cause her to be seen by the aforesaid women and carefully examined as to the breasts and the abdomen in every way whereby they may better and more surely be informed.⁷³⁵

This procedure was not a private medical examination, but a public enquiry, as the examination of the woman's breasts and abdomen would occur in front of the sheriff and a group of high-ranking men. The involvement of these men in identifying a pregnancy stems from a desire to prevent these supposedly trustworthy women helping the woman to commit a fraud – she may have persuaded or bribed other women to collude with her to claim that a false pregnancy was real. Conducting a public examination in front of knights might prevent this, but it would also circumvent the problem of women's testimony in legal cases. In English common law, women were often excluded from testifying as witnesses in legal cases, apart from criminal cases and cases in the Church courts – Becky Lee demonstrates this in her work on proof of age inquests.⁷³⁶ This reflects the marginal legal status of women in medieval English law: at the moment of marriage, their legal identities were subsumed within the legal personae of their husbands, and they were classified as *femmes couvertes*.⁷³⁷ The presence of the knights may not have been a sign of mistrust, but a necessity, so they could testify to the results of the examination before the law, in a way the women could not do.

10.1.2. Participants in Pregnancy Diagnosis

In this section, one example of pregnancy diagnosis being conducted in front of a group of knights will be discussed, to consider the sorts of people involved in procedures for pregnancy diagnosis in inheritance cases. This example comes from the plea rolls and dates from 1290, before the age of significant vernacularisation: the case of Maria de Camberton of Cumbria, widow of Alan of Camberton. Her brother in law William de Bretteby claimed she was feigning a pregnancy after her husband Alan's death, and believed that his wife

⁷³⁵ 'Tibi praecipimus quod assumptis tecum discretis et legalibus militibus et discretis et legalibus mulieribus de comitatu tuo, in propria persona tua accedas ad ipsam talem, et coram praedictis militibus facias eam videri a praedictis mulieribus, et diligenter tractari per ubera et per ventrem, modis omnibus quibus melius et honestius inde poterunt certiorari', Thorne, *Bracton*, II, p. 203.

⁷³⁶ Becky Lee, 'A Company of Women and Men: Men's Recollections of Childbirth in Medieval England', *Journal of Family History* 27 (2002), 92-100 (p. 93).

⁷³⁷ Lund, 'Women', p. 26.

Matilda, Alan's sister, was being wrongfully disinherited. The sheriff was ordered to conduct an investigation according to the procedure set out in *Bracton*:

Taking with him discreet and lawful knights, and discreet and law-worthy women of his county, he should personally approach the same Maria, and by the aforesaid women, in the presence of the aforesaid knights, she herself should be seen and diligently touched on the breasts and the abdomen, and in all other ways in which they could better make it known [whether she was pregnant or not].⁷³⁸

This case offers an opportunity to understand who might be considered a law-worthy woman, qualified to diagnose or recognise a pregnancy in a legal context. This question will be revisited in section 10.2, with reference to criminal cases and the selection of women to diagnose convicted felons who were potentially pregnant. The names of the men and women called to act as 'discreet and law-worthy' knights and matrons in Maria de Camberton's case are recorded in this source, which gives some insight into the types of individuals who could be called on to judge whether or not a woman was pregnant in a court of law. The six named knights and the nine named women are listed in this table.⁷³⁹

The Knights	The Women
Hubert of Multon	Cristiana of Utteresete {Oughterside}
Thomas of Neuton	Eva, wife of William of Alenburg {Elleborough}
Peter of Eynecurt	Cristiana of Blencrayk {Blindcrake}
Thomas of Ribbetoun {Ribton}	Sigreda of Boulton
Henry of Seburgham {Sebergham}	Agnes, wife of William of Langerigg
Robert of Bostanthwayt {Bassenthwaite}	Goditha mother of John of Plomeland {Plumbland}
	Matilda, wife of Alexander le Ffevre
	Johanna, wife of Adam, son of Robert
	Isabell, wife of Richard Buche

While the knights do not seem to have played an active role, their presence as observers involved them in diagnosis and legitimised this diagnostic practice to provide legal

⁷³⁸ 'Assumptis secum discretis & legalis militibus & discretis & legalis mulieribus de comitatu suo in propria persona sua accederet ad ipsam Mariam & ipsam a predictis mulieribus coram praefatis militibus videri ac diligenter tractari per ubera & ventrem & omnibus aliis modis quibus melius certificari poterunt faceret', TNA, CP 40/86, rot. 73.

⁷³⁹ Ibid, rot. 73.

proof. As knights, these were men of the highest social status in the county – high ranking landowners, and holders of official positions.⁷⁴⁰ F. H. M. Parker, a Cumbrian local historian, commented on this document in 1906, when juries of matrons were still current in legal procedure. He stated that this was 'a jury fairly representative of the most responsible families in West Cumberland'.⁷⁴¹ Peter of Eyncurt and Thomas of Ribbeton were verderers of the forest of Inglewood earlier on in Edward I's reign – officials who dealt with minor offences committed in royal forests, and who managed day to day forest administration.⁷⁴² Some of these men also participated in other legal cases – Thomas of Neuton appeared as a knight on a jury for deciding on the deforestation of the Island of Holme Cultram. Parker estimated the social standing of the women according to that of their husbands: three of them were related to reguards of the ward of Allerdale – an official responsible for keeping an eye on offences committed in the forests.⁷⁴³ These men and women were members of the upper classes, and their roles in serving on these juries can be seen as an extension of their social duties.

The women identified by toponymic surnames were all named for places in modern day Cumbria or Lancashire: Cristiana of Uttersete (Oughterside, near Keswick), Christiana of Blencrayk (Blindcrake, near Cockermouth), Sigreda of Boulton (Bolton). One, Goditha, is identified as the mother of John of Plomeland (Plumbland, a settlement near Cockermouth). This is quite unusual: women are normally identified by their husbands or their fathers in legal documents, rather than by their offspring. This suggests that her husband had died, and her son was old enough to have established his own legal identity, implying Goditha was of an advanced age. Age was sometimes a qualifying factor for the participation of male jurors in proof of age inquests, and was often a marker for respectability.⁷⁴⁴ Little detail is available about the others, Matilda, wife of Alexander le Ffevre, Eva, wife of William of Alenburg, or Johanna, wife of Adam, son of Robert – unless this Robert is Robert of

⁷⁴⁰ Nigel Saul, *For Honour and Fame: Chivalry in England 1066-1500* (London: The Bodley Head, 2011), pp. 17-18, 358.

⁷⁴¹ F. H. M. Parker, 'A Remarkable Inquisition', *Cumberland and Westmoreland Antiquarian Society Transactions* 6 (1906), 156-158 (p. 158).

⁷⁴² Charles Young, *The Royal Forests of Medieval England* (Philadelphia: University of Pennsylvania Press, 1979), p. 86.

⁷⁴³ *Ibid.*, p. 87. These were William de Langerigg, husband of Agnes; Richard Bouche, husband of Isabell; and John de Plomeland, whose mother Goditha was the only woman identified by her son. TNA, CP 40/86, m. 73.

⁷⁴⁴ Forrest, p. 135.

Bostanthwayt (Bassenthwaite, near Keswick), included among the list of knights. It is probable that they were also the wives of men of the officeholding classes.

These women were apparently selected to carry out this duty because of their social status, and because they were women. These writs did not specify that they needed any medical knowledge. They were not referred to as 'midwives', or even as 'expert' or 'knowledgeable'. Their discretion and law-worthiness was emphasised, but their status as women must be key, otherwise their male relatives could have fulfilled this duty instead. Women were required to participate in pregnancy diagnosis cases partly because it was assumed that most women would have some knowledge of how to do this, but also because it would be more appropriate for a woman to conduct this examination than for a man, just as male medical practitioners encountered barriers to physically examining their female patients.

As section two of this chapter will address, the presence of male observers was not required in criminal cases involving pregnancy diagnosis. This may have been because the consequences of misdiagnosing a pregnancy in inheritance cases were perceived as more severe in a legal system primarily concerned with the proper transfer of property. If a woman was mistakenly declared not to be pregnant in a criminal case and was subsequently executed, it is unlikely that this pregnancy would ever have been discovered. However, in inheritance cases, an undiagnosed pregnancy might create a property dispute if a child was actually born. Alternatively, if the woman was mistakenly diagnosed as pregnant, this may have created an opportunity for her to commit inheritance fraud by bringing in a substituted child. This could disrupt the proper transfer of property, and the presence of these observing knights may have been required in an attempt to prevent this. Additionally, women involved in inheritance cases had committed no crime, and were generally of a high social status, as the wives of free men of property. As we shall see, the women in criminal cases were often of a lower social standing, and were all convicted felons. Perhaps the proper identification of a pregnancy was considered less important in criminal cases because no property was involved, and the status of the women was significantly lessened by the fact they had been found guilty of serious crimes. This may have meant that the examining women could identify and testify about a pregnancy without the need for a group of men to observe their actions.

Women undergoing diagnosis in inheritance cases may have experienced a broad range of emotions. Their claim to pregnancy may have been met by disbelief and doubt by members of their husbands' family, and court mandated diagnosis might seem quite persecutory, as their word was tested with a rather public bodily examination so soon after their husband's death. No matter how discreet these examining women and observing knights might be, this could conceivably have been quite traumatic for the potentially pregnant women involved. Alternatively, some women may have approached this examination as an opportunity to prove themselves, having their claims tested, proven, and recorded before the law to protect the rights of their unborn children. However, this process was interpreted by the women involved, this procedure placed pregnancy diagnosis firmly within the public sphere, before the eyes of the law, and the law-worthy men and women of the county. The consequences of this invasive public bodily examination were significant: her child might inherit, but if she was found not to be pregnant, she may have been at risk of losing her dower. This gave the examining women a certain level of power: they were trusted to carry out this procedure, and their observations had significant legal consequences. Although their actions were to be observed by the group of knights, these women were granted an exceptional level of agency, purely on the basis of their status as women, to pronounce a diagnosis of pregnancy.

10.2. Pregnancy Diagnosis in Criminal Cases

In medieval English common law, a woman's pregnancy could also have significant implications in criminal cases. If a woman convicted of a felony – a crime which warranted the death penalty – was pregnant, then theoretically she should not be executed while she was pregnant. This protection from execution for pregnant women was in operation from at least the thirteenth century, and these medieval prohibitions against the execution of pregnant women derive from the procedures of ancient Roman Law, and contemporary canon law. A legal prohibition on the execution of pregnant women was included in the *Corpus iuris civilis*, Justinian's sixth century codification of Roman Law, and there is some evidence that professional midwives would be brought in to examine whether a woman was pregnant before her punishment was delayed – this reflects the procedure used in the

divorce cases, discussed in section 10.1.1.⁷⁴⁵ But in the medieval West, canon law directives, concerned with the preservation of the soul of the foetus, were probably more influential in preventing the execution of pregnant women.⁷⁴⁶

The following discussion of criminal cases of pregnancy diagnosis focuses on the procedures used in these cases, drawing on evidence from the Year Books, and the prescriptive legal text *Bracton*. In addition, I have examined a selection of eleven English criminal cases from the fourteenth and fifteenth centuries, relating to claims of pregnancy. These cases have been identified through references in secondary literature, recommendations from other scholars, and through random searches through records. Two of these cases are from the records of the court of King's Bench – the King's court at Westminster.⁷⁴⁷ The others are drawn from the records of the itinerant justices, who travelled around the country on set circuits, completing gaol deliveries as they went through the county towns.⁷⁴⁸ One of these case records included a jury panel document which lists women's names. These cases are set out in a table in Appendix 3. In addition to these eleven cases, I have also examined some of the thirteen cases discussed by Butler in her 2019 article on juries of matrons, and have taken into account the ten additional lists of juries of matrons she cites.⁷⁴⁹

The women involved in the cases discussed here had been convicted of various felonies. Seven were accused of theft or robbery – for instance, Johanna Godwale.⁷⁵⁰ Alice Jurdan of Newerk, a servant, was accused of stealing 100 s from her mistress, Agnes Grase, and of murdering her.⁷⁵¹ Additionally, two individuals were accused of murdering their husbands. Elizabeth Walton took an indirect role, and was merely accused of giving 'consent and aid' to the murder, but was still convicted to burn. Margery Chaloner acted more directly in the murder of her husband and was accused at the suit of John Smith, her husband's brother. Like Elizabeth, she was sentenced to burn for her crimes. These women

⁷⁴⁵ Butler, *Forensic Medicine*, p. 7; Ackerknecht, p. 1225.

⁷⁴⁶ Hanawalt, 'Female Felon', p.265.

⁷⁴⁷ Baker, *Legal History*, p. 20

⁷⁴⁸ Ibid, pp. 20-22

⁷⁴⁹ Butler, 'Mothers'.

⁷⁵⁰ 'Vi et armis, videlicet gladiis batellis item unam peciam auri et unum anulum auri ad valenciam sex solidorum & octo denarii in pecunia numerat de bonis & catallis cuiusdam hominis ignoti apud villam Westmonasterium', TNA, KB 27/964, Rex rot. 10.

⁷⁵¹ 'Feloniter interfecit & murdravit predictam Agnetam Grase magistram ipsius Alicie Jurdane & ipsam nudam sepelivit in quoddam solarium sub uno lecto', TNA, JUST 3/195, rot. 64d.

all claimed to be pregnant and were subject to pregnancy diagnosis by a jury of women, to ascertain the truth of their claims and avoid the death of their unborn child.

Medieval prohibitions against executing pregnant women related to concerns for the soul of this child. If a pregnant woman was executed, the child would die unbaptised and its soul would be condemned to eternity in limbo, with no hope of salvation.⁷⁵² Prohibitions against executing pregnant women can therefore be conceptually related to the efforts of the church in the later middle ages to ensure midwives could perform emergency baptisms, to save the new born child's soul if their life was in danger.⁷⁵³ These prohibitions can also be related to the criminalisation of abortion in later medieval Europe.⁷⁵⁴ From the twelfth century onwards, canon lawyers worked to reconcile the doctrines of Roman Law on abortion with Christian teaching on this subject.⁷⁵⁵ While there was a prohibition on the execution of pregnant women until after they had given birth, other aspects of this text hold that the child did not have a life or a soul until after birth, as a result of the influence of Stoic philosophy.⁷⁵⁶ There was a need to reconcile these contradictory views with contemporary Church doctrine and the views of earlier Church fathers who conceptualised deliberate abortion as homicide.⁷⁵⁷

Gratian's *Decretum*, a compilation of canonical authority completed in the mid-twelfth century, shaped medieval legal opinion on this matter in its focus on whether the foetus was formed or not: the deliberate death of an *unformed* foetus could not be categorised as murder, because 'it cannot be said to be killed if it does not have *anima*' – life, or soul.⁷⁵⁸ However, he makes the case that the abortion of a *formed* foetus would be

⁷⁵² Francis Sullivan, 'The Development of Doctrine About Infants Who Die Unbaptized', *Theological Studies* 72 (2011), 3-14 (pp. 3-4).

⁷⁵³ MacLehose, *Tender Age*, Chapter 2, Para. 146; French, 'Material Culture', pp. 138-139; Vann Sprecher and Karras, p. 173; Saunier, p. 44.

⁷⁵⁴ Müller, p. 2.

⁷⁵⁵ Butler, *Forensic Medicine*, p. 7.

⁷⁵⁶ Müller, p. 13.

⁷⁵⁷ Zubin Mistry, *Abortion in the Early Middle Ages, c. 400-900* (Woodbridge: York Medieval Press, 2015), pp. 51-52.

⁷⁵⁸ Marie Kelleher, 'Later Medieval Law in Community Context', in *The Oxford Handbook of Women and Gender in Medieval Europe*, ed. by Judith Bennett and Ruth Karras (Oxford: Oxford University Press, 2013), pp. 133-147 (p. 134); 'S/he is not a murderer who procures abortion before the soul is fused into the body. Because it is true that homicide does not extend to an unformed foetus, indeed that which is carried in the uterus is not considered as human. This question is about the soul [or life] which is usually imparted, whether the thing that is not formed nor animated might in fact be perceived; and therefore it is not homicide, because it cannot be said to be killed, if it does not have soul [or life]', 'Non est homicida qui aborsum procurat ante quam anima corpori sit infusa. Quod vero non formatum puerperium ad homicidium pertinere noluit, profecto nec hominem deputavit quod tale in utero geritus. Hic de anima questio solet agitari, utrum quicquid formatum

homicide, using an interpretation of a Biblical text, Exodus 21:22-4, to support this. Drawing on the Septuagint, Gratian claimed that:

Moyses [Moses] taught: 'Should someone strike a woman having [a child] in her uterus, and it causes an abortion, if it is formed, he should give life for life; if however it is unformed, he will be fined money,' which proves the child not to be alive before it is formed.⁷⁵⁹

This was not the sense of the original biblical text, in which the woman's death, not the child's, would warrant the punishment of life for life.⁷⁶⁰ But Gratian's interpretation was widely adopted in later medieval Europe, and entered into English Common law. From at least the early thirteenth century, deliberate abortion and abortion by assault were treated as homicides as a result.⁷⁶¹

It seems that the desire to avoid executing pregnant women was motivated by a similar respect for the soul of the unborn child, as efforts to avoid executing pregnant women began in the thirteenth century around the same time as these prohibitions on abortion were enacted. The earliest case I have identified in which a woman claimed to be pregnant to avoid execution was that of Alice, wife of William Woodstock, dating from 1238, although no reference was made to diagnosing her pregnancy.⁷⁶² The earliest case of pregnancy diagnosis by a jury of women I have encountered dates from 1301, involving a woman named Alice, daughter of Thomas de Longe.⁷⁶³ It is possible that the criminalisation of abortion and the prohibition against murdering pregnant women were conceptually linked to the same religious concerns, as suggested by the rhetoric expressed in some of these cases. In the 1434 case of Agnes Fisher, from a gaol delivery held before the mayor of London and a justice of the King, the following statement was included:

non est nec animatum quidem possit intelligi, et ideo non homicidium sit, quia nec exanimatum dicit potest, si animam non habebat', Gratian, *Decretum*, C. 32, q. 2, c. 8, *Corpus Iuris Canonici* I, p.1122.

⁷⁵⁹ 'Moyses tradidit: "Si quis percusserit mulierum in utero habentem, et abortiuum fecerit, si formatum fuerit, det animam pro anima; si autem informatum fuerit, mulctetur pecunia," ut probaret non esse animam ante formam', Gratian, *Decretum*, C. 32, q. 2, c. 9, *Corpus Iuris Canonici* I, p.1122.

⁷⁶⁰ Butler, 'Abortion', pp. 2-3; Müller, p. 30.

⁷⁶¹ *Ibid*, pp. 2-3, 12.

⁷⁶² *Close Rolls of the Reign of Henry III A.D. 1237-1242 Preserved in the Public Record Office* (London: His Majesty's Stationery Office, 1911), p. 100.

⁷⁶³ TNA, JUST 3/100, rot. 11. This is two years before the earliest case Butler cites, the case of Alice la Droys in 1303, referenced by Butler as 'Alice la Dorys' TNA, JUST 3/104, rot. 15d; Butler, 'Mothers', p. 366.

Lest her offspring endure death for the crime of the mother, on account of reverence for God, she says that the execution of the aforesaid judgement should be delayed by the grace of the court.⁷⁶⁴

Religious rhetoric was not unusual in the medieval English common law, and this was apparently a formulaic pronouncement. It was repeated in the record of the 1502 case of Johanna Godwale, with a reference to 'reverence for God and the Blessed Virgin Mary'.⁷⁶⁵ These statements appear to understand the unborn child as separate from its mother and alive, as it could 'endure death'. It was therefore unjust for the child to suffer for her crimes.

