

Chapter 1

Nurturing Danger

Twelfth- and Thirteenth-Century Medicine and the Problem(s) of the Child

In enumerating the events for the year 1191, the French royal chronicler Rigord reported the deaths of selected ecclesiastical figures, atmospheric anomalies worthy of mention, and political events of great consequence. In the midst of such entries, Rigord chose to narrate a child's illness and various people's reactions to it. The child was none other than Louis, the four-year-old royal son and heir apparent of King Philip Augustus. The chronicler stated simply that "the following month [August] Louis, the son of King Philip, began to sicken from a most serious illness, which is called dysentery by the physicians."¹ We learn little more about the nature of the child's affliction.

Rigord's account provides a detailed report of the "common council" convened at Saint-Denis, which decided to perform a variety of fasts and prayers as well as a procession of clerics, scholars, and secular figures, carrying relics, singing, and crying on their way to the royal palace. In front of the palace, where the child lay ill, the crowd prayed and heard sermons for his health. Inside, a nail and thorns from Christ's crown, as well as the arm of Saint Simeon, were "touched all over the whole belly of the child in the manner of the cross." That same day, Rigord tells us, Louis "was freed from imminent danger," as was his father, who suffered from a similar illness overseas.² With the child's recovery, the city of Paris erupted in a flurry of celebrations, blessings, and processions.

It was of course on account of Louis's political importance as only son that such extensive expressions of gratitude occurred. His health was of the greatest importance for the preservation of the dynasty.³ The gravity of the four-year-old's illness—and the consequent threat to the stability of France—served as one of the excuses to permit his father to return early from the Third Crusade. Louis's illness is freighted with too many burdens of state to qualify this passage as evidence of a special concern for children. However, while Rigord's account may not contain any hint of sentimentalism toward the child *qua* child—that much is barely if at all apparent—the image of the child as an endangered, physically vulnerable creature appears prominently here, as in many other texts of the twelfth and thirteenth centuries.⁴

Rigord's text describes a healing tradition focused on the curative powers of

Christian relics. In strong contrast, twelfth- and thirteenth-century medical writings concentrating on the child attempted to provide a coherent theory of the physiology of the child—any child—and especially to explain his apparent predisposition to illness. Although learned medicine, like religious healing, sought in the end to cure the young, the former was concerned with etiology and prognosis and, as a result, provided a direct discussion of the child's physical constitution. At the most fundamental level, an awareness of, and an anxiety over, the child's physical fragility and potential mortality underlies both Rigord's narrative and the entire medical literature on child care.

Just as we lose sight of Louis in the midst of the ceremonies described by Rigord, so also in the learned medical literature, the primary focus of this chapter, we often find emphasis not on the child himself but on those who surrounded him, especially the mother, the midwife, and the wetnurse. Since medical writers often created a narrative of the child's development from conception through birth and the early years of life, it is perhaps not surprising that the figures most closely associated with those phases—all of them women—should also come under close scrutiny. Medical writers, the overwhelming majority of whom were male, recognized and simultaneously problematized the crucial role that women played in fetal and puerile development. This literature reveals an extreme concern over the health of the child, a solicitude that derived from and operated to reinforce an underlying anxiety over women's bodies as sources of pathology and danger. Medical writers often located the etiology of children's illnesses in women's bodily functions and thus justified their emphasis on increased regulation of both the child's caretakers as well as the child himself.

Textual Background

Given the centrality of women's bodies in the processes of fetal growth, childbirth, and breastfeeding, medical writings on childhood in the twelfth and thirteenth centuries were inextricably linked with gynecology. Prior to the development of pediatrics as a distinctive, specialized field in the nineteenth century, child care was often subsumed under women's medicine (*medicina feminarum*). The first post-Hippocratic texts to deal exclusively, though briefly, with children's health appear only in the second half of the thirteenth century. Yet even these sources reveal ambivalence toward the role of women in child care.

