Imagining Pregnancy: The Fünfbilderserie and Images of “Pregnant Disease Woman” in Medieval Medical Manuscripts

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The Fünfbilderserie consists of anatomic schematics utilized in medical school dissections beginning in the thirteenth and fourteenth centuries. Anatomists would create these mnemonics to help students envision the internal systems of the body. Besides the standard five male pictures, an additional image, the “Pregnant Disease Woman” acted as a means to understand the reproductive system and organs of the pregnant woman. This paper argues, however, that despite the empirical observation of the anatomy of the gravid woman, they continued to visualize and “imagine” it, largely due to the existing classical ideas these anatomist retained about women, their natures, and their bodies.

The pregnant female anatomy remained mysterious for much of the Middle Ages, forcing the male medical establishment to imagine its form and function. While anatomical investigation of male morphology began in earnest in the High Middle Ages, corresponding discoveries about females were delayed and imperfect. The lack of empirical knowledge and reliance on erroneous classical theories combined to make the gravid female a frightening and confusing “other.” The effect was a continued view of women as inferior, mysterious and imperfect. The pregnant woman was all of those things and, in addition, host to an alien, the stuff of modern day science fiction stories. The medieval mentality allowed male clinicians to view pregnancy as a disease, an acute condition with which one was afflicted. Despite the increased practice of dissection in medical schools, they were unable to reconcile Galenic theories with what they observed, especially in relation to women’s bodies. The disjuncture between what they “knew” and what they saw
illustrates the fact that the medieval mind was not trained to react to the visual but to the conceptual. What they could not make sense of they virtually ignored and failed to integrate, and thus the pregnant anatomy remained “imagined.”

One way in which historians can “dissect” the medieval vision of the pregnant woman is through medical illustrations, primarily the Fünfbilderserie. The Fünfbilderserie, or “five picture series,” representing the five principle systems of the Galenic body, is a group of stylized anatomic schematics used for instruction. The semi-squatting figures illustrate bones, nerves, muscles, veins and arteries. Occasionally an additional figure representing the generative organs was added. They were all male figures in a customary “frog” pose, except for the Gravida, or “Pregnant Disease Woman” that was sometimes included in the series, and occasionally alone. Obstetrics and gynecology had been considered part of the standard medical corpus from the time of the Greeks. It is notable, however, that these “Disease Women” were not an integral component of the male series, but rather an addendum. This was a consequence of the Aristotelian schema that men act as the standard and that women are thus “inverted” or “imperfect” males. Sally Kitch notes that “Aristotle’s judgment of women as a ‘monstrous error of nature’—worthy of study only in unflattering comparison to a male standard—would be inscribed in the natural sciences for centuries.” In that light anatomists used the male body as a template, which was then altered to describe the female and gravid anatomy. In this way, they created a visual discourse on the parturient woman that was at best imperfect and at worst nearly wholly inaccurate. To the medieval mind, it was sufficient to “imagine” the mysterious pregnant female.

1 Karl Sudhoff points out that this is a misnomer as there are sometimes more or less than five pictures. Book One of Avicenna’s Canon contains an anatomical section on these systems, called “simple” members, used to formulate basic rules vs. Galenic empiricism. Siraisi, Renaissance Medicine, 85. In fact, Katherine Park argues that there are nine of these pictures. Park, Secrets of Women, 110.

2 Aristotle, Generation of Animals, I, 82f.

3 Kitch, Spector of Sex, 20.
By most accounts, the study of anatomy did not exist in Europe before the twelfth century. Galen of Pergamon’s and Soranus of Ephesus’ anatomical learning had been lost or possibly suppressed by Church authorities during the early Middle Ages. Although Galen never dissected human beings, most medieval readers assumed he had because of his avid recommendation to do so as well as the fact that he wrote about it so extensively. Galen’s second-century works were popular in the East but neglected in the West until the eleventh century. At that time his texts were united with those of Soranus. That, and the translation of several Arabic texts into Latin, brought Galenic anatomy to the West for the first time. After antiquity the dearth of anatomical manuscripts was broken by the arrival of Constantine the African, who translated the *Pantegni* of Persian Haly Abbas from the Arabic about 1080, beginning the “middle period” of Salernitan literature. Constantine the African brought several Arabic medical texts from North Africa to the south Italian monastery of Monte Cassino in the eleventh century and by the twelfth century Galen’s ideas began to overtake those of Soranus of Ephesus, especially at the medical school at Salerno. By the second half of the twelfth century, Galenic ideas as seen in the *Fünfbilderserie*, therefore, were superimposed on the ideas of Soranus already prevalent in medieval thought. By 1300 some of his physiological theories were being studied in Latin translation at Montpellier, Paris, and Bologna. Until the time of Leonardo Da Vinci anatomy was primarily pseudo-Galenic and offered what F. H. Garrison called “more a contribution to general morphology than to actual human anatomy.”