This reference to the unborn child suffering death relates to a key question in the historiography of legal cases of pregnancy diagnosis: whether it was necessary for the examining women to not only diagnose a pregnancy, but also to recognise whether the child was 'alive', 'ensouled', or 'quickened'. Establishing this provides an insight into the diagnostic actions examining women were expected to carry out, and the knowledge they were expected to possess. In early modern cases, women had to be found to be 'quick with a quick child' before their punishment was deferred.⁷⁶⁶ This relates to the belief that the life of the unborn child did not begin until quickening, the foetal movements indicating that the child had received its soul.⁷⁶⁷ But medieval views of ensoulment apparently did not correspond with this perception of foetal movement: most authors agreed that the soul would enter the foetus's body at around forty days for males, and slightly later for females.⁷⁶⁸ This is too early in the pregnancy to correlate with the perceptible movements associated with quickening, and I would suggest that it is quite unlikely that women conducting pregnancy diagnosis in medieval criminal cases would have been focused on foetal movement in particular. This point in a pregnancy has often been a focus for historians who assume that premodern women would be unable to recognise a pregnancy with any certainty before these foetal movements began, but as discussed in Part Three of this thesis, it was thought to be possible to diagnose pregnancy much earlier in the process.

⁷⁶⁴ 'Dicit quod ipsa est pregnans, et ne proles illa mortem pro matris culpa sustineat ob reverencia dei quod executio iudicii predicti respectuatur de gratia curae', TNA, KB 27/693, Rex rot. 3.

⁷⁶⁵ 'Ob reverenciam dei et beate marie virginis', TNA, KB 27/964, Rex rot. 111; David Seipp, 'The Mirror of Justices', in *Learning the Law: Teaching and the Transmission of Law in England 1150-1900*, ed. by Jonathan Bush and Alain Wijffels (London: Hambledon, 1990), pp. 85-112 (p. 103).

⁷⁶⁶ Oldham, 'Pleading the Belly', p. 6.

⁷⁶⁷ Garthine Walker, *Crime, Gender and Social Order in Early Modern England* (Cambridge: Cambridge University Press, 2003), p. 62.

⁷⁶⁸ Nutton, 'Medicine', p. 173.

In medieval cases, it is therefore likely that these examining women would identify early changes associated with pregnancy. This suggests that they were expected to possess some knowledge of these early changes, and that their examination was slightly more nuanced than just touching the woman's belly for indications of foetal movement.

In her recent article on juries of matrons in medieval criminal cases, Butler seeks to identify when quickening became important, drawing on three pieces of evidence to tentatively suggest that this occurred around 1348. She identifies a Year Books case from 1348, which I discuss in Section 10.2.2 in reference to the procedures used to diagnose pregnancy. In this case, a group of women examine another woman to see 'if she was pregnant, and also with a living infant or not [*oue vise enfant ou nient*]'.⁷⁶⁹ Butler also cites a legal case from 1352 in which a woman claimed to be 'pregnant and big with child', which she interprets as a reference to quickening, and a 1366 case in which the examining women declare that the woman is 'pregnant, and with a living infant [*infant vivo*]'.⁷⁷⁰ It is not certain that these references do in fact refer to 'quickening': while it is probable that the woman who was 'big with child' was merely demonstrating the late stage in her pregnancy, the other terms *vise enfant* and *infant vivo* might be referring to whether or not the foetus had died in the womb, a common occurrence in the later middle ages. These cases do not use the same terminology as Gratian's *Decretum* or the *Bracton* text, which referred to a 'formed' or 'animated' foetus – it is also possible that these descriptions were not technical terms, but elaborations added by the court recorders.⁷⁷¹

Butler further supports her argument with reference to another Year Books case, dating from 1349, in which two women were both pregnant a second time after having already received a respite of their punishment.⁷⁷² Butler suggests that this was because the

⁷⁶⁹ 'Si elle fuit enseint oue vise enfant ou nient', *Le Livre des Assises*, p. 101, Seipp Number 1348.279ass, from Seipp, 'Year Books', <<https://www.bu.edu/phpbin/lawyearbooks/display.php?id=11820>> [accessed 31st May 2019].

⁷⁷⁰ 'Pregnans et cum infant vivo', TNA, JUST 3/160, m. 1d; 'ipsa puerpera et pregnans est', TNA, JUST 3/137A, rot. 23; Butler, 'Mothers', p. 385.

⁷⁷¹ 'Formed foetus', 'formatum puerperium', Gratian, *Decretum*, C. 32, q. 2, c. 8, in *Corpus Iuris Canonici I*, p.1122; 'whether the foetus is already formed or animated', 'si puerperium iam formatum vel animatum', Thorne, *Bracton II*, p. 341.

⁷⁷² 'And now they are newly pregnant, and because execution was previously put in respite for the same cause, the execution was now commanded by Shareshull, and was made. And note that the gaoler did not have any penance, nor was anything inquired of this', 'Et ore sont de novel enfants, & pur ce que execucion pur m' la cause autrefois fuit mise en respit, l'execution per Shard fuit ore command etre fait. Et nota, que le gaoler n'avoit nul penance, ne rien fuit de ce enquis, &c', *Le Livre des Assises*, p. 85; Seipp Number 1351.055, from

women were not far enough along in their pregnancies for these unborn children to be quickened, and justifies this assertion with reference to a much later explanation for this procedure, dating from the eighteenth century: that execution could happen ‘before the child is quick in the womb’.⁷⁷³ But further evidence from the Year Books presents a different motivation for execution in cases of a second pregnancy in the middle ages. This case occurred in 1338, ten years before Butler’s turning point regarding quickening:

A woman was indicted for a felony, and was found guilty. And because she was pregnant, she remained until she was delivered. And after she was delivered, she came to the bar again, and said that she was once again pregnant. Notwithstanding this, because she had lost the answer she was hanged. Some said that it was wrongdoing.⁷⁷⁴

This case, like the one cited by Butler, makes no reference to quickening, ensoulment, or the life of the unborn child. Instead, it explains that this woman was executed despite being pregnant ‘because she had lost the answer’, just as the women in the later 1349 case were executed ‘because execution had been put in respite for the same cause’. This appears to be a case of legal procedure and technicality taking precedence over any care for the soul of the child: the women could not claim pregnancy to escape execution because they had done so already, thereby losing ‘the answer’. In these cases, the justices seem to be more concerned with following correct legal procedure than with passing any judgement on foetal life or quickening. While there was evidently a desire to protect the souls of unborn children in these criminal cases, the technicalities of legal procedure may have taken precedent.

10.2.1. Claims of Pregnancy

These provisions for the protection of the unborn child’s soul were put into practice in the law courts of later medieval England, in cases involving women convicted of committing felony crimes which involved a death sentence, usually carried out immediately after the case was heard. According to Barbara Hanawalt, women were less likely to be

Seipp, ‘Year Books’, <<https://www.bu.edu/phpbin/lawyearbooks/display.php?id=12163>> [Accessed 31st May 2019].

⁷⁷³ Blackstone’s *Commentaries*, cited in Butler, *More Than Mothers*, p. 387.

⁷⁷⁴ ‘Une feme endict de felonie, & trove culpable. Et pur ceo que elle fuit enseint, elle demurra tanques elle fuit deliver. Et apres ceo que elle fuit deliver, elle fuit mesne a la barre, & dit qu’elle fuit auterfoitz enseint. Hoc non obstante, pur ceo qu’el avoit perdue respons, elle fuit pendu. Aliqui dixerunt quod male factum est, &c’ *Le Livre des Assises*, p.34, Seipp Number 1338.259ass, from Seipp, ‘Year Books’, <<https://www.bu.edu/phpbin/lawyearbooks/display.php?id=8971>> [Accessed 31st May 2019].

accused of crimes and felonies than men in later medieval England, and were more likely to be acquitted than men accused of similar crimes.⁷⁷⁵ But when women were convicted of a felony they would usually be subject to the same punishments as men: death by hanging. Punishments for treason were severe for both sexes – burning for women, and being hung, drawn, and quartered for men.⁷⁷⁶ However, the penalty for treason was also applied to women who murdered their husbands, whereas men would not be tried for treason after murdering their wives. The rationale was that a woman's husband was her master, and therefore this murder was treasonous.⁷⁷⁷

It is not surprising that individuals sought ways to escape the death penalty in the later middle ages. Men could claim benefit of clergy when facing a felony charge in the later middle ages: if they could demonstrate that they were a cleric they could have their case moved to an ecclesiastical court, which did not enforce the death sentence.⁷⁷⁸ Women could not claim this benefit, and the only way to temporarily avoid the death penalty was to claim to be pregnant after conviction. A Year Books case from 1329 illustrates this procedure: a woman and her husband were both convicted of robbery, but:

Because the woman was pregnant, the constable was commanded to hold her in safe custody until she should be delivered; and it was then commanded that she should be hanged. It was not commanded that she should receive any wages on which to live.⁷⁷⁹

The pregnant woman was usually kept in the prison of the sheriff of the county until delivered of her child, at which point she would be hanged.⁷⁸⁰

In practice, the extra time secured by these pregnant women might make the difference between life and death. They might be granted a royal pardon, as in the example

⁷⁷⁵ Hanawalt, 'Female Felon', pp. 254, 256.

⁷⁷⁶ Anette Balinger, *Dead Woman Walking: Capital Punishment in England and Wales, 1900-1955* (Aldershot: Ashgate, 2000), p. 12.

⁷⁷⁷ Kathleen Garay, 'Women and Crime in Later Mediaeval England', *Florilegium* 1 (1979), 87-109 (p. 101).

⁷⁷⁸ Leona Gabel, *Benefit of Clergy in England in the Later Middle Ages* (New York: Octagon, 1969), pp. 28-29; Alan Harding, *The Law Courts of Medieval England*, Historical Problems: Studies and Documents 18, ed. by G. R. Elton (London: George Allen & Unwin, 1973), p. 44.

⁷⁷⁹ 'Et pur ceo qe la femme fut enceynte fu comande al conestable qe ele fut en sauf garde tant qe ele fut deliveres. E fu comande qele fut pendue apres. Mes ne fu pas comande qele vst gages dunt viure', Donald Sutherland, *The Eyre of Northamptonshire, 3-4 Edward III (1329-1330)*, vol. I (London: Selden Society, 1983), p. 179; Christine Winter, 'Prisons and Punishment in Late Medieval London', (unpublished doctoral thesis, Royal Holloway University of London, 2013), pp. 91-92.

⁷⁸⁰ Pugh, p. 24.

of Johanna Godwale, Margaret Danbery of York, and several examples cited by Helen Lacey.⁷⁸¹ Others even escaped: in 1303 Alice Droys was found to be pregnant and imprisoned in Oxford Castle, in the custody of the constable Richard atte Hawe, until she gave birth.⁷⁸² However, Alice managed to escape, and the constable was brought before the King's court at Westminster, accused of aiding in her flight. He denied this and claimed that his servant had helped her, but he was still kept in prison for three years.⁷⁸³ Some women were also able to ward off execution by being pregnant on multiple occasions when the gaol was delivered – Barbara Hanawalt cites the case of Matilda Hereward of Northamptonshire, who was able to extend her life by at least a year and three months by being pregnant every time the justices came to deliver the gaol between June 1301 and January 1303.⁷⁸⁴ Hanawalt suggests that mixed prisons would have facilitated Matilda's actions – Matilda was even imprisoned alongside her husband.⁷⁸⁵ This is far earlier than the Year Books cases of executions in second pregnancies discussed above – perhaps this was an earlier approach to second pregnancies which the Year Books cases superseded.

Women would have to enter a plea of pregnancy themselves, and their actions in doing so might suggest they were aware of the courts' reluctance to execute pregnant women. These women may have known how to navigate the legal system to their advantage, particularly if defendants were not represented by lawyers in court, as was apparently customary by the reign of Henry III.⁷⁸⁶ Seipp has argued that defendants in criminal cases did in fact have the assistance of lawyers, suggesting that the interest of the Year Books recorders in criminal cases resulted from the involvement of lawyers in pleading on behalf of criminals in the fourteenth and fifteenth centuries.⁷⁸⁷ Legal representation was probably more common than custom would suggest, but at least some of these pleas of pregnancy were entered by women at their own volition. A 1348 Year Books case supports this: a woman is accused of helping to cause a man's death in a fight, and when asked about

⁷⁸¹ TNA, KB 27/964, Rex rots 10-11; TNA, JUST 3/199, rot. 6d; Helen Lacey, *The Royal Pardon: Access to Mercy in Fourteenth-Century England* (York: York Medieval Press, 2009), pp. 28, 69; Pugh, p. 25.

⁷⁸² TNA, JUST 3/104, rot. 15d.

⁷⁸³ TNA, SC 8/219/10921.

⁷⁸⁴ TNA, JUST 3/100, rot. 16d; TNA, JUST 3/101, rot. 6d, rot. 10, rot. 13d; JUST 3/102, rot. 1, rot. 9.

⁷⁸⁵ Hanawalt, 'Female Felon', p. 265

⁷⁸⁶ Paul Brand, *The Origins of the English Legal Profession* (Oxford: Blackwell, 1992), p. 45.

⁷⁸⁷ David Seipp, 'Crime in the Year Books', in *Law Reporting in Britain*, ed. by Chantal Stebbings (London: Hambledon, 1995), pp. 15-34 (p. 16).

her plea, she stated that she was pregnant rather than pleading guilty or not guilty.⁷⁸⁸ Normally, a pregnancy would only be taken into account after the woman had been found guilty. Her declaration at the wrong point in the proceedings suggests that this was a spontaneous declaration coming from the woman herself, rather than at the prompt of a lawyer. She evidently knew the value of being pregnant but did not know when to tell this to the court. We see here some evidence of women's basic knowledge of later medieval justice, and its interest in their reproductive health.

10.2.2. Procedures for Pregnancy Diagnosis

As in the inheritance cases discussed in section 10.1, the assertion of a woman alone was not sufficient proof of a pregnancy. To gain a stay of execution, a pregnancy would have to be confirmed, and the procedure for diagnosis varied a little from that employed in the inheritance cases. After a woman had been condemned to be executed, and claimed to be pregnant, a group of women were called upon to examine the potentially pregnant woman for signs of pregnancy. It seems that this was an automatic response to a claim to pregnancy, although one case cited by Butler includes a comment that a jury of examining women was called 'because she is somewhat fat and she says that she is pregnant'.⁷⁸⁹ This might imply that a cursory visual examination of the woman by court officials would occur before a group of examining women was brought in.

In criminal cases, the investigating women were apparently granted more independence than in inheritance cases, as this examination did not have to be conducted in front of knights. The Year Books murder case from 1348 in which the woman spontaneously claimed to be pregnant before entering a plea, discussed in section 10.2.1, provides a fairly representative summary of the process involved. This woman and her male co-defendant were found guilty, and then the procedure for diagnosing pregnancy was enacted. Justice Thorp:

⁷⁸⁸ 'Et aury une feme fut arraign de meme la mort, que dit que elle fuit enseinte; ne quident elle fuit mis a responder, que dit de rien culpable, ou ambydeur fuit trove culpable', 'and also a woman was arraigned for the same death, and she said that she was pregnant. Nevertheless she was compelled to answer, and she said not guilty, where both were found guilty', *Le Livre des Assises*, p. 101; Seipp Number 1348.279ass, from Seipp, 'Year Books', <<https://www.bu.edu/phpbin/lawyearbooks/display.php?id=11820>> [accessed 31st May 2019].

⁷⁸⁹ 'Aliqualiter grossa est et se dicit eam pregnantem', TNA JUST 3/39/1, rot. 7; Butler, *Forensic Medicine*, p. 376.

Commanded the marshals to put the woman in a chamber, and make women come to test and examine if she was pregnant, and also with a living infant or not.⁷⁹⁰ She was found not to be pregnant and was hanged. This case describes the space in which this procedure occurred: the woman was taken to a chamber by the marshals, perhaps a temporary antechamber, or a room in a prison for a longer detainment while the diagnosing women were summoned.⁷⁹¹ The act of diagnosis would occur in a separate private space, and would not be conducted in the court room, or before male witnesses.

The process by which the examining women were summoned, and the criteria on which they were selected is somewhat difficult to establish, but it seems their 'law-worthiness' was the most important factor, rather than any sort of medical qualification. In eight of the criminal cases discussed here, a standardised description of the formation of these juries was included. A representative example is here drawn from the case of Margery Chaloner, who murdered her husband, was convicted, then claimed to be pregnant.

And that it might be known whether the said Margery was pregnant or not, for that reason let there be made a jury of matrons of the aforesaid town of Leicester. The required matrons came and chosen, tried, and sworn, they said upon their oath that the aforesaid Margery is not pregnant as she herself previously alleged.⁷⁹²

This term, 'jury of matrons', is used in the court records from at least the start of the fifteenth century, and similar groups can be identified much earlier, suggesting this procedure was well established by this time. This use of the term 'jury' is interesting at a time when women could not participate in 'normal' trial or presentment juries, demonstrating that it was not conceptually impossible for women to be categorised as jurors.⁷⁹³ It also suggests that a criminal trial jury of twelve men selected and summoned to the court by the sheriff of the county to assess the guilt of the accused provides a suitable parallel with which to compare these juries of women.⁷⁹⁴ In these cases, the women are 'chosen, tried and sworn', and they declare their verdict as to whether a woman is pregnant

⁷⁹⁰ 'Il commanda a's Marschals de mettre la feme en un chambre, & faire venir femes a prober et examiner, si elle fuit enseint oue vise enfant ou nient', *Le Livre des Assises*, p. 101.

⁷⁹¹ Pugh, pp. 356-357.

⁷⁹² 'Et sciatur utrum eadem Margeria pringnans sit necne ideo fiat inde jurata de matronis predicte villo Leucestre – Matrone exacte venit qui at hoc electe, triate & iurate dicunt super sacrum suum quod predicta Margeria non est pringnans prout upsa superius allegavit', TNA, JUST 3/195, rot. 72v.

⁷⁹³ Masschaele, p. 131.

⁷⁹⁴ Harding, p. 62.

or not 'upon their oath'. This is the same language used to describe the swearing in of male jurors in criminal trials.⁷⁹⁵

The same terminology was used to refer to these examining women, and the men involved in trial juries. In the case of Agnes Fisher, who claimed to be pregnant after being accused of theft in 1434, the sheriff was tasked with summoning 'twenty-four proven and law-worthy [*probas et legales*] women and matrons of the neighbourhood of Westminster' to discern whether or not she was pregnant.⁷⁹⁶ In other cases, these women were described as 'trustworthy matrons' – *fidedignas matrones*, as in the 1301 case of Juliana of Lichefield.⁷⁹⁷ These terms reflect those used to refer to male jurors, as discussed by Masschaele: generally the main requirement for jurors was that they were *probi et legales homines*, good and law-worthy men.⁷⁹⁸ Ian Forrest refers to the use of similar language to describe the laymen involved in governing the Church in medieval England: '*boni homines, fideles, probi homines, and legali or legitimi homines*'.⁷⁹⁹ These were terms used for respectable and trustworthy men in official positions, and it is quite striking to see some of them used to describe the examining women in these cases. This appears to suggest that they were trusted women of the locality, who were known to be 'law-worthy'.