A considerable body of literature on children in medicine is evident from the beginnings of the Western medical heritage.⁵ Certainly from the fifth century B.C.E., when the Hippocratic corpus first appeared, there existed substantial though scattered material that treated childhood as a distinct phase of life

requiring its own specific treatment. In this literature, the child's body was singled out for the study of its particular physiology and pathology.⁶

A similar and at times heightened concern for the safety of the child as fetus, newborn, and infant appears in the medical literature written and read in France from 1125 to 1275. In the medical and natural-philosophical literature of this period,⁷ the child emerges as a weak, fragile being in need of much care and attention. It is this theme of the child as feeble and easily susceptible to illnesses, many of them distinctly their own, that provides the backdrop to my discussion. The ideas of the child's humoral imbalance and pathology embody the twelfth- and thirteenth-century mixture of medical theory and observation.

Medical writings stressed that both ends of the age spectrum, childhood and old age, could succumb to pathological conditions or to physical corruption from a variety of sources. With rare but important exceptions, these texts purported to provide a descriptive rather than a moralizing account of the conception, birth, and life of the fetus, infant, and child. The authors' concern was to maintain the child's health through the regulation both of the child and of those surrounding him. While Rigord's account and literary sources usually described only the births and childhoods of exceptional children (e.g., a royal prince or hero of a tale), medical texts attempted to define the limits of normalcy and pathology in the health of "the child," an abstract though generally male figure.⁸

Western Europe before the twelfth century inherited a scattered Latin literature on pediatrics stemming directly from classical sources, especially Hippocratic texts and their glosses. The most extensive sources for pediatric medicine were several translations of Soranus's *Gynaecia* (second century C.E.). A contemporary of Galen, Soranus wrote a practical guide to gynecology, obstetrics, and pediatrics. In the fifth and sixth centuries, two different Latin translations of this Greek work appeared, both coming from North Africa, by Caelius Aurelianus and Mustio.⁹ The Mustio text provided an extremely abbreviated version of Soranus's treatise and was widely available and cited in the thirteenth century, as evinced by quotations in Thomas of Cantimpré's *De natura rerum*¹⁰ and references in the catalogue from the library of Richard of Fournival, chancellor of Amiens in the mid-thirteenth century.¹¹ In his introduction, Mustio claimed that he wrote the *Gynaecia* as a guide for those midwives who could not understand Greek, there being at that time apparently no good Latin texts on obstetrics.¹²

Only with the twelfth and thirteenth centuries did an equally large and comprehensive indigenous literature arise in Western Europe. The cathedral

schools at Chartres and Paris had become active centers in France for the study of natural philosophy and medical theory. Since at least the tenth century, Chartres had been home to a considerable number of scholars knowledgeable in medicine and natural philosophy.¹³ Among those active there in the 1120s was the Norman scholar William of Conches, who in his first major work, the *De philosophia mundi*,¹⁴ incorporated medical and biological theory into a larger vision of the world and its components. William's writings combined platonic thought with the recent resurgence of Greco-Arabic medicine. Only half a century earlier, Constantinus Africanus (died circa 1087) had come to Monte Cassino and translated several Arabic texts previously unknown to the West. This new medical knowledge, heavily indebted to theoretical models provided by the second-century physician Galen, was enlarged on by the school of Salerno, which became established as a medical center in southern Italy not far from Monte Cassino.¹⁵ Some of these writings had appeared in northern France by the early twelfth century and were incorporated into William's work.¹⁶

Several years later, William revised the *De philosophia*, setting it in a question-and-answer format and enlarging it for his patron, the duke of Normandy.¹⁷ William organized the text, known as the *Dragmaticon*, as a conversation between the duke and a philosopher, presumably meant to be William himself, who, from 1144/46 to 1147/49, was tutor to the duke's son, the future Henry II of England. William's revision of the *De philosophia* includes various additions to the section on biological growth and illustrates the state of natural-philosophical thought on human development inspired by Arabic sources before the rediscovery of Aristotle's biological works.

Around 1200, a series of texts from northern Europe known as the *Prose Salernitan Questions* also received its inspiration from the new medical literature made accessible to the West through southern Italy. The collections were largely elaborations of a group of short, easily memorizable verses from Salerno, which the compilers copied into prose in England and in northern France during the thirteenth century, as attested by several manuscripts.¹⁸ The *Questions* represent a later stage than William's writings in the assimilation of Arabic medical knowledge via Salerno. The pediatric and embryological sections, some of which quoted extensively from William, appear in clusters scattered throughout the collection.