5 He also translated Galen’s commentary on the *Aphorisms* of Hippocrates as well as many other medical treatises. George W. Corner, *Anatomical Texts of the Earlier Middle Ages*, 15.

6 Monica H. Green, “The Transmission of Ancient Theories of Female Physiology and Disease”, 54, 85.

7 Garrison, “Early Mediaeval Anatomy”, 609.
Books Two and Three in Constantine’s encyclopedia, based on the Galenic tradition, constituted almost the sole source of anatomical knowledge at Salerno until the early twelfth century when three tracts on the dissection of the pig appeared, the *Anatomia Cophonis porci*, attributed to Copho, the *Anatomia parva Galeni* of Galen, and a third discussion of porcine anatomy known as the *Anatomia Mauri*.8 These Salernitan texts are practical anatomical manuals that allow us to glimpse dissection at Salerno and, as George Corner states, the “teaching from the specimen and not from books alone -- an unexpected thing in mediaeval anatomy, not to be seen again until the days of Mundinus.”9

Three tracts on human anatomy followed. Mondino dei Luzzi, or Mundinus, of Bologna completed a dissection handbook called the *Anothomia* in 1316. He used a narrative of dissection within a Galenic framework, organizing his material according to Galen’s system, and analyzing each organ with respect to the position, connections, shape, parts and functions.10 This treatise marked the beginning of the shift from pig to human dissections.11 The development of anatomy as a scientific subject occurred because dissections, porcine and then human, became possible within the context of the university medical school. Clearly animal dissections continued to be used alongside human dissection for some time, explaining some of the inaccuracies in describing the morphology of organs. By the early fourteenth century anatomy became a recognized field of medicine studied at the University of Bologna, and at Montepellier.12 At the University of Padua students dissected one male and one female cadaver each year, but quickly and only in

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11 Guido de Vigevano states in his treatise that “it is prohibited by the Church to perform an anatomy upon a human body.” But of course the fact that he writes about performing a human dissection belies that statement. Guido of Vigevano, *Anatomia Philippi septimi*, trans. Faith Wallis, 72-77.
12 Hill, “Another Member”, 16.
the winter in order to minimize the unpleasant smell.\textsuperscript{13} In addition to Mundinus, Henri de Mondeville, born in the mid-thirteenth century and practicing medicine in Paris before becoming one of Philip IV’s royal surgeons, and another anatomist, Guido de Vigevano, who wrote in France around 1350, both used anatomical illustrations as their primary teaching tool. Vigevano said:

\begin{quote}
I demonstrate dissection . . . by figures accurately drawn . . . . The pictures show them better than in a human body, because when we make an anatomy on a man it is necessary to hasten on account of the stench.\textsuperscript{14}
\end{quote}

He also argued that pictures are superior to actual dissections as they offered views that were otherwise impossible to see, saying that in the images the anatomy appears “rather better than it can be seen in the human body itself.”\textsuperscript{15}

The \textit{fünfbilderserie} images are generally not based on empirical observation of corpses, but rather on traditional early anatomic illustration as they continued to be copied from manuscript to manuscript. This mimicry is indicated by the monotonous similarities in these drawings, common to Aztec, Tibetan, Persian, and European anatomic manuscripts.\textsuperscript{16} These pictures were not intended to be naturalistic, but rather designed to be schematic, a visual display of Galenic anatomy and were a “valuable adjunct to the experience of dissection”.\textsuperscript{17} Mondeville’s illustrations from 1304 show little to no improvement over the early anatomical illustrations, demonstrating imitation rather than innovation.\textsuperscript{18} Karl Sudhoff saw this lack of change over the centuries as indicative of the “almost stationary character of the medieval mind.”\textsuperscript{19} These

\begin{footnotes}
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\item[16] Garrison, \textit{History of Medicine}, 213.
\item[19] Sudhoff, \textit{Archive}, vol. i. 219, 351.
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stylized anatomical depictions may represent the assimilation of Latin versions of Arabic texts and the summaries of Galenic medicine.\textsuperscript{20} The fact that dissection was taking place within a larger textual tradition meant that Galenic errors persisted, despite the opportunity to observe their inaccuracies. Nancy Siraisi points to this aspect: “Appearances in dissection were unlikely either to throw general doubt on or to greatly clarify preexisting physiological theories and anatomical descriptions.”\textsuperscript{21} By the fifteenth century the illustrations became more realistic, standing erect and not in the “frog” pose, indicating empiricism and dissection observation.