There may have been some difficulty in according this level of respect and legal participation to women in later medieval England, particularly relating to the term 'law-worthy women'. Masschaele defines the term 'law-worthy man' as one who 'was not beholden to someone else, someone who had the ability to make an independent judgment about a matter set before them'. These qualities would allow him to participate properly in a trial jury. But he also claims that to be a 'law-worthy woman' in the middle ages 'was an oxymoron'. Women were ruled by their husbands and male family members, and were therefore unable to make independent judgments on matters set before them – this relates to the doctrine of *couverture* in which married women were subsumed within the legal

⁷⁹⁵ As in the Margery Chaloner case: 'Juratus venit qui ad hoc electi, triati & iurati dicunt super sacrum suum quod predicta Margeria culpabilis est de morte & murdro predictis', 'The jury came there, and chosen, tried, and judged, they said upon their oath that the aforesaid Margery was guilty of the aforesaid death and murder', TNA, JUST 3/195, rot. 72.

⁷⁹⁶ 'Xxiiij probas et legales mulieres matronas de visinetum ville Westmonasterium', TNA, KB 27/693, Rex rot. 3.

⁷⁹⁷ TNA JUST 3/100, rot. 16d.

⁷⁹⁸ Masschaele p. 130.

⁷⁹⁹ Ibid, pp. 142-145; Forrest, pp. 100-102.

identities of their husbands, discussed in section 10.1.2.⁸⁰⁰ But 'unfree' men could be included in trial juries in the middle ages – Masschaele refers to villeins participating despite their obligations to their lords.⁸⁰¹ Perhaps women's obligations to their husbands were similarly ignored, allowing them to participate in this process as 'law-worthy' women. The additional use of the term 'matrons' or 'matron-women' ties in with this language of respect and dignity: this term was used to refer to older women, and it is likely these were older women who had earned the respect of their communities. They were therefore permitted to participate in these cases, because they were uniquely qualified as women to identify a pregnancy, and they had proven themselves to be trustworthy enough to fulfil this duty.

In most of these cases it is specified that the women are to come from the town in which the trial is being conducted, or the convicted criminal's home town. Butler suggests that the descriptions of these women as 'matrons of the city' relates to the 'formalization of the position', as a limited number of women were identified and 'appointed' as matrons, to be called in again and again to fulfil this examining duty.⁸⁰² She cites two jury panel lists from Newcastle-upon-Tyne and two from Lincoln which included the names of the same women to support this point.⁸⁰³ Butler relies on these repeated names as evidence that courts were drawing on a pool of 'expert' women, who possessed some sort of medical training. She suggests that this demonstrates that English courts were relying on the testimony of medical experts far earlier than has conventionally been assumed.⁸⁰⁴ But when the process of normal trial jury formation is taken into account, the repetition of names in these panels can be explained by the limited pool of people who were eligible to participate. Men participating in trial juries had to be law-worthy, free men, with a certain level of income.⁸⁰⁵ This limited the numbers of people eligible to participate in particular places, so the same people were repeatedly asked to serve. Masschaele writes of jurors being frustrated by this, and paying bribes to officials to avoid service.⁸⁰⁶ If similar criteria were applied to female jurors in these cases, this would explain why the pool of women was apparently limited – there were only so many 'law-worthy' women in these towns. These

⁸⁰⁰ Masschaele, p. 130.

⁸⁰¹ Masschaele, p. 134

⁸⁰² Butler, 'Mothers', p. 371.

⁸⁰³ *Ibid*, pp. 372-373.

⁸⁰⁴ *Ibid*, pp. 388-389.

⁸⁰⁵ Masschaele, p. 134.

⁸⁰⁶ *Ibid*, pp. 151-153.

women were not experts, but instead they were drawn from the limited number of law-worthy women who could participate in these cases.

These legal cases do not mention women possessing particular medical knowledge or expertise to qualify them to diagnose pregnancy. Butler does cite one example of a London case involving 'six women midwives, law-worthy and wise', but this is the only case I have seen in which these examining women are described with the term 'midwife'.⁸⁰⁷ In other cases, these women are not referred to as midwives or as medical professionals, or even as wise women. Their qualification to serve as examining jurors in these cases probably derived from a different sort of authority. I would argue this primarily rested in their gender. It was deemed more appropriate for women to view another woman's body than for a man to do so, and women's experiential knowledge of pregnancy was probably thought to be quite substantial, as discussed in Chapter Three, and in section 10.1.2 of this chapter. The women's law-worthiness, and their standing in the community justified their participation in this crucial element of the legal process. They had the life of a prisoner in their hands, and potentially her unborn child as well. The respectability, reliability, and law-worthiness of these women was therefore as important as that of male jurors, and enabled them to perform this diagnostic act.

Two of the eleven legal cases I have considered for this chapter, outlined in Appendix 3, offer details about the formation of juries of matrons. These support the assumption that this followed the pattern of male jury formation, and that respectability, trustworthiness and law-worthiness were the key defining features of these women. The 1413 case of Alice Jurdan of Newerk demonstrates this: Alice was tried at a Nottinghamshire gaol delivery, for stealing 100 shillings from her mistress Agnes Grace, and for murdering her and leaving her naked body under a bed.⁸⁰⁸ She was tried and found guilty, then pleaded pregnancy. A jury of matrons from the town of Nottingham were called to examine her, and the standard language for this appears in the write up for this case. The most interesting detail comes from a different bundle of documents including a rough calendar summarising the cases tried at this delivery, including Alice's charges and a description of the matrons being called, and finding her not pregnant.⁸⁰⁹ Included within this group of

⁸⁰⁷ TNA, KB/45/1, rot. 5; Butler, 'Mothers', pp. 370-371.

⁸⁰⁸ TNA, JUST 3/195, rot. 64.

⁸⁰⁹ TNA, JUST 3/56/8, rot. 16.

documents are three jury panels – the lists of the names of potential jurors drawn up by the sheriff. As is conventional, these lists are marked with 'jur' for 'juratus' – sworn – beside the names of individuals selected and sworn to form the jury.⁸¹⁰ One of these jury panels is for a jury of matrons.⁸¹¹ Butler includes the women's names from this jury panel in her appendix of names of matrons drawn from this and ten other jury panels, but she does not discuss it alongside the records of a particular case.⁸¹² As the Alice Jurdan case was the only one relating to pregnancy in this file of documents, these women were probably summoned to determine whether Alice was pregnant or not.

Taken together, these case records and the jury panel document entitled 'Matrons of Nottinghamshire', offers an invaluable insight into the formation of juries of matrons.⁸¹³ In the formal record for this case, the conventional language records their summoning, but obscures the process of jury formation:

Therefore, let there be made for that reason a jury of matrons of the aforesaid town of Nottingham. The matrons came, and that is to say they were chosen, tried and sworn, they said upon their oath that the aforesaid Alice is not pregnant.⁸¹⁴

The existence of the list of names appears to demonstrate that forming a jury of matrons followed the process used in forming conventional male juries, and hints at the process obscured in the records of other such cases of this kind: the survival of this record in a separate bundle of 'rough notes' from this gaol delivery is quite unusual, as many such ephemeral documents have been lost over the centuries.

The women's names included here offer scope for further information about the sorts of people deemed appropriate to act in offering a pregnancy diagnosis. Their names are given in the table below:

Surname Type			
Husband's Name	Professional	Geographical	Other
Agnes, wife of John Cook	Dionisia (Denise) Baker	Isolde of Wydempole	Juliana Broun

⁸¹⁰ Masschaele, p. 158-160.

⁸¹¹ TNA, JUST 3/56/8, rot. 21r.

⁸¹² Butler, 'Mothers', pp. 391-393.

⁸¹³ 'Matrona de Nottinghamshire', TNA, JUST 3/56/8, rot. 21r.

⁸¹⁴ 'Ideo fiat inde juratam de matronis predicte ville Notynham -- matrone veniunt que ad hoc scilicet triate & iurate dicunt super sacrum suum quod predicta alicia non est prignans [sic] [recte pregnans]', TNA, JUST 3/195, rot. 64d.

Surname Type			
Husband's Name	Professional	Geographical	Other
Alice, wife of Reginald	Isabella Sewster		Agnes del Hale
Isabella, wife of Peter Fletcher	Johanna Taylor		Christiana Norys
Isabella, wife of Richard Aldewyk [crossed out on document]			
Avice, wife of William Brekepot			
Margery, wife of Peter Ledenham			

Of the thirteen women on this list, all but one – Isabella, wife of Richard Aldewyk – were apparently sworn in as jurors. Her name is crossed out on the document. At least six of these thirteen women were married, as they were identified by their husbands' names, but some were identified by professions, others by their own surnames, and one with a geographical identifier. This suggests they were either widows or single-women, but it is difficult to establish this with any certainty. Judging by these details, these women do not seem to have been professional medical practitioners, and they were not paid for their services.

I have been able to find out a little more information about some of the women's husbands from the Nottingham Borough Court Rolls.⁸¹⁵ A complaint was made against William Brekepot for debt in 1395, and Isabella Fletcher and her husband Peter were both named as defaulting on debts in 1408.⁸¹⁶ Falling into debt might make these people seem untrustworthy and not respectable, but in fact demonstrates that they were deemed

⁸¹⁵ All cases from the Nottingham Borough Court Rolls have been accessed in the calendars created by Trevor Foulds and J. B. Hughes, available online. 'Nottingham's Borough Court Rolls', Urban Culture Network, University of Nottingham <<https://www.nottingham.ac.uk/ucn/onlinesources/index.aspx>> [accessed 30th July 2018]. My thanks to Teresa Phipps for recommending this resource.

⁸¹⁶ Nottingham Borough Court Rolls (NBCR), CA 1295/1, roll 8d; NBCR, CA 1304/1, roll 26.

trustworthy enough to participate in local credit networks, and suggests they were active participants in trade and commerce in Nottingham at the time.⁸¹⁷ Others of the men were named as appraisers, officeholders who assessed the value of goods sold, lent out, or bequeathed: Richard Aldewyk served in 1419, six years after his wife was involved in this jury of matrons, and Reginald Gefcok served in 1418.⁸¹⁸ In the same year Gefcok was serving in this position of trust, he was also complained against for debt on several occasions, demonstrating that these complaints did not necessarily devalue one's social standing.⁸¹⁹ This evidence suggests that these women were part of the mercantile, officeholding classes of Nottingham, and supports the idea that they were selected for this diagnostic duty on the basis of their respectability and social standing, rather than any sort of specific medical knowledge.

One of the other cases considered here, that of Agnes Fisher of Bristol, offers a further insight into the formation of juries of women. She was tried at the Guildhall in London, during a delivery of the Marshalsea prison on Monday 8 March 1434. Agnes claimed to be pregnant, and responsibility for determining the truth of the matter was passed on to the sheriff of the county 'so that they do not disregard it'.⁸²⁰ The sheriff was instructed to summon 'twenty-four good and law-worthy women and matrons of the vicinity of the town of Westminster who are not of the affinity of the aforesaid Alice'.⁸²¹ It was important to involve law-worthy local woman, while ensuring that they were not close associates of the convicted woman. It is possible this was an attempt to ensure they would not use any foreknowledge of Agnes's lifestyle, fertility, or sexual behaviour to inform their judgement of whether she was pregnant or not. It is also possible that the court wished to prevent any collusion between the jury and Agnes, so she was not able to falsify a pregnancy.

The women were brought before the court on the Monday 14 June, and they were questioned as to whether they knew anything of Agnes – they said they did not – and whether their husbands held property, which they said they did. Again, the importance of

⁸¹⁷ Teresa Phipps, 'Creditworthy Women and Town Courts in Late Medieval England', in *Women and Credit in Pre-Industrial Europe*, ed. by Elise Dermineur (Turnhout, Belgium: Brepols, 2018), pp. 73-94 (pp. 75-76)

⁸¹⁸ NBCR, CA 1313, roll 8d.

⁸¹⁹ NBCR, CA 1312 (1417x1418), rolls 15, 16, 17, 18, 19.

⁸²⁰ 'Preceptum est vicecomitibus Middlesex quod non omittunt', TNA, KB 27/693, Rex rot. 3.

⁸²¹ 'Xxiiij probas et legales mulieres matronas de visum visnetu ville Westmonasterium qui prefate Agnete nullam affinitatem &c', TNA, KB 27/693, Rex rot. 3.

jurors of a certain social status is emphasised, which, for women, depended on the property of their husbands. After these enquiries the women were commanded to come back to the court on the Thursday, three days later, to examine Agnes. The time frame in this case appears to vary a little from the other cases in which a claim of pregnancy was made immediately. Agnes did not claim to be pregnant until almost two months after she was convicted on 8 March. She was apparently held in the Marshalsea prison until she claimed to be pregnant on Monday 31 May. The sheriff was ordered to produce the female jurors fourteen days later, on Monday 14 June, giving him a two-week window in which to identify appropriate women. Three days later, the women made their examination. This selection process was evidently quite lengthy, which demonstrates that these were not simply women who happened to be available or nearby. They had to meet certain criteria of property and respectability before they were allowed to participate in diagnosis. This record is particularly valuable in setting out some of the criteria which made a woman law-worthy: they should be women and matrons married to men of property, who did not know the person on trial.

10.2.3. Diagnostic Acts

The exact details of what these women were expected to do to diagnose a pregnancy was often obscured in the court record. Usually, this merely states they say upon their oath that the aforesaid woman is pregnant or not pregnant, and no detailed descriptions of their diagnostic actions survive. The terminology used is rarely medical, but is more often the language of legal inquiry, as in the case of Margaret Danbery in 1425:

So that it might be known whether the aforesaid Margaret is pregnant or not, thence let there be made a jury of matrons, so that they might inquire of the truth of that matter.⁸²²

The language used here is conventional and legal: an inquiry as to the truth. Pregnancy is conceptualised as a *res*, a matter, a thing, or an issue to be proven to the court, rather than a bodily condition to be diagnosed. The court wanted to avoid harming an unborn child, but the instructions here given were more concerned with proving or disproving Margaret's words, rather than with her health, or that of the child.

⁸²² 'Et ut sciatur utrum predicta Margareta sit pregnans necne inquiretur inde rei veritas ideo fiat inde Jurata de matronis &c', TNA, JUST 3/199, rot. 6d.

As for the actual examination conducted by these women, evidence is scarce. It is probable that these women spoke to the potentially pregnant woman about her condition, and conducted some form of tactile examination, along the lines of the examination described in *Bracton*, with reference to the inheritance cases. Here, the women brought in to diagnose a pregnancy were to:

Carefully examine her by feeling her breasts and abdomen and in every way whereby they may best ascertain whether she is pregnant or not.⁸²³

The author of this text envisaged women participating in a direct physical examination of the potentially pregnant woman's body, but gave no information about the signs they would be expected to look out for. The text assumed that women tasked with this duty would already know how to identify bodily changes in the breasts and the belly associated with a pregnancy, as might be expected if they had been pregnant themselves, or been in close contact with other pregnant women. The examining women might also be aware of other means of discerning whether a woman was pregnant or not: they were instructed to examine her 'in every way' which might allow them to recognise a pregnancy. Perhaps this included questions about signs and symptoms, and the use of diagnostic tests, or uroscopy, as discussed in Chapters Six, Seven and Eight. But no mention is made of these sorts of tests or procedures: perhaps these criminal women were not seen as important enough for the use of complicated, theoretically-informed methods. It is also possible that they were used but were obscured by the formulaic nature of case records, and the fact that the examination of the woman took place in a separate, private space, out of sight of the court recorders. These cases demonstrate an assumption that, whatever methods they might use, women would know how pregnancy operated, and could reliably provide a diagnosis of pregnancy.

The Agnes Fisher case offers an insight into how diagnosis might work in criminal cases, in the instructions for the sheriff in calling together a group of women. They were to be called:

⁸²³ 'Et diligenter tractari a praedictis mulieribus per ubera et per ventrem, modis omnibus quibus inde melius possint certiorari utrum praegnans sit necne', Thorne, *Bracton*, II, p. 201.

For the touching and inspecting and to recognise, in as much as is custom, the body and secrets of the said Agnes.⁸²⁴

These women were asked to inspect not only Agnes's body, but also her 'hidden things', *secreta*. This concept may have been borrowed from the medical and philosophical literature on the 'secrets of women', discussed in Chapter Four.⁸²⁵ The term sometimes had sinister undertones, but here it seems to be referring to the woman's genitalia.⁸²⁶ As this was included in the instructions to the sheriff, it is possible that he may have asked potential female jurors about their knowledge of these matters before bringing them in to conduct this diagnosis. This court record also indicates that this process was nothing unusual: the women are asked to conduct an inspection 'as is custom', which suggests that the diagnostic procedure described here was employed in other cases involving claims of pregnancy. It seems that these women were expected to be able to recognise a pregnancy by conducting a direct tactile examination of a potentially pregnant woman's body. They were not expected to possess any sort of specific training, but their status as law-worthy women was enough to guarantee that they could work as a group to come to an accurate diagnosis of pregnancy.

10.3. Conclusion

This discussion of pregnancy diagnosis and the law demonstrates a very different approach to diagnosis compared to the medical and divinatory texts. The diagnosis of pregnancy was only important before the courts when there were serious consequences riding on its outcome: when the distribution of inheritance might be disrupted should she be carrying a male heir, or when the soul of an unborn child might be at risk because of an execution. Pregnancy could be advantageous to a woman in either circumstance, and her claims could not be left untested. Diagnosis was conducted in the same way as conventional mechanisms for providing proof in the English legal system, which generally involved evidence provided by investigative juries of men. But the particular challenges of examining a female body for signs of pregnancy necessitated the involvement of women in these

⁸²⁴ 'Ad palpandum et inspiciendum prout moris est corpus et secreta dicte Agnetis et ad regonoscere &c', TNA, KB 27/693, Rex rot. 3.

⁸²⁵ William Eamon, 'Books of Secrets in Medieval and Early Modern Science', *Sudhoffs Archiv* 69 (1985), 26-49 (p. 27); Green, "Diseases of Women", p. 9;

⁸²⁶ *Ibid*, p. 6.

pregnancy diagnosis cases: women's knowledge about the female anatomy, drawn from their own experience and varying amounts of technical knowledge drawn from vernacular texts, combined with the need to preserve female modesty to create a unique situation. In these circumstances, women were able to fulfil the role usually given to male jurors or doctors, to identify the presence of pregnancy. The normal status of women in the eyes of the law was set aside, providing women with a remarkable and unusual opportunity to participate in the legal system.

These cases therefore reflect an ironic situation: women's word on their pregnancies could not be trusted, but other women were seen to be the only ones who could confirm it. Trust had to be bestowed somehow, and while inheritance law required the presence of trustworthy knights to observe the examining women, in criminal cases this trust appears to have been granted through treating women exactly like the men called to participate in all-male trial juries. The qualifying women had to be 'law-worthy' and 'discreet', just as the men had to be. They were summoned by the sheriff using the same apparatus of jury panels, and the same information was sought about their social status, except that whereas men were asked about their own property, these women were asked about their husbands' property. Throughout, the emphasis appears to have been on their ability to participate as law-worthy people as any man might, and little consideration is given to their medical knowledge.