Not long after the turn of the thirteenth century, another Eastern phenomenon became influential in the intellectual life of Western Europe: the introduction of the New Aristotle. New Spanish and southern Italian translations of the natural

philosophy in the Aristotelian corpus were available in northern Europe by 1210, at which time several were forbidden from the curriculum at Paris.¹⁹ With the translations of the *De generatione animalium* and the *Historia animalium*, the Latin West had access to a new vision of biology. The Greco-Arabic literature became so influential in medicine and the allied field of natural philosophy that, by the end of the thirteenth century, both Greek and Arabic texts in Latin translation virtually dominated the curricula at Paris and other universities.²⁰

A century after the career of Constantinus Africanus (died circa 1087) in southern Italy, a new center of translations from Arabic sources arose in Toledo. This group of scholars, organized around the Italian translator Gerard of Cremona, brought many Greco-Arabic works of medicine, science, and philosophy to the Latin West for the first time.²¹ Among the many works translated in the 1150s and 1160s were texts by three Arabic writers who would strongly influence scholastic medicine in the following century.²²

One prolific Arabic medical authority, known to the Latin West as Rhazes (Muhammed ar-Razi, died circa 932), wrote two large encyclopedias. One of these works was translated in the twelfth century at Toledo as the *Liber ad Almansorem*, presumably by Gerard of Cremona. The other, known as *Continens*, was translated in 1279 for Charles of Anjou.²³ By the mid to late thirteenth century, Rhazes' works were well known in France, as the quantity of thirteenth-century manuscripts at the Bibliothèque Nationale attests.²⁴ Besides the *Ad Almansorem*, another text by Rhazes, the *De curis puerorum* (also known as the *Practica puerorum*) contained descriptions of and remedies for twenty-four different ailments unique to children.²⁵ Another important Arabic figure instrumental in the development of Western pediatrics was Haly Abbas ('Ali ibn al-'Abbas, died 994), whose *Kitab al-Maliki* appeared twice in Latin translation. Constantinus Africanus translated it as the *Pantegni* while, a half century later, in 1127, Stephen of Antioch retranslated it as the *Liber regalis dispositionis*.²⁶

The most influential Arabic medical text in the West, the *Canon of Medicine* of Avicenna (Ibn Sina, died 1037), attempted to compile all the medical knowledge of the author's Greek and Arabic predecessors into one encyclopedic work. Reconciling Galenic and Aristotelian theories, Avicenna created a massive, well-organized compendium which included theoretical principles first and then discussion of anatomy, diseases, etc.²⁷ The Latin translation of the *Canon* began to gain influence in France around 1220–30. By the end of the century, it was used as the basic book in the medical curricula at Paris and other universities

throughout Europe.²⁸ The material relevant to child care, in the discussion of the ages of man in the first book and in the anatomical sections of book 3, was well-known in the thirteenth-century West.²⁹

The process of assimilation of Arabic medical ideas into Western medical and natural-philosophical knowledge is most apparent in three Western encyclopedias of the early and mid thirteenth century. In his immense collection of knowledge, *De proprietatibus rerum*, the Franciscan preacher Bartholomaeus Anglicus, writing around 1230, exhibited his knowledge of late antique natural philosophy, the early Salernitan medical writings, and the new Aristotelian works.³⁰ He wrote for students and preachers, to provide them with a relatively brief but thorough compendium of scientific and theological knowledge.³¹ Bartholomaeus cited and paraphrased several authorities, including the classical Greek medical writers, Roman natural philosophers, and Arabic encyclopedists. Thomas of Cantimpré, a Dominican preacher, completed his encyclopedic *De natura rerum* during the period 1240–1250. Unlike Bartholomaeus, he seldom quoted directly from his sources and even more rarely identifies the origins of his pediatric sections. While paraphrasing his authorities, the most frequent of whom was Aristotle, Thomas occasionally included his own, often polemical views on various subjects, notably midwives and menstrual blood.