Obstetrics and childbirth were primarily relegated to midwives, who treated women pre-, post-, and perinatally. As empirics these midwives arguably became the experts on the gravid woman and learned through practice rather than through formal instruction. Midwifery manuals from this period primarily relied on classical knowledge transmitted and modified by midwives and thus were practical in nature. In his treatise \textit{Tractatus de Matricibus}, Anthonius Gainerius acknowledged that he had learned from midwives and used them to carry out his own prescribed treatments.\textsuperscript{22} Male physicians and students matriculating through these universities were relatively unacquainted with the internal anatomy and physiology of pregnant females. They had to rely on their conjured concepts, akin to the fantastic view of an imagined mythical beast.

The first official dissection of a woman in the West took place around 1315 and Mondino mentions the dissection of women in January and March of 1316, indicating that special attention was paid to the anatomy of the uterus. His teacher, Taddeo Alderotti, expressed disappointment in not having had the opportunity to observe the pregnant female anatomy, indicating the rarity of

\textsuperscript{20} Frampton, \textit{Embodiments of Will}, 263. He argues against Sudhoff, who finds a common classical Alexandrian source.

\textsuperscript{21} Siraisi, \textit{Renaissance Medicine}, 89.

\textsuperscript{22} Guainerius, \textit{Tractatus de Matricibus}, f. y2ra. Also, Lemay, “Antonius Guainerius, 321, 336.
available female corpses. The practice of using executed foreign criminals for dissection, and the reticence of executing condemned pregnant females, were both obstacles to observing the pregnant female anatomy in the high and late Middle Ages.  

Because male physicians may have been relatively unacquainted with the female genitals, thirty people were able to witness the dissection of a female at the University of Bologna in the fourteenth century, while only twenty were allowed at the dissection of a male.  

While more students and physicians had direct access in this case, it also makes clear that female dissection was still seen as a novelty. In his study of thirteenth-century medical miniatures Charles Singer notes that within the group of medical drawings in MS Ashmole 399 there are several depictions of the dissection of a female body. These illustrations are of two types typical of anatomical representation: “full body” depictions and separate “organ” studies. The pregnant womb becomes emblematic of the “hidden” female internal anatomy in general, and is identified in the “Pregnant Disease Woman” as the organ that only dissection could reveal.  

Because the Ashmole drawings all contain recipes and remedies for female ailments and thus belong to the realm of gynecological manuals, Singer argues that the literature and illustrations were intended for midwives and not for male physicians. These recipes and herbal knowledge signify an area in which the midwife is arguably the more informed and the male physician relatively unenlightened, part of “women’s secrets.” This dichotomy illustrates comparable knowledges, “male” vs. “female.” While female empirical practitioners were limited by their comparative illiteracy, the anatomical field was a great equalizer of scientific data.

23 Park, Secrets of Women, 106, 109. She points out that the first anatomical illustration of a uterus “from nature” dates to woodcuts in Johannes de Ketham’s Fasciculo de medicina of 1494.


25 Mackinney, “Beginnings of Western Scientific Anatomy”, 235. They all depict, according to him, a reprobation of dissection.

26 Park, Secrets of Women, 27. She argues that the anatomists thought that if one could understand the complicated and mysterious uterus, they would be able to understand the rest of the woman.

27 Singer, “Thirteenth Century Miniatures”, 34, 35.

28 Park, Secrets of Women, 91.
The intended audience of the *Fünfbilderserie* illustrations was likely male medical students and physicians and the illustrations allowed them to visualize the internal structures in both an abstract and a practical way. In Paris, BN, MS 11229, the subject is in the characteristic “frog” pose with her arms raised and outstretched. We can see her very pregnant outline, illustrating that the anatomist recognized her advanced pregnancy and made a connection to her morphology. She is also uncharacteristically pregnant with twins, their faces peering out from her round uterus.