The exact reason why these law-worthy and discreet women were thought to have been qualified to diagnose a pregnancy was never specified explicitly, and I believe this is the most interesting insight these cases give us into pregnancy diagnosis and medical knowledge amongst laypeople in later medieval England. The fact that no particular qualification was needed to diagnose pregnancy suggests that any woman would be expected to know how to diagnose pregnancy. The nature of this knowledge might relate to personal or communal experiential knowledge of the indications of pregnancy, but alternatively, it might have been expected that these women had some access to vernacularised medical knowledge about pregnancy, as discussed in Chapter Three of this thesis. But to qualify for participation in these acts of diagnosis, these women merely had to be 'law-worthy' to be able to testify in court, and this was apparently prioritised over any technical medical understanding. The cases discussed here offer only tantalising glimpses of the actions of the examining women in these cases, but if knowledge about how to diagnose

pregnancy was widespread, this would explain why any 'law-worthy' women would be thought capable of participating in acts of pregnancy diagnosis in these legal cases.

Part 5. Conclusions

To conclude this thesis, I am returning to the three key questions posed in the introduction: what was the cultural significance of methods of pregnancy diagnosis, and what purposes might they have fulfilled in later medieval European society? Were the methods of pregnancy diagnosis recorded in manuscripts ever used, and if so by whom? And what was the role of pregnancy diagnosis in medicine and medical care, and social approaches to reproduction in later medieval society?

In answer to the first question, I have argued that methods of pregnancy diagnosis had a number of different meanings in later medieval European culture, fulfilling a variety of different purposes. As discussed in Chapter Two, in a society which valorised procreation, for personal, cultural, social, religious and economic reasons, knowledge about a pregnancy would be valuable for women and their families. For these individuals, methods of pregnancy diagnosis offered a sense of certainty at the start of a difficult and dangerous process, helping them to manage their own health during pregnancy. Some of the diagnostic tests and divinatory methods of predicting the foetus's sex may even have been treated as a source of amusement, particularly the diagnostic tests of Chapter Eight, and the divinatory techniques of Chapter Nine. As discussed in Chapter Four, medical practitioners were probably the largest user-group, and these methods provided them with a useful tool for managing the reproductive health of their female patients. The symptoms and signs of other medical conditions might be confused with the early signs of pregnancy, so that knowledge of alternative means of diagnosis offered these practitioners the reassurance that they were treating their patients properly. These methods might also be valuable for readers with a more theoretical interest, like the clerical owners discussed in Chapter Four. These methods represented one aspect of the range of knowledge about conception and generation in circulation in the later middle ages, helping to illuminate the wonders of God's creation for natural philosophers, theologians, and other interested readers. Finally,

methods of pregnancy diagnosis might also inform procedures of proof before the law, as the case study of the English common law in Chapter Ten demonstrates.

With the exception of legal methods, there is little definitive evidence that these methods of pregnancy diagnosis were ever put to use. I have only been able to present evidence for the use of astrological methods of diagnosing pregnancy in the astrological charts of Richard Trewythian, and a rough geomantic theme relating to the sex of an unborn child drawn up by an unknown operator. But judging by the utility of methods of pregnancy diagnosis in each of the contexts discussed above, and the wide variety of information relating to pregnancy diagnosis circulating in later medieval manuscripts, I would suggest it is quite likely that this material was put to use. The manuscripts and texts discussed in this thesis were owned and composed by a range of people: from medical practitioners, clerics, laypeople from amongst the gentry, and members of the nobility and royalty. From the fourteenth century, the processes of the vernacularisation of medicine discussed in Chapter Three would have made this information more accessible to ordinary people, as texts were translated and simplified for a wider audience. Communal reading practices and oral transmission probably also made this information accessible beyond these readership groups.

And yet, many women would have recognised that they were pregnant without using any of the techniques recorded in medical, divinatory, or astrological texts. As discussed in Chapter Two, we see evidence of this in medical texts, as medical authors like Valesco de Tarenta encouraged women to seek the advice of a physician in diagnosing pregnancy, rather than assuming they were pregnant. The way their actions were framed implies that it was normal for women to recognise a pregnancy for themselves. Women would have been able to draw on their own personal experience of pregnancy, or learn from the observation of and conversation with female relatives and friends who had experienced a pregnancy. Given the informal practices of female support during childbirth amongst friends, family and neighbours, there were ample opportunities for women to acquire a working knowledge of the processes of pregnancy, and its signs and indications. This sort of knowledge is evident in the English legal cases. In this context, women were selected to participate in juries of women not because they were medical experts or practitioners, but because of other criteria which suited them to this role of social participation: their husband's income, their 'law-worthiness', and perhaps their age. The

assumption that any respectable woman would be able to play a role in this process demonstrates the expectation that knowledge about how to diagnose pregnancy would be quite widespread. It seems that while those who had access to the textual methods of pregnancy diagnosis may have valued and used them, many women in later medieval England and Europe would have seen no need for their use.

I would suggest that these methods of pregnancy diagnosis played the most significant role in the context of medical practice. In the evidence surveyed for this thesis, these methods appear most frequently in medical texts, and in volumes owned by medical practitioners. These methods employed conventional diagnostic medical techniques: testing and examining the patient's body, assessing patients' symptoms, and examining and testing bodily fluids. For these methods to work, a collaborative relationship between male practitioner and female patient was necessary. These diagnostic efforts would seek evidence of the changes within the body associated with pregnancy, and the disruptions caused by the growth of the foetus. They can be rationalised within the context of contemporary medical theory, even if the texts in which they eventually appeared did not explain these technical concepts. As such, they offer a fascinating insight for historians into the transformation of theoretical knowledge into practical diagnostic techniques, and the dissemination of these techniques amongst a wider readership of medical practitioners and laypeople.

The significant value of being able to diagnose a pregnancy accounts for this dissemination. Having the ability to diagnose pregnancy would have proved the capability of medical practitioners, and allowed them to care for their pregnant patients – in exchange for appropriate fees. But the variety of methods available for this purpose, and the range of textual and manuscript contexts in which they appeared suggests that this interest was widespread. Medical practitioners, potentially pregnant women and their families, as well as theoretically interested intellectuals all seem to have taken an interest in methods of diagnosing pregnancy and determining the sex of the child in later medieval Europe. This can be interpreted as an expression of interest in understanding the hidden mysteries of pregnancy, but also as a response to the very real dangers of this process for both mother and child. The different techniques for diagnosing pregnancy and recognising the sex of the unborn child can therefore be interpreted as responses to anxieties and curiosities, as

people attempted to find a definitive answer to the question of whether a woman was pregnant or not.

Appendix 1: Medical Manuscripts

	Manuscript Classmark	Date	Origins	Texts and Ownership	Users			Methods			
					Medical practitioner	Clerical	Household	Uroscopy	Signs	Symptoms	Tests
1	Cambridge, Trinity College, MS O.1.57	15 th / 16 th C	England	English uroscopy text, deriving from <i>Dome of Urynes</i> compendium. Volume owned by gentry Haldenby Family of Isham, Northamptonshire in fifteenth century			X	X		X	
2	Wellcome MS 532	15 th C	Italy	<i>Signa Praegnationis</i> list	X					X	
3	Wellcome MS 544	early 14 th c	France	<i>Trotula</i> text. References to pregnancy diagnosis appear in multiple versions of this text	X				X		X
4	British Library (BL), MS Harley 3808	1475	France	Avicenna's <i>Canon Medicinae</i> , translated into Latin by Gerard of Cremona (1113/4-1187), with commentaries by Jacques Despars (1380-1485). References to pregnancy diagnosis appear in Book III of Avicenna's text.	X			X	X	X	X
6	Cambridge, TC, MS O.1.20	c. 1240	Anglo-Norman	<i>Espeirement de enfaunt</i> , vernacular verse describing signs of sex of the child	X				X		
7	BL, MS Harley 1010	Late 14 th C	England	<i>De Urinis Egrorum</i> (eVK2 *7799.00)	X			X			
8	Wellcome MS 11	Late 14 th C (1374)	Germany	Pseudo Albertus Magnus, <i>De Secretis Mulierum</i> . References to pregnancy diagnosis appear in multiple versions of this text.		X					
9	Wellcome MS 549	15 th C (1471)	Germany	Short anonymous text on identifying sex of the child	X				X	X	
10	Wellcome MS 545	Late 15 th C	Germany	<i>De immunditiis mulierum</i> , misogynistic text on women and generation, including information about pregnancy diagnosis		X			X	X	
11	Wellcome MS 557	Mid 15 th C	South Germany	Antonio Guainerius, <i>De egritudinibus propriis mulierum</i> . References to pregnancy diagnosis appear in Chapter 31 of this work	X			X	X	X	X
12	Wellcome MS 7	Early 15 th C	England	A fragment of a uroscopy treatise, incipit 'a whit water in man by tokenyth sykenes in ye reynys'	X			X			
13	Wellcome MS 409	14 th / 15 th C	Southern England	<i>Urina Mulieris</i> and <i>Ad cognoscendum pregnantes</i> , from Middle English <i>Doom of Urynes</i> compendium. References to pregnancy diagnosis appear in multiple manuscripts of these texts	X			X.			X

	Manuscript Classmark	Date	Origins	Texts and Ownership	Users			Methods			
					Medical practitioner	Clerical	Household	Uroscopy	Signs	Symptoms	Tests
14	Wellcome MS 564	15 th /16 th C	England	Fifteenth century copy of Henri de Mondeville's <i>Chirurgia</i> , with note in a sixteenth century hand, incipit 'To know whether a woman be wyth chylde wyth a man chylde or a mayde chylde'	X				X		X
15	Wellcome MS 531	14 th /15 th C	Italy	Michael Scot, <i>De urinis</i>	X			X			
16	BL, MS Sloane 345	16 th C (c1500)	Holland	<i>Liber de matrice mulieris et impregnationis</i> , part of <i>Fasciculus medicinae</i> attributed to Johannes de Ketham.	X				X	X	
17	BL, MS Sloane 783 B	14 th / 15 th C	England	<i>De conceptione mulieris urine; De urina pregnantis</i> from Middle English <i>Doom of Urynes</i> compendium – references to pregnancy diagnosis appear in multiple versions of these texts; uroscopy text illustrated with urine flasks. Lists prices of medical ingredients from fairs in the fourteenth century, suggesting medical ownership	X			X	X	X	X
18	BL, MS Sloane 284	14 th / 15 th C	England	<i>De signum conceptionis</i> , Latin text on signs of conception	X			X	X	X	X
19	BL, MS Sloane 249	15 th C (in a 16 th C compilation)	England	<i>Sekenesse of Wymmen</i> text, quires from a fifteenth century volume with possible ecclesiastical origins, included in a sixteenth-century volume of medical texts. References to Pregnancy diagnosis included in this manuscript version do not appear in other versions of the <i>Sekeness of Wymmen</i> text I have examined.		X					X
20	BL, MS Sloane 246	15 th C	? France	Johannes de Tornamira, <i>clarificatorium super Nono Almansoris cum textu Rhasis</i> , a fourteenth-century commentary and expansion on ninth book of <i>Liber ad Almansorem</i> , a Latin translation of <i>Kitāb al-tibb al-Mansuri</i> by Al-Razi	X			X	X	X	X
21	BL, MS Sloane 340	15 th C	England	Henry Daniel, <i>Liber Uricrisiarum</i> . References to pregnancy diagnosis appear in multiple versions of this text	X			X			
22	Bodleian, Bodley MS 648	15 th C	England, Canterbury	Uroscopy treatise, 'Urina rufa significat salute et bonam dispositionem'. Parts of manuscript belonged to two monks of Christ Church, Canterbury, William Molasche (prior between 1428-1437), and William Boolde (d. before 1492)		X		X			

	Manuscript Classmark	Date	Origins	Texts and Ownership	Users			Methods			
					Medical practitioner	Clerical	Household	Uroscopy	Signs	Symptoms	Tests
23	Bodleian, MS Rawlinson C.506	Early 15 th C	England	<i>Ad cognoscendum pregnantes, Urina Mulieris</i> , from <i>Dome of Urynes</i> compendium. References to pregnancy diagnosis appear in multiple versions of this text			X	X	X		X
24	Bodleian, MS Bodley 484	Mid 15 th C	England or France	Pseudo Albertus Magnus, <i>De Secretis Mulierum</i> . Volume contains a treatise on confession, and a decision made by Robertus Porta, of the order of Austin Friars near Paris		X					X
25	Bodleian, MS Add B. 60	15 th C	England	<i>Urina Mulieris; Ad cognoscendum pregnantes</i> , from the <i>Dome of Urynes</i> compendium. References to pregnancy diagnosis appear in multiple versions of this text. Probably owned by medical practitioner, given inclusion of instructions for 'the manere of wrytyng of bylles for receytes'	X			X	X		X
26	Bodleian, MS Wood Empt. 18	late 15 th C	England	Medical test for pregnancy, included within book of medical recipes, charms and horse medicine			X				X
27	Bodleian, MS Add A. 106	15 th C	northern England	Short test for pregnancy amongst medical recipes; short test within section on fertility. Volume includes various medical texts, and the Distichs of Cato in English	?	?	?	X		X	X
28	Bodleian, MS e Mus. 187	Early 15 th C	England	Henry Daniel, <i>Liber uricrisiarum</i> . References to pregnancy diagnosis appear in multiple versions of this text	X			X	X	X	X
29	Bodleian, MS Hatton 29	Late 13 th C	England	<i>Ad discernendum urinam humanum ab urinam mulierem & urinam besti'</i> , <i>Ad cognoscendum pregnantis</i> , 'It ys for to wytt that in the iij partes of the body', <i>Urina pregnantium</i> , from Middle English <i>Dome of Urynes</i> compendium. References to pregnancy diagnosis appear in multiple versions of this text	X			X	X		X
30	Bodleian, MS Bodley 361	15 th C	England, Salisbury	John of Saint Paul, <i>Breviarium medicine</i> , within volume of learned medical texts. Copied by Hermannus Zurke de Greifswaldis, commissioned by Gilbert Kymer, Dean of Salisbury Cathedral and later Chancellor of the University of Oxford		X			X	X	X
31	Bodleian, MS Bodley 682	15 th C	England	Uroscopy treatise, incipit: 'dicitur urina quam fit renibus una'; adapted <i>Trotula</i>	X			X	X	X	X

	Manuscript Classmark	Date	Origins	Texts and Ownership	Users			Methods				
					Medical practitioner	Clerical	Household	Uroscopy	Signs	Symptoms	Tests	
				text; Thomas of Monte Avium, <i>Gemma experimentorum</i>								
33	Bodleian, MS Bodley 608	Early 15 th C	England	John of Gadsden, <i>Rosa medicinae/Rosa Anglica</i> . References to pregnancy diagnosis appear in multiple versions of this text	X			X	X	X	X	
32	Bodleian, MS Bodley 591	15 th C	England	Test and signs of pregnancy within section of recipes, and information on conception and childbirth. In a manuscript of medical texts, astrological information, and text on plants – possible household commonplace book	X		X		X	X	X	
33	Bodleian, MS Rawlinson D. 248	15 th C	England	Uroscopic note in volume of theological, scientific, prophetic and historical texts		X		X				
34	Bodleian, MS Selden Supra 73	Later 15 th C	England	<i>Urina mulieris</i> and <i>Ad cognoscendum pregnantes</i> texts, from Middle English <i>Dome of Urynes</i> compendium, under title of <i>Discretio urinarum</i> . References to pregnancy diagnosis appear in multiple versions of this text	X			X	X	X	X	
35	Cambridge, University Library (CUL) MS Gg. 5. 37	15 th C	?	Aegidius Romanus Corbinensis [Gilles de Corbeil], <i>De Urinis Cum commentario</i> . References to pregnancy diagnosis appear in multiple versions of this text			X	X	X	X	X	
36	CUL MS Dd. 6. 29	15 th C	England	Note with urine jar; text on regions of urine	X			X				
37	CUL MS Gg. 3. 29	15 th C	England	Henry Daniel, <i>Libri tres uricrisiarum</i> in English. References to pregnancy diagnosis appear in multiple versions of this text. Owned by David Harris, sixteenth century Bristol apothecary – apparently acquired the book from ‘Portugale and Spanish phisicons’	X			X	X	X	X	
38	CUL MS Ff. 2. 6	15 th C	England	Henry Daniel, <i>Libri tres uricrisiarum</i> in English. References to pregnancy diagnosis appear in multiple versions of this text. Anonymous, <i>De coloribus urinarum</i>	X			X				
39	CUL MS Dd. 10. 44	15 th C	England	Text on contents of women’s urines	X			X				
40	Cambridge, St Johns College MS K. 49	15 th C	England	<i>Speculum urinarum</i> , including <i>Urina mulieris</i> and <i>Ad cognoscendum pregnantes</i> texts from the Middle English <i>Dome of Uryne</i> compendium. References to pregnancy diagnosis appear in multiple versions of this text	X			X				

	Manuscript Classmark	Date	Origins	Texts and Ownership	Users			Methods				
					Medical practitioner	Clerical	Household	Uroscopy	Signs	Symptoms	Tests	
41	Cambridge, St Johns College MS B. 15	15 th and 16 th C	England	Uroscopic method of knowing whether a woman is pregnant, within volume of medical recipes and notes. Includes note on parishes of England.	?	X	?	X				
42	Cambridge, St Johns College MS B. 16	15 th C	England	Henry Daniel, <i>De Urinis (Liber uricrisiarum)</i> . References to pregnancy diagnosis appear in multiple versions of this text	X			X				
43	Cambridge, St Johns College MS D. 4	11 th /12 th C with 15 th C index	Italy, England	Muscio's fifth-/sixth-century adaptation of Soranus's <i>Gynaecia</i> , copied in Italy, eleventh/twelfth century, with index added in a fifteenth-century English hand	X				X	X	X	
44	Cambridge, Magdalene College Pepys Lib MS 878	15 th C	England	Compilation of several uroscopy texts in Latin and English	X			X				
45	Cambridge, Magdalene College Pepys Lib MS 1307	15 th C	England, East Anglia	<i>Urina mulieris</i> and <i>Ad cognoscendum pregnantes</i> texts from the Middle English <i>Dome of Uryne</i> compendium. References to pregnancy diagnosis appear in multiple versions of this text	X			X	X	X	X	
46	CUL MS Dd. 6. 13	Early 16 th C	England	Early sixteenth-century recipe collection, including methods of recognising pregnancy. Possibly from a domestic context	?		?	X	X	X	X	
47	CUL MS Dd. 11. 45	15 th C	England	<i>Trotula</i> text. References to pregnancy diagnosis appear in multiple versions of this text	X				X	X	X	
48	CUL MS li. 1. 16	14 th C	England	Ricardus Anglicus, <i>De Urinis</i>	X			X				
49	Biblioteca Apostolica Vaticana fondo Palatino latino 1304	Late 13 th C	? Italy	Walter Agilon, <i>De contentis urinarum</i>	X							
50	Bibliothèque Nationale, MS Latin 7148	Early 14 th C	? France	Pseudo Albertus Magnus, <i>De Secretis Mulierum</i> . References to pregnancy diagnosis appear in multiple versions of this text	X				X	X	X	
51	Wellcome Library, MS 130	1330	Montpellier /Italy	Bernard de Gordon, <i>Lilium Medicinae</i> . References to pregnancy diagnosis appear in multiple versions of this text.	X			X	X	X	X	