Around 1250, Vincent of Beauvais, royal librarian to Louis IX, completed his massive encyclopedia, the *Speculum maius*, in which he attempted to include all human knowledge. Within the first two volumes of this work, Vincent discusses everything on Earth (and beyond) and, while doing so, quotes from an estimated 2,000 sources and 450 authors, prominent among them Avicenna, Rhazes, and Haly Abbas.³² Vincent often abbreviated the relevant sections in his sources and included only the more theoretical instructions, generally avoiding the practical prescriptions and remedies.³³ His method as a compiler consisted of including quotations from a variety of sources on the same subject, allowing the reader to decide which authority was correct.³⁴

Further evidence of Western acceptance of Arabic medicine as authoritative appears in a vernacular text written in 1256 and known as *Le Régime du corps*. Its author, Aldobrandino of Siena, claimed in the prologue that he composed the work for Beatrice of Savoie, countess of Provence, for use in her travels while visiting her daughters, all of whom had married into the royal houses of Europe.³⁵ Aldobrandino is thought to have been affiliated with the court of Louis IX and to have lived in Troyes until at least 1287, the date of his will. Among the authorities

he mentions in his introduction are two of the familiar Arabic triumvirate, Rhazes and Avicenna.³⁶ In fact, Aldobrandino paraphrased Avicenna's *Canon* and Rhazes' *Ad Almansorem* for most of the pediatric section of the *Régime du corps*.

These texts form the core of the present discussion, which reveals the differences as much as the similarities between the treatises. The previous discussion of each source and its exemplars will indicate the extent to which medical thought was based implicitly and explicitly on a wide variety of classical and Eastern traditions. Each author invoked numerous sources for validation, from William of Conches's use of earlier Greek traditions to the thirteenth-century rise of the Arabic encyclopedists and the New Aristotle as the preeminent medical and natural-philosophical authorities for scholastic writers.³⁷ With each influx of new texts to the West from the eleventh century onward, medical writers found themselves faced with conflicting responses to the same questions, particularly with the tension between Galenic-Hippocratic and Aristotelian notions of embryology and conception.³⁸ Some of the most contentious topics of discussion in these writings revolve around the child's sustenance and return again and again to women's physiological functions.

Embryology and the Question of Nourishment

Medical writers represented the early stages of human existence as fraught with extreme danger from the moment of conception onward.³⁹ They saw the process of generation and maturation as a slow movement away from the total passivity and vulnerability of the fetus or newborn toward the less dependent, more secure condition of childhood and adolescence. Theorists often used embryological development as a forum to answer the question of precisely why human offspring were completely defenseless.⁴⁰ Narratives of fetal development served to identify the various sources of danger for the fetus, the most obvious and problematic of which was the mother's body, which surrounded and fed the fetus.

Medical and natural-philosophical writers attempted to carve out a niche for themselves, one that purported to explain human physiology and pathology by analyzing only internal, corporeal processes. Mustio's text, still copied in the thirteenth century, focused predominantly on the age, health, and psychological states of the parents, stressing rest and digestion as positive factors, and did not address divine or astrological factors. While medical writers were not preoccupied with questions concerning the role of concupiscence and original sin in the process of generation,⁴¹ some explicitly referred, usually disapprovingly, to a belief in astrological influences on fetal development. Others, like William of Conches and

the Arabic doctors, demonstrated an interest in putative astrological influences on the fetus's development.⁴² But by the mid-thirteenth century, Vincent of Beauvais followed his source, the Cistercian Helinand of Froidmont, a twelfth-century critic of astrology, and strongly attacked the belief in the planets' power to determine sex differentiation in the womb.⁴³ Medical writers generally avoided the question of celestial interference and concentrated on the positive and negative influences of terrestrial bodies, especially the maternal body encasing the fetus.