*Paris, Bibliothèque Nationale, MS lat. 11229 [15th Century]*

29 Because of copyright restrictions, this and subsequent illustrations are drawings from the originals created for this article by James Fagades.
This picture has extensive text surrounding the figure indicating its use for instructing male medical students. The text is surely secondary to the images, an explanation for the viewer about the images themselves. A practical factor, according to Peter Murray Jones, was “the need to describe the appearance of things so that the reader could visualize them for himself.”\textsuperscript{30} In this way, anatomy might be taught from pictures in absence of a dissected corpse. Even Leonardo da Vinci’s drawings from the early sixteenth century are not based solely on observation, made obvious by his anatomical errors. His drawings too are “a form of visual thinking” made by observing, reading Mondino and Avicenna, and listening to his contemporaries describe anatomical structures through oral instruction.\textsuperscript{31}

However, in MS Bruges 411 from Thomas de Cantimpré’s \textit{De Rerum Natura}, dating to about 1500, we can see the frog pose, the obviously pregnant belly and the \textit{fetus-in-utero}, but we also see that the woman is holding an herbal sprig, which could be symbolic of analgesic or emmenagogues, or “menses provoking” medicines of varying efficacy, used by midwives during pregnancy and childbirth. This addition may indicate the audience’s pharmacological knowledge or interest. Another possibility remains that the herb is a reflection of the incorporation of the knowledge of herbal medicine taken from midwives.\textsuperscript{32} It could also be attributed to a standard trope in medical illustrations, much like the \textit{Fünfbilderserie} illustrations themselves. Wellcome MS 5000, c. 1420, contains the \textit{Fünfbilderserie}, as well as other religious and medical information, including gynecological recipes, again representing female expertise. Despite the fact that these figures are more realistic than those included in previous manuscripts, the characteristic squatting pose roots them in the visual tradition and shows little in the way of empirical observation.\textsuperscript{33}

\textsuperscript{30} Murray Jones, “Image, Word, and Medicine in the Middle Ages,” 11, 23.
\textsuperscript{32} Green, \textit{Making Women’s Medicine Masculine}, 164. She argues that there is no audience of female practitioners for these texts in the Middle Ages.
\textsuperscript{33} Hill, “Another Member”, 15.
Bruges, Bibliothèque de la Ville, MS 411, f. 259 [15th Century]

34  Illustration by James Fagades.
Erlangen MS 1492 from the thirteenth century contains the typical semi-squat position, although the picture is more natural and realistic than the *Fünfbilderserie* images. The woman’s stomach is cut away and her genitals covered by a cloth, an intriguing and somewhat odd addition, considering its probable use for instruction about the reproductive system. In these illustrations, of which there are several on a page, the fetus lies within the pregnant space, but not in a circumscribed, boundaryed uterus, which is usually round or bell shaped, and often off to one side. These images depict the fetus in different positions, and act as a manual to assist practitioners in visualizing fetal presentation.

*Erlangen, Universitätbibliothek, MS 1492, f. 94r [15th century]*

Illustration by James Fagades.
The twelfth-century Breslau Codex 3714 and Oxford Bodleian MS Laud, misc. 724, c. 1400, contains the traditional pictures of the fetus-in-utero from Mochion, the fifth-century Latin translator of Soranus of Ephesus from the original Greek.\textsuperscript{36} Soranus’s second-century treatise, \textit{On Gynecology}, found widespread acceptance in numerous translations throughout Western Europe after the third century. Many other manuscripts contain fetus-in-utero images, such as Erlangen MS 1463. It was not until Ketham’s \textit{Gravida} of 1491 that the parts of the pregnant maternal body and the fetus were labeled at all.

\textit{Ketham’s Gravida, MS 1491 [15th Century]}\textsuperscript{37}

\textsuperscript{36} Garrison, \textit{History of Medicine}, 211.

\textsuperscript{37} Illustration by James Fagades.
MS Ashmole 399’s thirteenth-century schema of the uterus and adnexa are particularly abstract. Accompanying diagrams of the *fetus-in-utero* provide prescriptions for the pregnant woman. The image of the uterus seems to have been represented with a dark outline of two parts: one half pregnant and the other in the non-pregnant state. This schizoid representation illustrates the literal states of the woman’s anatomy, but also the figurative changing and mercurial nature of the female, the Galenic humoral fluctuations and character of the female personality. This bisected uterus could also be a result of Galen’s “bicorne”, or “bilobed” uterus, reflecting the two-lobed porcine uterus that he was accustomed to dissect. In the illustration the pregnant half of the uterus is filled by a fetus and its membranes. It also contains a description of the uterus from the text of Constantine the African.

*Oxford, Bodleian Library, MS Ashmole 399, f. 13v [14th Century]*


39 Galen’s treatise *De temperatmentis* takes the Hippocratic humoral theory and applies it to temperament, becoming the standard authority on the topic throughout the Middle Ages.