	Manuscript Classmark	Date	Origins	Texts and Ownership	Users			Methods				
					Medical practitioner	Clerical	Household	Uroscopy	Signs	Symptoms	Tests	
				Manuscript includes notes from Italian physicians.								
52	Philadelphia, The College of Physicians of Philadelphia, MS 10a 249	1348	England, Oxford	Bernard de Gordon, <i>Lilium Medicinae</i> . References to pregnancy diagnosis appear in multiple versions of this text. Manuscript owned by John Cokkes, fifteenth-century Oxford physician	X			X	X	X	X	
53	Graz, Universitätsbibliothek MS 311	15 th C	Germany	Inc. 'Signa verificancia super pregnacionem & super masculinitatem vel feminenitatem' – short text on diagnosing pregnancy possibly extracted from Bernard de Gordon's <i>Lilium medicinae</i> , within volume of medical and surgical texts	X			X	X	X		
54	Bibliothèque Nationale de France, MS Lat. 6992	15 th C	? France	Pierre Andrieu, <i>Pomum aureum</i>	X				X	X	X	
55	Bibliothèque Nationale de France, MS Lat. 7066	15 th C	? France	Treatises on sterility and facilitating conception, with notes	X				X	X		
56	BL, MS Harley 3140	c. 1300	France	Gilles de Corbeil, <i>De Urinis</i>	X			X	X	X	X	
57	Bodleian, MS Ashmole 399	Late 13 th C, early 14 th C	England	Extracts of Muscio's <i>Gynaecia</i> , including diagram of uterus with added note on how to tell if a woman is pregnant in an early fourteenth century hand	X							X

Appendix 2: Divinatory and Astrological Manuscripts

	Manuscript Classmark	Date	Origins	Text	Users					Methods		
					Professional practitioner	Clerical	Noble	Domestic	Royal	Onomancy	Geomancy	Astrology
1	Wellcome MS 546	14 th C	France	Onomantic text for identifying sex of the foetus, incipit 'Si vis scire an mulier pregnans pariat filium..'				X		X		
2	Wellcome MS 349	15 th C (1488)	Holland	Onomantic text for identifying sex the foetus, with sphere diagram		X				X		
3	BL, MS Harley 671	15 th C	England	Vernacular English geomantic text, incipit 'This Werk is of ye sciens of geomanci'	?		?	?			X	
4	BL, MS Sloane 332	15 th C	England	Sahl Ibn Bishr, <i>Liber introductorius ad astrologiam</i> , including section <i>De Impregnacionibus</i>	?							X
5	BL, MS Royal 12 C XVI	15 th C	England	Roland Scriptoris, <i>Compilerium sive aggregatorium tocius artis geomancie ad astronomiam redacte</i> , with rough geomantic diagrams on flyleaves. Text possibly commissioned by John, Duke of Bedford			X				X	
6	BL, MS Sloane 3487	15 th C	England	Roland Scriptoris, <i>Compilerium artis geomanciae</i> . Text possibly commissioned by John, Duke of Bedford							X	
7	Cambridge, TC MS O. 7. 40	12 th / 13 th C volume with 15 th C note	England	Geomantic diagram with the title, 'quaestio an filium pariat', within earlier volume of learned texts, including Aristotle's <i>Metaphysics</i> , Bernard Silvestris, <i>De mundi universitate libri duo sive megacosmus et microcosmus</i> , Seneca, <i>Epistulae Morales ad Lucilium</i> . Once held by a house of canons, probably Premonstratensian or Augustinian		X					X	
8	MS Sloane 428	15 th C	England, London	Commonplace book owned by Richard Trewythian, including astrological charts working out whether women were pregnant or not	X							X

Appendix 3: Legal Cases Involving Pregnancy Diagnosis

Name	Date	Location	Ref.	Court	Crime and Sentence	Terminology for Inspecting women	Outcome
Elizabeth, formerly wife of Andrew Walton,	1388	Winchester	TNA, KB 27/ 508, Rex rot. 4	King's Bench	Giving consent and aid to murder of her husband by his two servants. Sentenced to burn	<i>iurata de matronis ciuitatis predicte</i> , a jury of matrons of the aforesaid city	Pregnant, brought to Westminster, judgment later enacted
Johanna Godwale, formerly of Westminster housewife	1502	Middlesex	TNA, KB 27/964, rots 10-11	Marshalsea gaol delivery/ King's Bench	Theft: one piece of gold, a gold ring worth 6l., and 8d. in money. Sentenced to hang	N/A- no reference to inspection included in account	Pardoned by the king
Agnes Fyssher of Bristol, Shepster	1435	London	TNA, KB 27/693, Rex rot. 3	Kings Bench	Theft: 16 pieces vellum worth 5s. 8d.; four rings, silver and gold with a stone called 'Crapande' worth 12s, 7 marks; 2s of gold and silver; other money	<i>Xxiv probas et legales mulieres matronas de visnetu villo Westmonasterium</i> - 24 good and lawful women of the sight of the town of Westminster	Pregnant; to be kept in the custody of the Marshal
Katherine formerly the wife of John Scayse	1458	Cumbria	TNA, JUST 3/213, m. 16d	Gaol delivery	Theft: a horse; 8s goods and chattels. Sentenced to hang	<i>jurata de matronis</i> - jury of matrons	Pregnant; to be kept in gaol in Sheriff's custody

Name	Date	Location	Ref.	Court	Crime and Sentence	Terminology for Inspecting women	Outcome
Margery, formerly the wife of John Chaloner	1420	Leicestershire	TNA JUST 3/195, rot. 72d	Gaol delivery	Murder of her husband in his bedroom. Sentenced burn	<i>jurata de matronis predicte ville Leycestre</i> - jury of matrons of the aforesaid town of Leicester	Not pregnant, sentence carried out
Alice Jurdan, servant	1414	Nottingham	TNA JUST 3 56/8, rot. 16, rot. 21	Gaol delivery calendar	Murder: of her mistress Agnes Grace, leaving her body under the bed; Theft of 100s. Sentenced to hang	Rot. 21: <i>Matrone de Nottingham</i> - Matrons of Nottingham	Not Pregnant
			TNA JUST 3 JUST 3 195, rot. 64v	Gaol delivery		<i>Jurata de matronis predicte ville Notyngham</i> - A jury of matrons of the aforesaid town of Nottingham	
Margaret, wife of Robert Danbery	1425	York	TNA, JUST 3/199, rot. 6d	Gaol delivery	Theft: a coverlet worth 40d; linen cloth worth 2s; wool comb worth 16d. Sentenced to hang	<i>Jurata de matronis</i> - jury of matrons	Remitted to prison; brought back before the court. Claimed to have been pardoned by the king but case caught up in Hanaper
Alice, daughter of Thomas de Longe	1301	Lincoln	JUST 3/100, rot. 11		Burglary of a house; theft: linen and wool cloth. Guilty but no sentence	<i>fidedignas matrones</i> - trustworthy/fair/faithful/reliable matrons [from <i>fide dignus</i> - worthy of faith]	Remitted to gaol

Name	Date	Location	Ref.	Court	Crime and Sentence	Terminology for Inspecting women	Outcome
Juliana of Lichefeld	1301	Warwick	JUST 3/101, rot. 12 d	Gaol delivery	Theft, in the company of John Aurwode. Guilty but no sentence.	<i>fidedignas matrones</i> - trustworthy/faitiful/reliable matrons [from <i>fide dignus</i> - worthy of faith]	Remitted to gaol
			TNA JUST 3/102, rot. 3 dorse		Brought before the court again; declared to be pregnant; sent back to gaol	<i>fidedignas matrones</i> - trustworthy/faitiful/reliable matrons	remitted to gaol
Matilda, wife of Henry Hereward	1301-1303	Northamptonshire	TNA JUST 3/100, rot. 16d	Gaol delivery	Convicted of crimes alongside her husband. Guilty	<i>fidedignas matrones</i> - trustworthy/faitiful/reliable matrons	Found pregnant, sent to gaol
			TNA JUST 3/101, rot. 6d		Appears in court. Previously convicted, remitted because of pregnancy	N/A	Returned to gaol
			TNA JUST 3/101, rot. 10		Appears in court. Previously convicted, remitted because of pregnancy	N/A	Returned to gaol
			TNA JUST 3/101, rot. 13 d		Appears in court. Previously convicted, remitted because of pregnancy	<i>testavit/testant per matronas</i> - testified by matrons	Returned to gaol
			TNA JUST 3/102, rot. 1		Appears in court. Previously convicted, remitted	<i>testatur est per matrones fidedignas</i> - it is testified by reliable matrons	Returned to gaol

Name	Date	Location	Ref.	Court	Crime and Sentence	Terminology for Inspecting women	Outcome
					because of pregnancy		
			TNA JUST 3/102, rot. 9		Appears in court. Previously convicted, remitted because of pregnancy	N/A	Returned to gaol

Appendix 4: Tests for Pregnancy

Chapter 6: Symptoms and Signs of Pregnancy

6.1. Sensations at the Moment of Conception

Title	Manuscript	Text	Translation
<i>Liber de matrice mulieris et impregnationis</i> , attributed to Johannes de Ketham	London, British Library, MS Sloane 345, f. 128v	Si enim mulier quando fuit in coitu cum viro post coitum frigus sentit et dolores in renibus signum est conceptionis.	For if a woman, when she was in coitus with a man, after coitus feels coldness and pain in the kidneys, it is a sign of conception.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	London, British Library, MS Sloane 246, f. 198r	Nota quae signorum conceptionis quedam attestantur super conceptione dumtaxat. Et quod horum sunt in prima die quaedam, in prima septimana quaedam, in primo mense quaedam, in primis mensibus.	Note that of the signs of conception, certain are attested to upon conception only. And certain of these are in the first day, certain in the first week, certain in the first month, certain in the first months.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	London, British Library, MS Sloane 246, f. 198r	Astrictio orifice matricis seu vulve et eius exsiccatio post actum coytus.	The mouth of the womb, or the vulva, is tightened, and dryness of this after the act of coitus.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	London, British Library, MS Sloane 246, f. 198r	Secundum signum est quae ipso die post coytum si mulier senserit pulsacionem cum modico doloris in ventre et dorso, scias quae ipsa concepit.	The second sign is that same day after coitus, if the the woman feels pulsating, with a little pain in the stomach and back, you know that she has conceived.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	London, British Library, MS Sloane 246, f. 198r	Horripilationem cum rigore.	Horripilation with stiffness.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	London, British Library, MS Sloane 246, f. 198r	Sanguis fluit ad matricem ipso die receptionis spermatis.	Blood flows to the womb on the very same day of the reception of sperm.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	London, British Library, MS Sloane 246, f. 198r	Quartum signum est constrictio orifice intrinseci matricis, nam detur stringi quae vix acumen acus possit transire.	The fourth sign is constriction of the internal orifice of the womb, for it is said to be tightened so that the head of the penis is barely able to pass through.

Title	Manuscript	Text	Translation
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	London, British Library, MS Sloane 246, f. 198r	Quintum signum est attractio matricis aliquid ad superius quia quando coadunatur et constringitur ascendit aliquid ad superius.	The fifth sign is attraction of the womb upwards to some extent, so that when the seed is united and compressed it ascends to some extent to that which is above.
Signa pregnationis	Wellcome MS 532, f. 71r.	Exsicatio capitis virgi post coitum.	Dryness of the head of the penis after coitus.
Avicenna, Canon Medicinæ, Book 3	London, British Library, MS Harley 3808, f. 125v.	Et est caput virge quasi suctum tum emittit sperma.	And the head of the penis is almost sucked in, then it emits sperm.

6.2. Changes to the Body

6.2.1. Absence of Menstruation

Title	Manuscript	Text	Translation
Avicenna, Canon Medicinæ, Book 3	London, British Library, MS Harley 3808, f. 125v.	Et retinentur menstrua quare non menstruatur usque ad tempus aut menstruatur paulatim.	The menses are retained, for which reason women do not menstruate for the moment, or they menstruate only a little.
Signa pregnationis	Wellcome MS 532, f. 71r.	Defectus menstruorum habita.	She has a defect of the menses
De conceptione mulieris urine	MS Sloane 783 B, f. 184r	Retencionem fluxus.	Retention of the [menstrual] flow.
De signum conceptionis	MS Sloane 284, f. 76r	Retencio menstruorum.	Retention of the menses.
De immunditiis mulierum	Wellcome MS 545, f. 3v	Inpregnata mulieres non emittit sanguinem. sed remansit in creaturam et vadit ad [ma]millas et sit lac.	Pregnant women do not emit blood, but it remains within women about to give birth, and rushes to the breasts and becomes milk.

6.2.2. Changes to the Womb

Title	Manuscript	Text	Translation
Signa pregnationis	Wellcome MS 532, f. 71r	Os vulve et vulva ipsa exsita sunt absque apostemate et duritie... Adimatio horis matricis ita ut non ingrediatur acus. Elevatio horis eadem ad superiora Et aliquam ibi est difficultas urine.	The mouth of the womb and the womb itself are dried up without abscesses and hardness... Withdrawal of the mouth of the womb so that it cannot be entered by the penis. Elevation of the mouth of the same to a higher place.
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	London, British Library, MS Sloane 246, f. 198v	Ista talia nescire possumus per dictam mulierem sed spectamus quae mulier matrona faciat probam cum digitis quia mulier experta statim cognoscit.	Such things as these we cannot know by what the woman says, but we observe that a matron woman might make proof with fingers, because[for] an experienced woman recognises this.

6.2.3. Weight Gain and Belly Growth

Title	Manuscript	Text	Translation
Avicenna, Canon Medicinæ	MS Harley 3808, f. 126r	Gravitate corporis.	Heaviness of the body.
De immunditiis Mulierum	Wellcome, MS 545, f. 3v	Mulieres post impregnacionem gravantur.	Women, after impregnation, are weighed down.
De signum conceptionis	MS Sloane 284, f. 76r.	Inflacio umbilici est signum certissimum.	Inflation of the navel is a very certain sign.
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	MS Sloane 246, f.198r.	Gracilitas ventris circa umbilicum.	Slenderness of the stomach around the navel.
Valesco de Tarenta, Practica Valesci de Tharanta, quae alias Philonium dicitur (Lyons: Impressum per Nicolaus Wolff, 1500/01)	Cap. 16, f. 286v.	Quia venter crescit forte menstrua retinentur credunt esse pregnantes.	Because the belly has grown and perhaps the menses have been retained, therefore at first, for that reason, believe themselves to be pregnant.

6.2.4. Changes to the Face and eyes

Title	Manuscript	Text	Translation
Signa pregnationis	Wellcome MS 532, f. 71r	Albumina oculorum viridia fiunt.	The whites of the eyes become green.
Liber de matrice mulieris et impregnationis, attributed to Johannes de Ketham	MS Sloane 345, f. 128v	Si color faciei ultra modum et secundum morem solitum est mutatus signum est conceptionis.	If the colour of the face is changed further than usual and is inferior to its normal manner, it is a sign of conception.
Signa pregnationis	Wellcome MS 532, f. 71r	Accidunt lentigines et albaras, et facies ipsarum denigrantur.	Freckles and whitening occur, and the face becomes darkened.

6.2.5. Changes to the Breasts

Title	Manuscript	Text	Translation
Signa pregnationis	Wellcome MS 532, f. 71r	Ingrossatio mamillarum maiora solito.	A greater than usual swelling of the breasts.
Signa pregnationis	Wellcome MS 532, f. 71r	Viridis color ipsarum mamillarum et maxime suorum pupillas.	Green colour of the same breasts, and especially of the nipples.
De signum conceptionis	MS Sloane 284, f. 76r	Si viderint capita mammarum eis extensa & a calore solito imitata sciant ipsam esse pregnantem.	If they have seen the heads of her breasts [the nipples] increased, and represented by the usual heat, they know her to be pregnant.

Title	Manuscript	Text	Translation
<i>De signum conceptionis</i>	MS Sloane 284, f. 76r.	Primis quadraginta diebus color mamillarum sedit ad viriditatem.	For the first forty days the colour of the breasts settles to greenness.

6.2.6. Digestive Symptoms

Title	Manuscript	Text	Translation
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	MS Sloane 246, f. 198v	Nausea modica incipiens.	A little nausea begins.
Avicenna, Canon Medicinæ	MS Harley 3808, f. 125v	At parva nausea, et eructatione aceto... Deinde commoventur appetitus mali post mensem aut duos menses.	And a little nausea, and heartburn... then they are agitated by a bad appetite after a month or two months.
<i>De signum conceptionis</i>	MS Sloane 284, f. 76r;	Appetitus diversorum & maxime fructuum.	A diverse appetite, and particularly for fruit.
<i>Signa pregnationis</i>	Wellcome MS 532, f. 71r.	Appetitus ciborum oribillium.	An appetite for horrible foods.
Liber de matrice mulieris et impregnationis, attributed to Johannes de Ketham	MS Sloane 345, f. 128v.	Si aliquae cibaria concupiscit sicut terram vel carbones: signum est conceptionis.	If someone desires earth or coal as if they are suitable for food: it is a sign of conception.

6.2.7. Changes to the Pulse

Title	Manuscript	Text	Translation
Avicenna, Canon Medicinæ	London, British Library, MS Harley 3808, f. 125v.	Pulsu cordis.	A beating heart.
<i>De signum conceptionis</i>	MS Sloane 284, f. 76r;	Pulsus velossitatur & facti diversus.	The pulse is made faster and becomes separate
Ad cognoscendum pregnantes (from the Dome of Uryne compendium)	Cambridge, Trinity College, MS O. 1. 57, f. 125r.	If her pulses beate moche (she having no ove [fear, dread?]) it is a token also yt she is with childe.	
Ad cognoscendum pregnantes (from the Dome of Uryne compendium)	Oxford, Bodleian, MS Add B. 60, f. 55r	If the pulsus bete swight and she have no accesse it tokeneth that she is with childe.	
Ad cognoscendum pregnantes (from the Dome of Uryne compendium)	Oxford, Bodleian, MS Hatton 29, f. 67r	Another 3ef hyre pulses both seeythe and sche have no axes then yt be tokens that sche is with chylde.	

Title	Manuscript	Text	Translation
John of Gadsden, Rosa Anglica	Oxford, Bodleian, MS Bodley 608, f. 157v	Si pulsus sit velox in brachijs & furcella sub guttore semper tunc pregnans est.	If the pulse is fast in the arms and the collar bone under the throat always from that time she is pregnant.

6.3. Signs and Symptoms of the Sex of the Child

6.3.1. Pain at the Moment of Conception

Title	Manuscript	Text	Translation
Anonymous text on identifying the sex of the child	London, Wellcome Library MS 549, f. 229r.	Si mulier dolet in dextro parte conceptionem pariet filium. Si in sinistra filiam.	If a woman pains in the right part at conception, she will bear a son. If in the left, a daughter.

6.3.2. Changes to the Face

Title	Manuscript	Text	Translation
Liber de matrice mulieris et impregnationis, attributed to Johannes de Ketham	MS Sloane 345. f. 128v	Item si vis scire utrum masculus vel feminam sit, vel est concepta. si color faciei est rubeus levis ... tunc est masculus	'If you wish to know whether a male or female has been conceived: if the colour of the face is red and light ... then it is a male'.
De conceptione mulieris urine	MS Sloane 783 B, f. 184r	Conceptum maris insumat splendore faciei.	A male foetus might bestow brilliance to the face.
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	MS Sloane 246, f. 199r.	Mulier portans masculum est bene colorata in facie portans femellam male colorata ut plurimum quia potest esse boni regiminis et equetur	A woman carrying a male is well coloured, a woman carrying a female is badly coloured, so that for many women, see that she is able to eat a good regimen and she might be made fair.