In the narratives of the life cycle, which began with conception and ended with death in old age, a lengthy analysis of the fetus's growth in the womb often followed discussions of conception and sterility.⁴⁴ A dominant theory of conception in the twelfth century, the Hippocratic two-seed theory, posited that the fetus was formed by the heat and moisture of the father's and mother's seeds, which warmed the womb and created a boiling sensation through which the child's materials coalesced.⁴⁵ With this blood from the mother's body, the fetus quickly became encased in a protective covering that enabled it to avoid the first dangers with which it was faced.⁴⁶

The idea of the fetus's increasing viability as it developed was encapsulated in an agrarian metaphor common in classical and later literature. In the *Régime du corps*, Aldobrandino began the eighteenth chapter, which was on the care of pregnant women, with a preface marked by some poignant imagery. The child "who is in the woman's body" is like ripening fruit that "weakly holds onto the tree and may fall as a result of a little wind or rain, and afterward, when the fruit enlarges and holds on strongly and does not fall willingly and when it sees that it is ready, it falls easily like the flower."⁴⁷ The image of the child in utero as fruit hanging precariously from a tree extended back to Galen, as Constantinus believed.⁴⁸ While Aldobrandino's passage and metaphor attributed a considerable amount of agency to the fruit-fetus (note the active voice), most discussions of fetal growth and parturition portrayed the fetus as entirely passive. Despite this image, most medical writers represented the tree (the woman's body), more so than the wind or rain, as the primary source of danger for the ripening fruit.

In fact many medical authors included an extensive discussion of the concern for the fetus, which they considered to be most threatened by the environment it inhabited: its mother's womb. The child, both unborn and born, came into contact with numerous dangers and threats, the most serious of which were thought to be intrinsic to adult female physiological functioning. To the medical authors, the gravid woman's body contained excess substances that could harm the child, the most important being the menses. With one exception (see below), medical

authors concluded that the menses fed the child in utero. In *De philosophia*, William of Conches drew on a long tradition of natural-philosophical questions when he asked, "Why does man not walk when he is born?" Other animals were able to walk at birth, but human beings could not, William argued, because they are "nourished in the womb by menstrual blood," the idiosyncratic assumption here being that other animals did not nourish young in utero through the menses. He added in the *Dragmaticon* that the blood that sustained the fetus before birth was "menstrual and corrupt."⁴⁹ William was by no means the first to suggest that the menses were problematic and debilitating, but he was the first to place such a statement in the midst of an embryological narrative. Earlier natural philosophers—Adelard of Bath, for example, in his *Quaestiones naturales*, written a decade before *De philosophia*—discussed the same question but not in the context of an organized study of human development.⁵⁰ The association of embryology with a negative view of menstrual blood distinguished William's work from prior discussions of embryology and set a precedent for writers over the next century.

Arabic medical authors identified several kinds of menstrual blood, all of which were connected with the child's development. Vincent of Beauvais quoted Avicenna's trifunctional division of gravid women's menses: One type fed the fetus in utero, another was raised to the breasts to become milk, and a third remained in the womb as a superfluity—the amniotic fluid, discharged with the fetus at parturition. Such views were typical of Arabic medical writings, which displayed few negative ideas about menstrual blood but focused rather on its positive functions. In this, Arabic medicine followed Galenic and Hippocratic writings, which similarly ascribed few negative attributes to the menses. Yet the Western medical tradition, even before the integration of Arabic learning and increasingly during the thirteenth century, almost unanimously perceived the menses as problematic, if not harmful, to the fetus.⁵¹ What attributes of the menses troubled Western writers? And, given the frequency of menstrual taboos in Western culture, from what traditions did these ideas stem?

William of Conches in his twelfth-century embryological narrative first mentions menstrual blood after discussing conception. The menses arose from the cold nature of women, who could not "digest well, and so a superfluity remained which [was] purged every month. Upon conception, heat [was] doubled from the fetus, in which better food was digested and such superfluities did not arise as before. Again, because the fetus is nourished by the blood from the womb, it does not need to be purged."⁵² Based on a Hippocratic inequality of the sexes, such a statement presented the menses not as harmful but as the result of feminine

inferiority and an inherent lack of heat. Later writers, however, saw the menses' superfluities as an indication of their harmful nature.