41 Illustration by James Fagades.
The *Anatomia Ricardi*, an early thirteenth-century Salernitan anatomical text, is a systematic descriptive work that purports to describe the human, rather than porcine, anatomy and is derived from the *Pantegni*. Ricardus Anglicus describes the structures of the uterus in section 40, saying:

Some mistakenly say that there are five cells in the uterus and some say seven, because a corresponding number of fetuses can be carried in the uterus at once; but it must be said that even as many pears may be seen hanging from one tree, by which they are nourished, so many several fetuses adhere at once to one process in the uterus, from which they all take nutriment.\(^{42}\)

The “seven-celled” uterus was based upon an Aristotelian concept, and was widely accepted and transmitted through the Middle Ages. *De Spermate*, a twelfth-century pseudo-Galenic treatise asserted that parts of the body, including the uterus, were divided into sevens.\(^{43}\) *Anatomia Cophonis*, the porcine treatise, also says: “The uterus has seven cells, and if the animal is pregnant, you will find the fetuses in these chambers.”\(^{44}\) Mondino writes:

the uterus of a sow that I anatomized in the year 1316 was a hundred times greater than I ever saw in a human female. This could also have been because the sow was pregnant and had thirteen piglets in her uterus, and in it I demonstrated the anatomy of the fetus and of pregnancy.\(^{45}\)

Twelfth-century Salernitan anatomists presented this theory in texts again and again, illustrating that it is a concept not based on empirical observation but rather, like the *Fünfbilderserie* illustrations, a product of the “imagined” uterine anatomy. In this view the uterus is divided into two chambers with seven sections, three on the left, three on the right, and one in the center. The fetus that develops on


\(^{43}\) Reichman, “Seven-Chamber Uterus”, 249.

\(^{44}\) *Anatomia Caphonis*, in Corner, “Anatomical Texts”, 53. Soranus did not espouse the seven-chamber doctrine.

the left, which is cooler, will be male while the one that develops on the warmer right side will be female. The hermaphrodite will develop in the center. Later anatomists argued for five sections rather than seven because a woman could not possibly bear more than quintuplets. Because Mondino adopted the bipartite uterus its popularity actually increased during the time when humans were dissected more frequently.

The pregnant morphology created a new frontier of medical and anatomical knowledge for the student and gave male anatomists and physicians an inroad into the eventual “professionalization” and “paternalization” of the field of obstetrics. The overall effect was the claiming of the “syknessess of women” for the male medical field. The transition to human dissection was a momentous paradigm shift in the history of medicine. But in light of the fact that females were not dissected as often as males until the Early Modern period, “Pregnant Disease Woman” continued to be reproduced based on faulty classical ideas. The continued use of the *Fünfbilderserie* schematic model was especially true for female anatomy. The fact that male medical authorities continued to conceptualize the gravid female as “diseased” is also notable. They saw the pregnant woman as having an acute condition that had to be “cured” one way or another: through the birth of the child or the death of the mother. It was approached as potentially harmful, even fatal. The maternal mortality rate seems to have been at least 20% at this time, so that was a very real concern. But midwifery manuals treat the pregnant patient in a very different way, perhaps in a more “empirical” manner. This is the result of a gendered approach to obstetrics specifically, and medicine generally that arguably continues to this day. Monica Green argues that the “same gender system that kept men at a distance from the bodies of their female patients was equally

46 Cadden, *Meanings of Sex Differences*, 198.

47 Hanawalt, *Growing Up in Medieval London*, 43 and 234. The author cites 14.4 maternal deaths for every 1,000 births in fifteenth-century Florence. This figure rises to approximately 20% when deaths resulting from complications of pregnancy or some condition related to child-bearing, rather than the birth process itself, are added.
powerful in keeping women away from the traditions of education and philosophical discourse that might have generated a women’s medicine that was both empirically and rationally informed”.

“Pregnant Disease Woman” offers us a fruitful means of exploring the transformations in perceptions of the pregnant anatomy and childbirth. This perception is based, like the Fünfbilderserie itself, not on reality but rather on the imagination of medieval physicians, most of whom were male, until the Renaissance and the Early Modern period. The issue here is not when the understandings of the female anatomy changed, but rather why there was a disconnect between what people saw and what they imagined. These pictures therefore allow us to see the “male” and “medicalized” perception of something at once familiar and foreign: the pregnant woman.

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48 Green, Making Women’s Medicine Masculine, 68.
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