6.3.3. Changes to the Breasts

Title	Manuscript	Text	Translation
Trotula, Conditions of Women Text	Wellcome MS 544, f. 35v	Dicit quae mulier qui gerit masculum. Bene colorata est & dextra mamilla grossior est. Quod vero feminam: pallida & sinistram mamillam grossiorem habet.	It is said that a woman who carries a male child is well coloured, and the right breast is larger. This is true for a female child: she is pale and has a larger left breast.
De signum conceptionis	MS Sloane 284, f. 76v	Rursum aspiciunt capita mammarum si futurum earum color conversus in nigredinem sciunt quae pregnans portet feminam. Si vero in ruborem conversus fuerit & sciunt quae in ventrem sit masculo.	Observe the heads of the breasts [the nipples]: if they are changed to blackness in colour, you will begin to know that the pregnant woman carries a female. If it is true that they are changed to redness you know that in the womb will be a male.

Title	Manuscript	Text	Translation
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	MS Sloane 246, f. 119v	Et capita mamillarum mutantur ad rubedinem si portat masculum et si ad nigredinem portat feminam.	The heads of the breasts [nipples] are changed to redness if she carries a male, and if to blackness she carries a female.

6.3.4. Shape of the Belly

Title	Manuscript	Text	Translation
Liber de matrice mulieris et impregnationis, attributed to Johannes de Ketham	MS Sloane 345, f. 128v	Si vis scire utrum masculus/vel feminam sit libera est concepta. Si color faciei est rubeus levis et venter in dextera parte tunc scit est rotundatur ... tunc est masculus.	If you wish to know whether a male or female is conceived, if the colour of the face is red and light, and you know the right part of the stomach is rounded ... then it is a male child.
De conceptione mulieris urine	MS Sloane 783 B, f. 184r	Conceptum maris insumat ... suffulcione dextre signa quae per dextras fetus iungencia partes atcque tumor ventris in dextra parte rotundas ffeminum fetum contraria signa significat.	A male foetus might bestow... an uplift to the right side of the body – this is a sign that the parts of the foetus joining together are on the right side, and also swelling and a rounded belly on the right side. Contrary signs signify a female foetus.
De signum conceptionis	MS Sloane 284, f. 76r	Scientia quoque eorum in masculis & feminis est via aspiciant ventrem mulieris quod si fiunt plenus & rotundus ac pulcher fiunt quae obduratus & ipsa fuit colore splendida & sciunt quae pregnans gerat masculum. Si vero fuerit in ventre eius longitudo & laxacio & feditas apparuerat quae in colore eius aliqua feminas vel masculos sciunt quae pregnans portet.	Also knowing about those who are [pregnant] with males and females, by examining the belly of a woman, whereby if they become full and round and they become fair, the belly is hardened, and they become a splendid colour, and they know that she is carrying a male. If it is true that her stomach is long and lax and more hideousness in colour than other women or men, they know that the pregnant woman is carrying a female child.

6.3.5. Bodily Symptoms and Sensations

Title	Manuscript	Text	Translation
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis (eTK 0489C, in reference to printed text)	MS Sloane 246, f. 199r-v	Portans femella... magis solito habens aliquam horripilaciones et doloris capitis’,	A woman carrying a female ... more often has some horripilations, and head ache’,
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis (eTK 0489C, in reference to printed text)	MS Sloane 246, f. 199v.	Mulier portans masculum non delectatur in coytu ymago qui abhorret ipsum, portans feminam gaudet in coytu et appetit coytum propter ventositates matricis’, MS Sloane 246, f. 199v.	‘a woman carrying a male child does not delight in coitus, the thought of which abhors her; carrying a female she rejoices in coitus and longs for coitus, on account of windiness of the womb’
	Wellcome MS 545, f. 3v.	Mulieres qui nimis appetunt coijtum quando pariunt, multos ammittant filios. Quia per appetitum sperma subtile subiciunt	‘Women who desire coitus excessively, when they are pregnant many of them may lose their children. Because they supply thin sperm because of appetite [for coitus]’

Chapter 7: Uroscopy and Pregnancy Diagnosis

7.1. Colours of Urine

7.1.1. White Urine

Title	Manuscript	Text	Translation
Urina Mulieris (Based on eVK 7812.00)	Trinity College, MS O. 1. 57, f. 125r	Yf a woman be with childe, her water is white.	
Treatise on Urines, illustrated with urine flasks (Based on eTK 1610B?)	MS Sloane 783 B, f. 224v	Al White with out feverys in a man other woman other whiles colour of the reynes, other whil conscvyngs of child If hit have 1. table. 2. other 3. hit a3t be ryzt clere & whit ypostia in yis bottom & he ymage of here apere in the uryrn as in a shewer [<i>sheuer</i> , a hand mirror] hic significat concepcion [this signifies conception].	

Title	Manuscript	Text	Translation
Note on Urines (eTK 1610B)	MS Bodley 648, f. 6r	Urina alba sine febre & in viris & in mulieribus aliquando dolorem renum. aliquando inpregnacionem mulierum significat.	White urine without fever in men and women sometimes signifies pain in kidneys; sometimes in women, impregnation.
Ad Cognoscendum Praegnantis (eVK2 7891.00)	Bodleian MS Additional B 60, f. 55r.	Take the first water after she have conceyved with man if that the water be clere she is with childe. if it be thik she is not with childe.	
Ad Cognoscendum Praegnantis (eVK2 7891.00)	Oxford, Bodleian, MS Selden Supra 73, f. 111v	And the water of a woman be cleer after she hathe commened with a man she is with childe yf it be thikk she is nott.	
Ad Cognoscendum Praegnantis (eVK2 7891.00)	Oxford, Bodleian, MS Rawlinson C. 506, f. 58v	Tak after she comon with man & if it be cler she is consevid and equio.	
Ad Cognoscendum Praegnantis (eVK2 7891.00)	Oxford, Bodleian, MS Hatton 29, f. 67r	Take the frest water after a woman hath conceyde with a man that is to say wytyngly with the man hath lye by the woman and 3yf the next water after that sche maketh be clere sche is with chylde for sothe and 3yf yt be thyk then sche is no3t with chylde.	

7.1.2. Citrine Urine, Descending to White

Title	Manuscript	Text	Translation
Avicenna, Canon medicinae	British Library, MS Harley 3808, ff. 126r-v	Et urina quidem pregnantis in principio pregnationis est citrina ad sub albedinem declinans quasi sit cotum in medio eius sparsum.	And urine of someone who is pregnant in the beginning of the pregnancy it is citrine, declining to sub-albus[white], as if there is cotton scattered in the middle of it.
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	London, British Library, MS Sloane 246, f. 198v	Primum est quae factam concepcione urina est citrina declinans ad aliqualem albedinem propter quod quid dicunt quod est subcitrina. Secundum signum est quod habere in medio quasi cotum carpinatum.	First it is that urine made in conception is citrine, declining to some sort of whiteness. They say that it is subcitrine on account of that. The second sign is for the urine to have something like carded cotton in the middle.
John of Gadsden, Rosa Anglica	Oxford, Bodleian MS Bodley 608, ff. 157v-158r	Dicit Avicenna. pro causa quae in primus urina inpregnacionis est citrina ad albedinem declinans habens quasi cotum in medio eius de spermate & tunc si sit de pura substantia tunc certius.	Whence says Avicenna, for the cause that at first the urine of pregnancy is citrine declining to white, having [a substance] like cotton in the middle of it of seed and then if it be of pure substance then it is certain.

7.1.3. Red as Gold, With a Circle of Water Above

Title	Manuscript	Text	Translation
<i>Urina Mulieris</i> (eVK 7812.00)	Wellcome MS 409, f. 63v	uryne of a woman that ys bryzt as golde that by tokynnyzt that sche hathe talant to man ... uryne of a woman yt ys rede as golde with a cerkyl of watyr a bovynt hyt by tokynnythe that sche ys with chylde.	
<i>Urina Mulieris</i> (eVK 7812.00)	MS Rawlinson C.506, f. 58r	urine of a woman lik bryzt gold be tokenith talent to man ... urine of a woman red as gold with a watry cercle above it be tokenith that she is with child.	
<i>Urina Mulieris</i> (eVK 7812.00)	MS Selden Supra 73, f. 111v	uryne of woman colored as bryzte golde tokenyth talente to man ... uryn of a woman red as golde with a watri cercle above tokennythe that she is with chylde.	
<i>Urina Mulieris</i> (eVK 7812.00)	Bodleian, MS Add. B. 60, f. 54v	Uryne of a woman colered as bright as golde betokeneth talent to man. ... Uryne of a woman reed as gold with a water clere above tokeneth that she is with childe.	
<i>Urina Mulieris</i> (eVK 7812.00)	Bodleian, MS Hatton 29, f. 60v	uryn of a woman red as golde with a watery serkyll a bove yt by tokeneth that sche is wyth chylde.	

7.1.4. Strongly Coloured Urine

Title	Manuscript	Text	Translation
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	London, British Library, MS Sloane 246, f. 198v	Pregnans autem de masculo habet magis coloratam modicum cum puriori substantia	However, a woman pregnant with a male has urine that is a little more coloured, with a purer substance.

7.1.5. Lead-Coloured Urine

Title	Manuscript	Text	Translation
<i>Urina Mulieris</i> (eVK 7812.00)	MS Rawlinson C. 506, f. 58r	Urine of a woman that is of the color & wezt of led if she be with child it betokenith that the child is ded with in hyr And she be not with child & the water stynk it be tokenith that the moder is rotyn.	

Title	Manuscript	Text	Translation
<i>On the Four Contents of Urines</i>	MS Hattton 29, f. 73v	Uryn of woman that hath colour of pesys of lede signe that sche is with chylde and the chyld ded in hyr body and sche be no3t with chylde signe that sche schall no3t longe lyve.	
<i>Urina Mulieris (eVK 7812.00)</i>	MS Hatton 29, ff. 60r-60v	Uryn of a woman that is whyte of coloure and yt have the hevynes of lede and yf sche be with chyld then yt be tokennes that the chyld is dede with in hyr & yf sche be noght wyth chylde and the water stynk then yt be tokeneth that the modyr rotun.	
<i>From the Dome of Urynes compendium (2690.00)</i>	Cambridge, Magdalene College Pepys Library MS 1307, f. 60v	Uryne lik wyzt leed & sche be wt chylde be tokneth === ye chyld is ded with inne here & if sche be no3t with chylde & ye water stynke it tokneth the moder is rotyn with inne here & a flux & deth=====	

7.2. Contents of Urine

7.2.1. Clear Stripes and 'Troubleness'

Title	Manuscript	Text	Translation
<i>Urina Mulieris (eVK 7812.00)</i>	Wellcome MS 409, f. 63r	Uryne of a woman that ys with chylde here watyr schal have clere strypys the moyst parte schal be trobyl and yn the trobylnys schall be sum whatte redyche y leke to tanne whose thy3 tokyn schal note fayle as sone as the schylde hathe lyve. Yf hyt be a knave chylde the thykenys schal hovyr a bovyn. if hyt be a mayde chylde the thyckenys woll drawe donwarde yn to ye bottom.	
<i>Urina Mulieris (eVK 7812.00)</i>	MS Rawlinson C.506, f. 57v	Urine of a woman that is with child hyr water shall have som cler strypis & the most party shalbe troblin & the troblines shalbe redish in the maner of tawne & this tokyn shalt not fale asson as the child hath lyfe. & if it be a man chyld the troblines shalbe thik a bove ...	

Title	Manuscript	Text	Translation
<i>Urina Mulieris</i> (eVK 7812.00)	MS Selden Supra 73, f. 111r	Uryne of woman that is with childe her water shall have some clere stripes the mooste parte shalbe troblie and the troblenes shall be reddyshe in the maner of taune And this token shall not foule as soone as the childe hathe lyfe and yf it be a man childe the trobles shall havir thikkeste above and yf it be amaide childe the trobles shall drawe downward downward.	
<i>Urina Mulieris</i> (eVK 7812.00)	Bodleian, MS Add. B. 60, f. 54r	Uryne of a woman that is with childe hir water shal have som clere stripes the moost party shal be trouble & that troubleness shal be redyshe in mannere of tanne & thys token shal not faile as sone as the childe hath lif. And if it be a knave childe the troubleness shal have above thickest. And if it be a mayde childe the troubleness shal drawe dornward.	
<i>Avicenna, Canon medicinae</i>	MS Harley 3808, f. 126v	Et quando movetur urinale pregnantis et conturbatur tunc est in fine pregnationis Et quando non conturbatur est in principio pregnationis.	And when the urine of a pregnant woman is moved and disturbed, then they are at the end of pregnancy. And when it is not moved they are at the beginning of pregnancy.

7.2.2. Sediment

Title	Manuscript	Text	Translation
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	MS Sloane 246, f. 198v	Tertium signum est urina cum pura substantia et non confusa habens superius modicam nebulam.	The third sign of pregnancy is urine with a pure substance, and it is not mixed in, and not mixed, having above it a moderate cloud.
<i>Avicenna, Canon medicinae</i>	British Library, MS Harley 3808, ff. 126r-v	Et urina quidem pregnantis in principio pregnationis est citrina ad sub albedinem declinans quasi sit cotum in medio eius sparsum.	And urine of someone who is pregnant in the beginning of the pregnancy it is is citrine, declining to sub-albus[white], as if there is cotton scattered in the middle of it.

Title	Manuscript	Text	Translation
John of Gadsden, Rosa Anglica	MS Bodley 608, ff. 157v-158r	& aliquando ypostasis est per totum divulsa ac si lana esset carpinata per totum & si sit divulsa a ventosite tunc pannus habet torciones & rugitus & extenciones & quando est de ventosite tunc est urinam incolge naturali sed in pregnante est tincta magis unde dicit Avicenna. Avicenna pro casu quae in principius urina inpregnacionis est citrina ad albedinem declinans habens quasi cotum in medio eius de spermate & tunc si sit de pura substantia tunc certius est.	And sometimes hypostasis is torn apart through all [of the urine], and it is as if wool had been carded through every part of it, and if it is torn apart by windiness then the <i>pannus</i> [a term for a piece of cloth, which could also refer to a film over the eye] has twistings and rumbling and swelling, and when it is from windiness then it is naturally occurring urine, but in pregnancy it is greatly coloured whence says Avicenna. for the cause which in the beginning the urine of pregnancy is citrine declining to white having [a substance] like cotton in the middle of it, from the seed, and then if it be of pure substance then it is certain.
Walter Agilon, De contentis urinarum	Vatican City, Biblioteca Apostolica Vaticana fondo Palatino Latino 1304, f. 37r	Spermatice contentem coagulant admodum bombatis residens in fundo mulierem concepisse significat.	Spermatic contents coagulated in the manner of a ball, lying in the bottom signifies a woman to have conceived.
Ad cognoscendum pregnantis	Bodleian MS Hatton 29, f. 67v	And 3yf yt apere in a womans uryne as yt wer cotun or wolle with granes goyng up and downe then yt be tokens conseyfng.	
Addition to the Trotula text	MS Bodley 682, f. 188v (ff. 187v-188v)	Avicenna dicit quae in concepcione qua lana carpinata in fundo urine. Sed talis ypus raro apparet unde per urinam certum indicium non habemus quia tales urinas quas scriptas iuvenimus non inveniuntur istis diebus vel certe raro.	Avicenna said that in conception it is as if carded wool is in the bottom of urine. But such hypostasis rarely appears, whence we do not have a certain indication [of pregnancy] by means of urine, because such urines which are written of in young women will not be found these days, or at any rate rarely.

7.2.3. Sediment and the Length of a Pregnancy

Title	Manuscript	Text	Translation
<i>Urina pregnantium</i>	MS Hatton 29, f. 77r:	Urina pregnantium si unum mensem vel duos vel tres habuerit debet essere multum clara & albam ypostasim debet habere in fundo. Si vero quatuor habuerit menses urina debetur esse serena & ypostocis alba & grossa in fundo.	Urine of pregnant women. If she will have had it for one month or two or three, It should be very clear and white. it ought to have hypostasis in the bottom. If in truth she has had it for four months the urine should be clear with hypostasis white and great in the bottom.
<i>Urina pregnantium</i>	MS Bodley 648, f. 6r	Urina pregnantium si per unum mensem vel duos vel tres habuerit . debet essere multum clara & alba. Ypostasim debet habere in fundo. Si vero per quattuor habuerit menses . urina debet essere serena . & ypostasis alba & glossa in fundo.	Urine of pregnant women. If she will have had it for one month or two months or three. It should be very clear and white. it ought to have hypostasis in the bottom. If in truth she will have had it for four months, the urine should be clear with hypostasis white and glowing in the bottom.
Henry Daniel's <i>Urina Mulieris, within the Liber Uricrisiarum</i>	Bodleian MS e Mus 187, f. 78v	Uryn of a woman with childe in the .1. monyth & in the . 2. & in the .3. is with meny smale skyes & cloudys & with a white & clere ypostasi. In the .4. monyth hire uryne is bright & clere & gode of colour & with a white ypostasi & bene the gros & drymysh.	
<i>Mans body is made of four humours...</i>	MS Bodley 591, f. 33r	Whan hathe conseyyvyd with in iiij dayes or else with in iij monthis than shall the uryne be thyne and whight & clere & moche there of & a glos in the bottom & whan it is passid iij monethis than shall the uryne be over all thyne and whight & in the bottom a thicke glos.	
Urina Mulieris (Based on eVK 7812.00)	Wellcome MS 7, f. 1r	A water of a woman that is with child if she hath y go with child a month other two or thre her water shal be whit as wel clere & with a substaunce in the botom and if she hath y go iiij months or more her water shal have a gret whit mater in ye botome...	
Urina Mulieris (Based on eVK 7812.00)	Trinity College, Cambridge MS O.1.57, f. 125r	Yf she havi gone a moneth or ij or 3 her water shalbe verey white and clere and a white substaut in the botome of the glasse. And yf fyve monethes or more the said white substance in the botome shalbe verey great.	

7.2.4. Larger Particles

Title	Manuscript	Text	Translation
<i>Prose Treatise on Urines</i> (eTK 1607C)	MS Bodley 682, f. 37v	Sed quantum ad cotum carpinatum quia etiam videtur quasi flosculus serici crudi in quibusdam mulieribus est ita magnus quod eius rara summitas videtur fere in medio urine. Et si talis adhereat fundo vasis ita quae non seperatur per levem agitationum urine in parva quantitate & forte non videtur & cum attome conglobantur et fundo adherent mulier etiam indubitanter est impregnata praecipue si huius conglobato/ non moveatur per mediocrem motionem.	But as much as carded cotton, which is also seen like a small flower of raw silk in certain women, it is therefore important because it is rarely seen at the top [of the urine], it is usually seen in the middle of the urine. And if this clings to the bottom of the glass so that it is not separated by light movement, in a small quantity of urine it might not be perceived, and with atoms clinging together and sticking to the bottom the woman undoubtedly is pregnant especially if these accumulate[d atoms] are not moved by moderate motion.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	MS Sloane 246, f. 198v	Tertium signum est urina ... habent grana ascendentia et descendentia si statim respiciatur vel si agitetur.	The third sign is urine ... having grains ascending and descending if it is looked at immediately or if it is agitated.
John of Gadsden, <i>Rosa Anglica</i>	MS Bodley 608 f. 158r	Si in medio urine inveniuntur tria grana certissimum est signum conceptionis Item si grana ascendant & descendant & declinant ad albedinem signum est quae conceptum feminam si ad citrinitatem vel rubedinem signum est quae conceptus masculinum Et aliquando ista granula apparent sub circulo aliquando in medio aliquando in fundo sed frequentius in media.	If three grains are found in the middle of urine it is a most certain sign of conception. Another if the grains ascend and descend and they decline to whiteness it is a sign that the conceived child is female, if to yellowness or redness it is a sign that the conceived child is male. And sometimes these granules appear under the circle, sometimes in the middle, sometimes in the bottom but most frequently in the middle.
<i>De Urinis Egrorum</i> (eVK2 *7799.00)	MS Harley 1010, f. 23r	Atthomi that ben motys apperynge in a womannys water fatte and in the botome of the ureyne residente in the maner of a rynges and aftyrwarde gader togedur be tokeneth that she hath conceyvid and yf they be rede and rounnde it is a knawe chylde and if they be whyte and brode or wanne it is a mayde chylde.	