Immediately after defining the menses and their utility in feeding the fetus, William put the question about man's inability to walk at birth, his answer to which suggested that the menses were less innocuous than previously indicated. Unlike later writers, he never directly asked why the menses caused such disability in newborns. Like his definition of menstrual blood, his ideas on sexual differentiation assumed a connection between temperature and quality of nourishment. The fetus would be male if the seed "remains on the right side, because the liver is close to the right side of the womb, [and consequently] the fetus is nourished by better and warm blood and is made male." If the seed lay in the left part, "distant from the font of heat, that is, the liver," the result would be a girl.⁵³ Although its primary purpose is to explain the cause of sex difference, the passage reveals that menstrual blood was perceived as inherently flawed and in need of improvement, which could be provided by heat.

Such a statement echoed Galenic ideas of contrary qualities—hot versus cold, dry versus moist—and reinforced medical views of gender inequality. The belief that women and their bodily fluids were cold and in need of assistance parallels notions central to Aristotelian natural philosophy as understood and expounded in the century following William of Conches. To Aristotelian writers, menstrual superfluities played an even more integral part in the process of generation. Writers who incorporated the New Aristotle in the first decades of the thirteenth century, David of Dinant in particular, stressed the physical inferiority of women and especially their comparative lack of heat during conception. According to the Aristotelian one-seed theory of conception, a mother provided only menstrual blood as unformed matter, to which the male seed brought both heat and the power to transform that matter into a human body: "The woman appears like a child or an imperfect male, and her menses like undigested sperm, retaining its bloody shape owing to the weakness of heat."⁵⁴ David noted that both sperm and menses were superfluities, but that women's fluids were more numerous than men's and retained the color of blood, owing, again, to a "defect of digesting heat."⁵⁵ The child's body thus consisted of menstrual blood, which coagulated into a solid mass through the creative power of male seed. And so, in the Aristotelian system, menstrual blood served both to create and to nourish the child. Despite their differences, William of Conches and the neo-Aristotelians alike defined women and their bodily functions as incomplete (*imperfectae*), weaker copies of a male physiological model. Menstrual blood in particular was inherently flawed, at least in relation to its male counterpart. Its defective nature did not, however,

necessarily imply inherent pathology.

A crucial problem for medical authors lay in women's retention of any superfluous menstrual blood, which could have harmful consequences. Implicit in this idea was the assumption that monthly purgation equated with purification of the body, a necessary removal of a potentially dangerous substance. The cessation of menstrual purging during pregnancy therefore presented a mystery that seemed to demand explanation (where does the blood go?) and a problem that produced anxiety for medical writers. If purgation was necessary for women's health, what did the retention of menses imply about the physical state of both mother and fetus? The *Prose Salernitan Questions* discussed one of the initial consequences of this menstrual retention, the mother's increased desire for food and intercourse: "Why do women in the first and second months from conception desire those things which must not be desired, such as coal and the like? In the other months, however, their appetite is not so irrational."⁵⁶ Related questions suggested that a mother's unusual and excessive desires—a pathological condition inherent to pregnancy—could have negative consequences for the fetus. The power of her imagination began a physiological process by which it transformed the fetus's nourishment and, in the process, changed the embryo's shape. Her inability to satisfy cravings could entail physical deformities to the fetus.⁵⁷ Such statements implied that the menses were potentially dangerous, working in a vicious circle in which they were both cause and effect. It was this process that twelfth- and thirteenth-century writers scrutinized.

All medical writers agreed that the umbilicus carried food from mother to fetus. In considering how the child was fed in the womb, William of Conches described the blood's descent from liver to fetus through nerves in the umbilicus. Blood from this path was "pure" and digested, or concocted, the liver again acting as a purifying agent by boiling off the superfluities.⁵⁸ Here again was an implicit belief that menstrual blood had to be refined through heating in order to provide sustenance. Later authors quoted and continued William's account of the blood's journey. Citing Constantinus's *Pantegni*, Bartholomaeus thought the umbilicus consisted of veins, nerves, and arteries, through which "the fetus attracts and sucks fine blood (*sanguinem subtilem*) and receives breath."⁵⁹

Many authors, influenced in part by William of Conches, emphasized the danger posed by raw, undigested menstrual blood. William stressed the male seed's active role, in particular its heat, in forming the fetus's body, which became differentiated by the heat of both parents. Early on, the dryness produced by heating and thickening "creates a little sack (*folliculum*) containing within itself

the conceived, lest some superfluties, by mixing with that one, corrupt [the fetus]."⁶⁰ The placenta acted as a protective barrier shielding the fetus from the body that contained it. In William's text, heat played a double role in sheltering the fetus, by purifying the menses for nourishment and by creating a protective shell.