Title	Manuscript	Text	Translation
From the <i>Dome of Uryne</i> Compendium (eVK 0347.00)	MS Rawlinson C.506, ff. 54v-55r	Motis ... if thai gader to gyder in a gobet rownd & ly thik in the botom or under the cercle if thai be redych & rownd it toknyth a knave chyld. if thai be whit or bloo & thin as scalis it toknyth a mayd chyld.	
<i>Discretio urinarum</i>, from the <i>Dome of Uryne</i> Compendium (eVK 2880.00)	MS Selden Supra, ff. 109r-v	Mootis... yf thei gader than to geder in a gobet rownde and lye thik in the bottum or under the cercle yf they be reddy sshe and rownde it betokenyth a knave childe yf thei be whyzt bloo or thyn as scalis it tokynnythe a maide childe.	
From the <i>Dome of Uryne</i> Compendium (eVK 0288.00)	MS Hatton 29, f. 61r	Yf the motes gedyrn hem to gydyr on a gobett rounde & lye thyk on the bothum of the uryvall or in the serkyll and yf thei ben reddy & rounde than yt be tokeneth a man chylyde yf that thei bene white bloo and schynyng ^as^ scales of fych and round than yt betakeneth a mayde chylyde.	
From the <i>Dome of Uryne</i> Compendium (eVK 1676.00)	Wellcome MS 409, ff. 58r-58v	Gravyl... yf they gather to ger ^yn a gobet^ ronde and ley ^thyke^ to gether yn the bottom thyke other ondyr the serkyl 3yf they be redysch^an rownde^ hyt by yn a gobette ronde and lye thycke yn the botton or undyr the serkyl 3yf they be redyche and rownde hyt by tokenzy a knave chylyde. yf they be whyte or blewe ^and thycke^ then hyt by tokenzy a mayde chylyde.	

7.3. Qualities of the Urine

7.3.1. Reflective Urine

Title	Manuscript	Text	Translation
<i>Urina pregnantium</i>	MS Bodley 648, f. 6r	Solet ymago in vase urinali tanquam in speculo apparero. Si urina illa sit mulieris conceptionem factam significat. Et si ymago indicanti appareat in urina patientis febres interpollatas vel epaticam egritudinem vel prolixitatem morbi significat.	An image tends to appear in the urinal vessel just as in a mirror. If that urine is of a woman it signifies that conception had has occurred. And if the indicating image appears in the urine of one suffering from interpolate fever or sickness of the liver or prolixity, it signifies death.

Title	Manuscript	Text	Translation
<i>De urina pregnantis</i>	MS Sloane 783 B, f. 184v	& apparebit ymago in urinale vase sicut iu speculo.	An image will appear in the urinal glass as in a mirror.
<i>De signum conceptionis</i>	MS Sloane 284, f. 76r	Homo vi debit in urina impressionem suam sicut in speculo.	A man ought to see his impression in the urine just as in a mirror.
<i>Urina pregnancium</i>	MS Hatton 29 f. 77r	Solet ymago in vase urinali & tanquam in speculo apparere sit urina ista sit mulieris conceptionem factam significat.	An image tends to appear in the urinal vessel just as in a mirror. If that urine be of a woman it signifies that conception had has occurred.
<i>Urina mulieris (eVK 7812.00)</i>	Wellcome MS 409, f. 63v	Yf yu see thy face yn womonys watyr and sche be with oute fevrys hyt by tokynyzt that sche ys with chylde.	
<i>Urina mulieris (eVK 7812.00)</i>	MS Rawlinson C. 506, ff. 58r-58v	And tak hed & thou se thi face in womans water & she be with out fevers it be toknith that she is with chylde.	
<i>Urina mulieris (eVK 7812.00)</i>	Bodleian MS Add B 60, ff. 54v-55r	Take heed if thou se thy face in the womanys water and she withoute feveres it tokeneth that she is with childe.	
<i>Urina mulieris (0955.00)</i>	MS Rawlinson D. 248, f. 11v	And yef thou see thy face yn a womans water & sche be with out the fevers hit betokneth that sche ys with chylde.	
<i>Urina Mulieris (eVK 7812.00)</i>	Bodleian MS Selden Supra 73, f. 111v	And take hede yf thou see thy face in the water yf she be withoute fever it tokenithe that she is with childe.	
<i>Urina Mulieris (Based on eVK 7812.00)</i>	Trinity College Cambridge MS O.1.57, f. 125r	Yf she ne may see her selfe in the uryrnall as in a myrrour she hath conceived.	
<i>From the Dome of Uryne Compendium</i>	MS Hatton 29, f. 60v	And take hede 3yf thou se thi face in the womans water and sche be wyth oute fevyre then yt betokenneth that the woman is with chylde and yf thou se thi face therein and sche have the hote fevyr then yt betokenneth deth 3yf thou se thi face in a mans uryrn that hath no fevyr than yt betokenneth longe in seknes.	

7.3.2. Heavy Urine

Title	Manuscript	Text	Translation
<i>Urina Mulieris</i> (eVK 7812.00)	MS Rawlinson C. 506, f. 58r.	Urine of a woman that is of the color & wezt of led if she be with child it betoknith that the child is ded with in hyr And she be not with child & the water stynk it be toknith that the moder is rotyn.	
<i>Urina Mulieris</i> (eVK 7812.00)	MS Hatton 29, ff. 60r-60v	Uryn of a woman that is whyte of coloure and yt have the hevynes of lede and yf sche be with chyld then yt be tokennes that the chyld is dede with in hyr & yf sche be noight wyth chylde and the water stynk then yt be tokeneth that the modyr rotun.	

Chapter 8: Diagnostic Tests for Pregnancy

8.1. Testing Bodily Fluids

8.1.1. Urine

Storing Urine

Title	Manuscript	Text	Translation
<i>De signum conceptionis</i>	MS Sloane 284, f. 76r	Et si urina in urinali vitreo ponatur in fenestra & resedeat ibidem tranquillo per spatium dimidium leuce & apparebunt in ea resolutiones at si essent atomi paulatim ubi quae moventes.	And if the urine, in a translucent urinal, is placed in the window and remains there without disturbance for a period of half a league and looseness will appear within it and there may be small atoms everywhere which are moving.
Antonius Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, f. 77v	Urinam mulieris in vase bene mundo recollige...in umbra reconde. Deinde eam petiam lini mundissimam coler[colare] quae in ea animalia veluc pediculi inventi sicut mulierem pregnantem causae scito Et utea rubea fuerunt masculum albumino Feminam denunciat.	Collect urine of a woman in a properly cleaned vessel... put it away in shade. Then filter it with a piece of very clean linen, in which, if animals just like lice are found, for that reason you will know that the woman is pregnant. And if they are reddish, it is a male, white declares a female.

Iron

Title	Manuscript	Text	Translation
Anthonius Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, f. 77v	Aliud mulieris urinam in pelui cura rotunde in qua per diem naturalem politum ferrum dimitte quae si colorem mutaverit vel peluis colorem susceperit mulierem pregnantem esse dicis ubi vero politum ut prius manserit nequaquam a pregnantium.	Another: place the urine of a woman in a round shallow basin in which natural polished iron is scattered, for a day: if the colour is changed, or if the basin takes on the colour then you declare the woman to be pregnant. If in truth the polished iron has remained as before, the urine is not from a pregnant woman.
	Bodleian, MS Add. A. 106, f. 80r	Item take the uryrn of he sek & cast it apon a red netill & even when the uryrn is hote a non as he has ^mad^ water that is seke & come a gayn on the morn & if the netyll be ded he may noght lyfe & if it be noght ded he sall lyfe.	

Floating Pine Wood

Title	Manuscript	Text	Translation
John of Gadsden, Rosa Anglica	MS Bodley 608, f. 158v	Ligni pini ponat in urina & descendat conceptum femella si ascendat conceptum masculinum si stet in medio non conceptum.	Wood of pine placed it in urine and if it descends the conceived is female, if it ascends the conceived is male. If it stays in the middle there is no conceived child.

8.1.2. Breast Milk

Manipulation

Title	Manuscript	Text	Translation
De signum conceptionis	MS Sloane 284, f. 76v	Accipiunt quoque lac mulieris inter digitos & si fuerit in lactis densitas vel spissitas vel conglutinacio fortis sciunt quae conceptus sit ex masculo. Si vero fuerit lac fluxum & subtile & nulla conglutinacio fuerit & in eo sciunt quod sit femina	Take also milk of the woman between the fingers and if there is density or thickness in the milk, or it is sticking together strongly, they know that the conceived will be of a male. If truly the milk will be flowing and thin and there will be no sticking together, and in that they know that it is a female.

Surface Tests

Title	Manuscript	Text	Translation
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	BL MS Sloane 246, f. 199v	Et si lac fuerit grossum viscosum quae positum super speculum congregatur ad modum margarite vel argenti uvu pariet filium. Et si sit liquidam et aquosum quae expanditur super specula portat feminam.	And if the milk is thick and viscous, so that if placed upon a mirror it is gathered together to the manner of a pearl or silver/white grape she is carrying a son. And if it is flowing and watery so that it is spread out upon the mirror she is carrying a female.
Addition to the Trotula text	MS Bodley 682, f. 188v	Item si gutta lactis inpregnantis super aquam vel unguem vel ensem cadere se coadunaverit masculinum gerit. Si an se diffuderit feminam.	Another. If a drop of milk of a pregnant woman is placed upon water or a fingernail or a sword and it falls united to itself, she carries a male. if rather it spreads out it is a female.
John of Saint Paul, Breviarium medicine	MS Bodley 361, p. 295r	Item si gutta lactis pregnantis. super aquam vel unguem . vel gladium. cadens. se coagulaverit: et masculum concepit. Si autem se diffuderit: feminam.	Also if a drop of milk of a pregnant woman upon water or a fingernail or a sword falls and curdles: a male is conceived. If however it divides: a female.
	Oxford, Bodleian MS Wood Empt 18, f. 36r	Lat a woman mylke on a ^red wort^ lefe that es with chyld & if it fyn sam als a crude than se sche with a cnafe chyld & if it crud not than es sche with a maydyn.	
Anthonium Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, f. 78v	Et cum mamille crescere incipiunt dextra semper augetur plus cuius papilla bene colorata est et ab ea lac effluit primo quidem si super speculum aut politum corpus aliud soli expositum mulgeatur in granulis margaritis aut argento vino similibus rotundatur. Et si super aquam aut urinam propriam mulsum fuerit perpendiculariter fundum petit ponduns.	And when the breasts begin to grow the right is always enlarged more and its nipple is well coloured, and from it milk flows first, indeed if upon a mirror or a polished material a little is milked, it will be similarly rounded in granules like pearls or silver grapes. And if it is placed upon water or her own urine or honeyed wine, its weight makes for the bottom.

Heating tests

Title	Manuscript	Text	Translation
Avicenna, Canon medicinae	MS Harley 3808, f. 128v	Ita quae lac masculi distillatur super speculum et consideratur ad ipsum in sole et remanet qualis ipsum sit frustum argenti vini aut granulum margarite non currens nequae prolongatur.	So that milk of a woman carrying a male child, when it is dripped upon a mirror and considered to itself in the sun, and it stays such as itself, as if it is a small silver grape or a grain of pearl, it does not run and nor is it lengthened.

Title	Manuscript	Text	Translation
Anthonius Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, ff. 78r-78v	Attende ergo quae mulier impregnata masculino colorata magis ... quidem si super speculum aut politum corpus aliud soli expositum mulgeatur in granulis margaritis aut argento vino similibus rotundatur.	Attend therefore, that a woman pregnant with a male child is coloured more greatly... Indeed, if [her breast] is milked upon a mirror or another polished material and exposed to the sun it will be made round into granules like pearls or silver grapes.
De signum conceptionis	MS Sloane 284, f. 76v	Ex lacte mulieris super speculum ferreum & ponunt in sole subtiliter ne moveatur & dimittunt ibi per spacium unius horo si collectum fuerit donec sit simul margarite sciunt quae pregnans portet masculum. Si vero extensum fuerit sciunt quod erit femina.	Put the milk of the mother upon a mirror made of iron and place it in the sun carefully, lest it is moved, and leave it there for the space of one hour. If it is collected together until it is like a pearl, they know that the pregnant woman is carrying a male. If in truth it spreads out, they know that it will be a female.
Recipe Collection	Bodleian, MS Add B. 60, ff. 54r-v	To preve if a woman be with child of man or woman take a reed cole leef & lete the woman draw mylk oute of hyr lift brest there upon than sette it upon a cole of fyre & if it crudde she goth with a sone. And if it sprede she goth with a doghtur. Lyke preve in the right brest for a doghtur.	

Liquid Tests

Title	Manuscript	Text	Translation
	Oxford, Bodleian MS Add A. 106, ff. 137v	Ffor to wet wheder a woman be with knaf childe or maydyne tak well water & lat the woman that is with childe mylk a drope here in & if it synke to the grounde than is it takyn of a knafe child if it flot a bovn than is it takyn of a maydyn child.	
Trotula, Conditions of Women	Wellcome MS 544, f. 35v	Accipe aquam fontinalis & mulier extrahit duas guttas de sanguine vel tres ex dextro latere & funde sibi aquam si petat fundum: gerit masculum contra.	Take water from a spring/fountain and extract two or three drops of blood from the right side and pour into the water. If it makes for the bottom she carries a male.

Title	Manuscript	Text	Translation
Anthonus Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, f. 78v	Et cum mamille crescere incipiunt dextra semper augetur plus cuius papilla bene colorata est et ab ea lac effluit primo quidem si super speculum aut politum corpus aliud soli expositum mulgeatur in granulis margaritis aut argento vino similibus rotundatur Et si super aquam aut urinam propriam mulsum fuerit perpendiculariter fundum petit pondus	And when the breasts begin to grow the right is always enlarged more and its nipple is well coloured, and from it milk flows first, indeed if upon a mirror or a polished material a little is milked, it will be similarly rounded in granules like pearls or silver grapes. And if it is placed upon water or her own urine or honeyed wine, its weight makes for the bottom
De urina pregnantis	MS Sloane 783 B, f. 184v	Et utrum sit masculus vel femina post probari sic Recipe una gutta lactis huius mulieris prignantis & mulgiatur super aquam fontis & si lac natat erit masculus & si petit fundum femina.	and whether it be male or female you may be able to prove thus: take a drop of milk of this pregnant woman and let it be extracted/milked upon fountain water and if the milk floats it will be a male, if it makes for the bottom it will be a female.
	Oxford, Bodleian MS Add A. 106. f.82r	For to know whether a woman be with knave child or not take of the moders mylk .2. dropis or .3. & put it in well water & sche be with a knafe child it well stond in the water all hole & zif it be a mayden child it well synke down to the bothden in funder.	
	Oxford, Bodleian MS Wood Empt. 18, f. 45r	For man that es wounded ... take the syke pysse & lat a woman mylke there on that hasse a cnawe childe for a man & if it be a woman that es seke the mylke of a maydin chyld & if he mylke falle to grownde he schal die & if it flete he schal live.	

8.2. Testing the Body

8.2.1. Honey-Based Drinks

Title	Manuscript	Text	Translation
Avicenna, <i>Canon medicinae</i>	MS Harley 3808, f. 126r	Et quoque cognoscitur dispositio impregnationis per experimenta De quibus est ut in potu dentur de aqua mellis in hora dormiendi uncie due cum tanto pondere aque pluvialis per mixta et videat an punctionem sentiat an non. Et causam quidem in illo est retentio inflationis cum communitate intestinorum ; licet medici iurentur de hoc et est expertum certum : misi consuetis potare illud Et iterum laboret ieiuno in die.	And also the disposition of pregnant women is known through <i>experimenta</i> [tests or experience]. One of which is that she is given honey and water in a drink in the hour of sleep, two ounces mixed together with the same weight of rain water. And you should see whether she feels pricking or not.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	MS Sloane 246, f. 198v	Vel fiat hoc intencione ypocras vero amphoram. Recipe duo coclearia mellis crudi dissolvatur cum aqua pluviali quod sufficit. Fiat potus tepidus si tempus frigidum fuit potet in vitro itu lecti si de nocte vel de mane sensiat punctiones in ventre signum est quod est pregnans quia signum est opilacionis illarum praedictum ratione fetus et equetur.	Or for this purpose one amphora of Ypocras should be made. Take two spoonful of raw honey dissolved with sufficient rain water. Make the drink tepid drink if the weather is cold. She should drink it in a glass going to bed. If in the night or in the morning she feels pricking in the stomach/belly it is a sign that she is pregnant because it is a sign of obstruction for that aforesaid reason of the fetus and equally [the opposite would be true if she was not pregnant].
Antonius Guainerius, <i>De egritudinibus propriis mulierum</i>	Wellcome MS 557, f. 77v	Et primum quid Avicenna indubitatum afferit Est ut aqua melle $\frac{3}{4}$ ij cum tantumdem aqua pluviale mulier non assueta in potu cibam cum it dormitum sumat Ea enim si pregnans sit corruptionem in ventre sentiat cum punctione aliter minime.	And first what Avicenna undoubtedly asserts. It is that water and honey $\frac{3}{4}$ 2 with sufficient spring water which is to be consumed by the woman without usual food or drink when she goes to sleep. For if she is pregnant, she feels corruption in the stomach with pricking; otherwise not at all.

Title	Manuscript	Text	Translation
<i>De conceptione mulieris urine</i>	MS Sloane 783 B, f. 184r	<p>Et per mellicratum sit appellacione vera</p> <p>[note accompanying the text]</p> <p>mellicratum sic sit Recipe aque . 3. partes & con mellis non dispunctis[?] missus & detur ad lectum & si sit concepta faciet perturbacionum in ventris.</p>	<p>and by means of mellicratum a true pronounciation might be made</p> <p>[note accompanying the text]</p> <p>mellicratum may be made thus: take water 3 parts, and with honey that is not [dispunctis? – related to disponere, to arrange?] having been released and let it be given, then to bed and if she may have conceived, it will make purturbation in stomach.</p>
<i>Sekenesse of Wymmen</i>	MS Sloane 249, f. 198v	<p>yif thou wylt knowen well & truly whether a woman be with child other none withouten lokyng of water if a woman be with child take hir to drink mede when she shall wende to bedde and yif she have moch woo [woe] in hir wombe it ys a signe that she is with child</p>	
Henry Daniel, <i>Liber uricrisiarum</i>	Bodleian MS e Mus 187, ff. 70r-v	<p>zif her to drynk a drynk þat is callede in phisik mellicratum in oper in oper faculties melde or medo, anglicus mede& if sche fele grete crowlyng & rolyng & peyne in her wombe sche hath conceyvede & if sche fele no peyn sche hath no3t conceyved. But tak gode hede that this experiment is evermore so the in the negatif but no3t evermore in the affirmatif For it folwel no3t this woman faleth distemperure in here wombe of this drynke igitur [therefore] sche hath conceyvede for paraventure sche hath sekenesse in her wombe of som other cause in the negatif it is evermoresothe. Ffor this is a gode skil & evermore sothe this woman feleth no fretyng ne no distemperure in her wombe of this maner of drynk igitur [therefore] sche hath no3t conceyvede. And also take hede þat þis worde mellicratum is often tyme taken for every maner of potion þat is made onely of water & hony & so is mede evermore made. But as mellicratum is taken here is . 4 . 3 of raw hony with . 8 . 3. of rawe water.</p>	

Title	Manuscript	Text	Translation
John of Gadsden, <i>Rosa Anglica</i>	MS Bodley 608, f. 158r	Per experientia possumus scire accipiat mulier eum nult ire dormitum mellicratum cum aqua pluviali & si senciati torciones pregnans est si non non.	Another through experience/an <i>experientia</i> we can know: take to a woman when she wants to go to sleep mellicratum with rainwater and if she feels torments she is pregnant, if not, she is not.
Addition to the <i>Trotula</i> text	MS Bodley 682, f. 188v	Accipiet mulier de nocte cum redit dormitum mellicratum cum aqua pluviali & si sentiat terciones in ventre pregnantis est si non. non .	Item take to the woman by night when she is going to sleep mellicratum with rain water and if she feels torments in the stomach she is pregnant. if not she is not.
Pseudo-Albertus Magnus, <i>De secretis mulierum</i>	MS Bodley 484, f. 26v	Debet sunt dare ad bibendum de nocte mellicratum... mellicratum potatio cum melle et aqua ex illa facta et debent sit misceri itaque dum accipi duo coclearia vinum cum melle et aliud cum aqua et debent commisteri ...et debent commisteri et dari mulieribus non dicendo causam ne forte si dicent non haberem dolorem.	Give her mellicratum to drink at night ... Mellicratum is a drink with honey and water, from that it is made, and they should be mixed in this way, then take two two spoonfuls of wine with honey, and another with water and they should be mixed together... And they should be mixed together and given to women without saying the cause, lest by chance she might say she does not have pain.

8.2.2. Garlic

Title	Manuscript	Text	Translation
Avicenna, <i>Canon medicinae</i>	MS Harley 3808, f. 126r	Et similiter experitur cum vacuitas est supponendo allium et dormiendo super ipsum et considerando an inueniat saporem eius et odorem ipsius in ore an non.	And similarly you can test when she is empty [not pregnant], by placing garlic under her [as a suppository] and sleeping upon it and considering whether the taste of it and its odour enter into the mouth or not.
Johannes de Tornamira, <i>Clarificatorium super Nono Almansoris cum textu Rhasis</i>	MS Sloane 246, f. 198v	Accipe tres vel quattuor dentes allij perfora cum acu et filo medij palmi et imponat in matrice in introitu lecti de mane removeat et interroga ipsam an sensiat saporem vel odorem allij nam si inuenit non videtur esse pregnans quia non habet obstaculum penetrandi ad os et nares.	Take three or four teeth [cloves] of garlic, perforate them with a needle and thread in the middle of the palm [length?] and place it in the womb in going to bed. In the morning remove it, and ask her whether she feels the taste or the smell of garlic, for if she finds it she is not pregnant because she does not have an obstacle to it entering to the mouth and nose.

Title	Manuscript	Text	Translation
	Bodleian, MS Ashmole 399, f. 14v	Si tu velis scire utrum mulier sit pregnans. Accipe alleum & ponat mulier in matrice per noctem & in crastino si sentiat odorem allei in ore non est pregnas. Aliud teneat crocum per noctem in ore & in mane eam respicias & si oculi sunt infecti non conceptum.	If you wish to know whether a woman is pregnant. Take garlic and place it in the woman's womb for the night and in the morning, if she feels the taste of the garlic in the mouth, she is not pregnant. Another, hold saffron in the mouth for the night and let her be considered in the morning – if her eyes are stained she has not conceived.
John of Gadsden, <i>Rosa Anglica</i>	MS Bodley 608, f. 158r	Item accipiat mulier allium & supponatur se cum intrat dormitum & si post sompnum non sencierit saporem allij in ore pregnans ^non^ est si senciat est signa masculinitatis sunt.	Another take a woman garlic and let it be placed underneath her when she goes to sleep and if after sleep she does not feel the taste of the garlic in the mouth she is ^not^ pregnant. If she feels it is a sign that the child is male.
Ad cognoscendum pregnantes	MS Selden Supra 73, f. 111v	Another geve to her a clowe of leekis to eete whan she gothe to bed and after her firste slepe yf she savour of leeke in her mouthe she is not with childe and yf she fele non she is with childe.	

8.2.3. Birthwort Suppositories

Title	Manuscript	Text	Translation
Avicenna, <i>Canon medicinae</i>	MS Harley 3808, f. 128v	Et dixerunt quidam de ingeniis est in cognitione illius ut sumatur aristologie aureus et teratur et conficiatur cum melle et supponatur cum lana viridi a mane usque ad meridiem in ieuino tunc si dulcescit salvia eius est concipiens masculum. Et si est amara tunc est pregnans cum femina et si non alteratur tunc non est pregnans.	And certain people speak of a natural substance which might be applied for the examination of this: golden birthwort that is rubbed, and prepared with honey and placed up underneath by hand [as a suppository] with fresh wool, up to midday while fasting, then if her saliva becomes sweet a male is conceived. And if it is bitter then she is pregnant with a female child and if it is not altered she is not pregnant.

Title	Manuscript	Text	Translation
Johannes de Tornamira, Clarificatorium super Nono Almansoris cum textu Rhasis	MS Sloane 246, f. 199v	Similiter quae sumatur aristologia 3. 1. et scilicet teratur et conficiatur cum melle in modum ungenti supponatur cum lana in matrice a mane usque ad meridiem in ieiuno tunc si dulcescit saliva eius concepit masculum si est amara concepit feminam si non alteratur eius saliva non concepit.	Similarly that birthwort [<i>aristologia</i> or <i>aristolochia</i>] should be obtained, 1 ounce. And that is to say it should be rubbed and prepared with honey in the manner of an ointment and placed underneath her with wool in the womb from early in the morning up to midday while she is fasting. Then if her saliva becomes sweet she conceives a male, if it is bitter female, if her saliva is not altered she has not conceived.
Antonius Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, f.77v	de allei[allii] quoque suppositionem ac aristolon [<i>aristolochia</i>] pulveris cum melle miste idem sit Nam si ille sapor in ore sentitur prenans minime erit.	Also a substitute for garlic is birthwort, pulverised and mixed with honey, for if that taste is felt in the mouth she will not be pregnant.

8.2.4. Suffumigation

Title	Manuscript	Text	Translation
Avicenna, Canon medicinae	MS Harley 3808, f. 126r	Et iterum laboret ieiuno in die . et in sero involvatur pannis . et suffumigetur alibrello et traiectorio cum suffumigio Si ergo egrediatur fumus et odor ex ore et naso tunc ipsa non est pregnans.	And again, if she suffers fasting in the day, and at a late hour she should be wrapped up in cloths and be suffumigated with a jar and a funnel with the fumigation. If consequently fumes and odor are brought out from the mouth and nose then she is not pregnant.
Antonius Guainerius, De egritudinibus propriis mulierum	Wellcome MS 557, f. 77v	Secundum mulier ieiuna pannis bene tegatur sit ut oroficium odor ad nares provenire nequeat deinde per embotum suffumigetur quae si odorem sensit pregnans nequaquam erit.	Second, the fasting woman should be well covered by cloths, so that from the opening the smell is unable to come forth to the nose. Then by a funnel they should be suffumigated, so that if she senses the smell she will not be pregnant at all.
John of Gadsden, Rosa Anglica	MS Bodley 608, f. 158r	Item sub fumigetur cum aromaticibus & se senciatur Fumum ab nitis pregnans est si non non.	Another. Suffumigate with aromatics and if she feels the fumes from inside she is pregnant, if she does not she is not.

Appendix 4. Working Transcriptions of Pregnancy Diagnosis Texts

Editorial Principles

Expansions have been indicated with underlined texts. Any uncertainties marked with a questionmarks. Line breaks are indicated with a '/', and unreadable text is shown with ellipses. Uncertain words are marked with a question mark. Inserted, suprascript text is marked with '^' around the term inserted.

1. Cambridge, Trinity College, MS O. 1. 57, f. 125r (Early 16th C)

F. 125r:

Yf a woman be with childe, her water is white. Yf she havi/ gone a moneth or ij or 3 her water shalbe verey white and clere/ and a white substaunt in the botome of the glasse. And yf fyve/monethes or more the said white substance in the botome shalbe/verey great. Yf she ne may see her selfe in the uryvall as/ in a myrrour she hath conceyved/ The urine of a virgin shalbe clere and yelow. ^Yf^ the first water / of a woman after she hath had to do with man be clere she is with/ child and if thicke she is not with childe./ Item if her pulses beate moche (she having no ove it is a token also yt/ she is with childe. And if more of the right arme than of ye leftte/ the pulses do do beate : then it betokeneth a man childe. If contrary a/ woman childe. And if the childe be dead in the mothers wombe /her handes scyrveth and she hath great payne also about her navill/ thirddie she may uiiiiith[? – evil in other versions] goe but ever and anon she wolde fayne rest/ her selfe . Item fowrthlie her eyen be small or smaller than they be/ wont to be.

2. London, Wellcome Library, MS 532, f. 71r (15th C.)

F. 71r:

Signa Pregnationis/

Signa pregnationis est sperma retenta in matrice/post coitum et in ora coitus sentitur
oripilatio/ quandam dolor inferius sub unbilico sentitur/ apud vulvam/

Os vulve et vulva ipsa exsica sunt absque/ apostemate et duricie./

Abominatio coitus post ipsum./

Deffectus menstruorum habita debita et tempore debito/

Ingrossatio mamillarum maior solito Viri/dis color ipsarum mamillarum et maxime suorum/
pupillas.

Albumina oculorum viridia fiunt et accidunt lentigines et albaras et facies ipsarum
denigrantur/

Appetitus ciborum oribillium. Conversio anime nauseam/

Exsicatio capitis virge post coitum/

Adunatio horis matricis ita ut non ingre/diatur acus/

Elevacio horis eiusdem ad superiora Et ali/quando est dificultas urine.

Dolor sub umbelico et nausea in coitu – /

3. London, Wellcome Library, MS 409, ff. 63r-64r: the *Urina Mulieris* and *Ad cognoscendum pregnantes*, From the *Dome of Uryne Compendium* (15th C.)

F. 63r:

[red:] Urina Mulieris[/end red]/ Uryne of a woman that ys with chylde here watyr/schal have clere strypys the moyst parte schal be/ trobyl and yn the trobynys schall be sum whatte/ redyche y leke to tanne whose thyz tokyn schal/ note fayle as sone as the schylde hatthe lyve [rubric] yf/ hyt be a knave chylde the thykenys schal hovyr/ a bovyn [rubric] if hyt be a mayde chylde the thycke/nys woll drawe donwarde yn to ye bottom [rubric] u/ryn of a womon wheyte and hevy and stynkyng/ by tokynyzt paynys yn the raynys and payn of the/ modyr and sykynys of colde [rubric] uryne of a woman/ that ys bryzt as golde that by tokynnyzt that sche hatthe/ talant to man [rubric] uryne of a woman yt fletyzt/ fatte a bovyn hyt by tokynyzt payne yn the ray/nys [rubric] uryne of a womon with blake contentys/ yn the botton hyt by tokynythe fallyng of flowris/ [rubric] uryne of a woman with whyte contentys yn/ the bottom hyt by tokynyth mychyllys of flowris/ [rubric] uryne of a woman that hys of color as whyte/ lede yf sche be with chylde hyt by tokynyth the/ [f. 63v] chylde ys dede yn hyre [rubric] and 3yf sche be notte/ with chylde and the watyr stynke hyt by tokynyzt that/ the modyr ys rotyn [rubric] uryne of a woman that hatthe/ the color of lynsede 3yf sche have the flux hyt by to/kynyzt dethe [rubric] uryne of a woman yt ys rede as/ golde with a cerkyl of watyr a bovyn hyt by to/kynythe that sche ys with chylde [rubric] yf yu see/ thy face yn womonys watyr and sche be with oute/ fevrys hyt by tokynyzt that sche ys with chylde/ [rubric] And 3yf yu see thy face yn the hote fevyr hyt by/ tokynyth dethe [rubric] and 3yf yu see thy face yn a man/ys watyr that hatthe none axesse hyt by tokynyth/ lengyr sykynys [rubric] [red:] Ad cognoscendum pregnantes[/end red]/ [rubric] take the furst watyr and sche have y cmynyd/ with a mon 3yf that watyr be clere he[be?] ys with chylde/ [rubric] 3yf that hyt be ryche be ye note with chyld [rubric] another/ take hyr to zete ^a clove of gall^ whan sche gothe too bedde then/ aftyr hyr furst sclepe 3yf sche fele ye savor of/ of the garlyke yn hyr mowthe sche ys notte wyth/ chylde and sche fele hyt noth sche ys wt chylde/ [f. 64r] [rubric:] an nother 3yf hire pulse bete swyth and sche have/ none axesse hyt by tokynyth that sche ys with chylde/ [rubric] aand 3yf the pulse of the ryth hand bete swyth/then ye lyfte hand that ys a tokyn that sche ys wyth/

a knave chylde [rubric] and 3yf be contrarye hyt/ hyt by tokynnyth a mayde chylde [rubric]
3yf the/ chylde be ded with yn here these tom tokynnys/ [rubric] here honde schal tynke
sche schal have grete/ payne a bowte hyre navyl sche may yvyl goe/ sche desyryth to sytte
style and here uryne woll/ be lytylle [rubric]/

4. London, British Library, MS Sloane 783 B, f. 184r, f. 184v (14th/15th C.)

F. 184r:

De concepcione mulieris urine/

Junctur gutta regnare per alba minuta/ Si mulier fuerit non alter utrum tradierit/ quin est
conceptus vel assit langgor ineptus/ matrix sicca venus sopita retencionem fluxus/ discolor
affectus vomitus compressio virge/ mamme grossiores & sit perturbacio ventris/ Et per
mellicratum sit appellacione vera/ conceptum maris insumat splendore faciei/ membrorum
levitas spissi concretionem lactis/ continuus rubor urine suffulcione dextre/ signa quae per
dextras fetus ingericia partes/ atque tumor ventris in dextra parte rotundas/ ffemini fetum
contraria signa significat/

[Note accompanying text:]

mellicratum/ sic sit Recipe/ aque . 3. partes & con/ mellis non dispu/nectis[?] missus/ &
detur ad lect/um & si sit/ concepta fa/cies partis va/conum in ven/tris/

F. 184v :

De urina pregnantis/

Citri sub albo declinans medio quidam/ pendens in urina quae superflua totum/ urina
quidam similem nubibus superius habens/ affendere discendere habent in se granula
quedam/ inprigna vere subam signa quia sunt hoc/ Post prima . 2 ^{am}[secondam] vel 3
^{am} mensem urina mulieris/ pregnantis erit multcre clara & habebit in fundo brine/
liquore album & athomi circa quia cotyn carpinatim/ Et post 4^{am} mensem urina erit clara
sicut unquam &/ liquor in funda erit alba & multa & apparebit/ ymago in urinale vase sicut
iu speculo et utrum/ sit masculus vel femina post probari sic Recipe una gut/
ta lactis huius mulieris prignantis & mulgiatur super/ aquam fontis & si lac natat erit
masculus &/ si petit fundum femina/

5. Cambridge, St John's College Library, MS B. 15, f. 12r (15th C.)

F. 12r:

... To knowen zif a woman be with childe Thre geruelys/ in a wemans watans waterer probande noutb to the serch of the water but/ in the middys er & the fondus of the water & is certeyn signis/ there that womane is with chylde & if hit be rede or falowe it/ is a knave chylde & it be whut it is a maydyn chylde./

6. Cambridge, Magdalene College, Pepys Library, MS 878, p. 53 (15th C.)

P. 53:

the .xv. conteynt is seyde attamus and be like motis in ye/ sonne beme in mannys uryne it betokenyth ye goute/ heretike or other goutis & in womanniss water zif it be clere/ & corstid to gedir it betokenyth that sche is with childe &/ zif apere in wan water it betokenith of holdyng of / her flouris iff it go down flous of whete. The/ xvi content is sperma yt is manniss sede and kynde &/ it betokeneth moche to have don with women a litill a fore/ or ellis a parasie of ye vessollis that schuld kepe ye sede or ellis gomorra passion....

7. Cambridge, Cambridge University Library, MS Dd. 6. 13, f. 99r (Early 16th C.)

F. 99r:

to knowe whether the woman/be concevand or no/
first if the flowers issue not in so great quan/titie as they are wont but waxe lesse and/ lesse and in maner nothing at all commethe/ from them And all soe if the brested begyne/ to waxe rounder harder and styfer then/ they wer wont to be also her urine waxethe/ foeryshe and thycleyse and all so if the woman/ feeleth her matrix very fallys & closely/ shutte/ a gane if you wold nedes knowe geve/ unto the woman when she goe to bedde/ a quantitie of mellicratum in a drinke/ ~~made~~ of to drinke & after that she have/ dronke fell great payne or grawynge/ and tumbling in her bellyd then be sure/

that she is conseed/ But yf ye be desyrous to knowe wether/ she be with man or woman
dop here/ milke on a smothe glasse or a brit knyfe or/ on the nayle of on of her fingers & if
the/ milk floue & spread a brode than it is/ a woman child but if the drope stand still/ then it
is a man child

8. Cambridge, Cambridge University Library, MS li, 1. 16, f. 182 r (14th C)

f. 182r:

puelle virgine urina lucida/est et minis ludida/ urina muliere menstruum est[?] concupite est
turbulenta & est in fundo/vaso semen iiii. urina muliere menstrute est . 4. sanguinea. urina
mulierem pregnante/ in ipse iii mense urina habet vel minutam ipsam albam ei nutrimensis
sedimenta/ est unu enmerane habet. urina altera in masculis eme febre dolor laterium &/
renum dignificat.

9. Vatican City, Biblioteca Apostolica Vaticana fondo Palatino Latino 1304, f. 37r (late 13th C.)

From Walter Agilon, *De contentis urinarum*

f. 37r:

Item nebula na[?] in media reigione calo beniunt/ rem pectoris significat resolucione
valorum/ Item spermatice resoluciones admixto &/ resolucione pilose sui est gracilis sbera/
significat arteticam .1. dolor vi[in] cturalium/ membrorum .vel cura quae idee est vel
resulucio/ valorum genitalium & indolor in firmitate/ Item spermatice resolucio Stranguurium/
grossa est quaedam ingredine strangwi/ Item spermatice // conceptionem riam significat/
resolucio grossa & cirambosa ut/ bombax in mulierem conceptionem/ significat ut dicit
avicenna conceptionem/ Item spermatice contentem coagulant admodum bombatis
residens in fundo/ mulierem concepisse significat

10. Oxford, Bodleian Library, MS Ashmole 399, f. 15r (early 14th C)

This note appears within a thirteenth century schematic diagram of the uterus, illustrating
the text of Muscio's translation of Soranus's *Gynaecia*

F. 15r:

Si tu velis scire utrum/ mulier sit pregnans. Accipe/ alleum & ponat mulier in/ matrice per
noctem & in crasti/no si sentiatur odorem/ allei in ore non est pregnas. [] Aliud teneat/
crocum per noctem in ore/ & in mane eam respiti/as & si oculi sunt infecti/ non conceptum.

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