The *Prose Salernitan Questions* encapsulate the ambivalence of medical writers toward menstrual blood. While other sources—and other sections of *The Questions*—followed the assumption that the menses fed the fetus, one particular question denied the possibility of such a phenomenon, citing the same language that William of Conches had used to describe the menses:

It is asked, Why are children not nourished by menstrual blood, as is asserted by certain people? Answer: Menstrual blood is corrupt, [and] ought to generate corrupt and fluid humors. Therefore, children are not nourished by menstrual blood, because it is corrupt, since if they were nourished from it, they would be quickly corrupted. (Questio B 306)⁶¹

Directly contradicting the basic assumption of the dominant Western medical tradition, the question reveals the unresolved tension inherent in the Western medical views of menses. If menstrual blood were intrinsically problematic and "corrupting," how could it nourish the child in the womb? For the author of this *questio*, denial was the only solution to this paradox. Other writers did not resolve the apparent contradiction but, on the contrary, heightened the paradox by increasing anxiety over the menses' deleterious effects on the fetus.

Elsewhere in the *Prose Salernitan Questions*, the compiler approached the same subject but this time accepted the theory of menstrual blood as nourishment for the fetus. Concerning the theme of corruption within the womb, he included a discussion of whether a temperate child with an equal complexion (i.e., a perfectly healthy child) could be born. He explained that, although the child was produced by temperate sperm and fed by temperate nourishment, some "menstrual superfluties" polluted the fetus, which therefore was born imperfect—i.e., intemperate or unbalanced "from an accident of weakness."⁶² The newborn's weakness again found its cause in the problematic nature of the menses. Similarly, Bartholomaeus Anglicus, following the main theme of his chapter on fetal development, described menstrual blood as the source of the weakness of, and dangers faced by, the infant. The little infant was "nourished and fed in utero by menstrual blood," from which "lowly and weak material man receives nourishment from the beginning."⁶³ Such disparaging remarks clearly

associated the menses with danger and weakness.

Thirteenth-century encyclopedias articulated more precisely how and why menstrual blood was harmful. Bartholomaeus discussed the menses in book 5 of *De proprietatibus rerum*, not in the general chapter "On blood" but in a section on "the bad property of blood" (V.8: *De sanguinis mala proprietate*). In discussing this "less praiseworthy" blood, Bartholomaeus cited Galen on the retention of the menses as "the cause and occasion of the worst illnesses."⁶⁴

Over the course of the thirteenth century, medical writers combined other, more explicitly negative views of menses with the Galenic and Aristotelian tradition. Various traditions—medical, natural-philosophical, and Christian moral—collided in the Western encyclopedias.⁶⁵ Most importantly, Roman and early-medieval encyclopedic material, reflecting the natural-philosophical traditions that most plainly condemned menstrual blood, reentered medical literature only in the early thirteenth century.⁶⁶ Bartholomaeus and, a decade later, Vincent of Beauvais quoted a famous passage from Isidore of Seville's *Etymologiae*: "On contact with this blood, crops do not germinate, new wines go sour, grasses die, trees lose their fruit, iron is corrupted by rust, air and copper are blackened. If dogs should eat from it, they are made rabid... ." ⁶⁷ Like Bartholomaeus and the later encyclopedists who copied from the *Etymologiae*, Isidore himself was, on the subject of the menses, only a middle link in a chain of transmission dating back at least as far as the early imperial period. Isidore had borrowed this passage from Solinus, a second-century writer, who in turn had abbreviated the material in question from Pliny the Elder's *Natural History* of the first century C.E.⁶⁸ It is important to note that none of the dangers here attributed to menstrual blood were deleterious to human beings. In the same section as this passage, Isidore mentioned menstrual blood only twice and briefly in relation to reproduction but suggested no inherent pathology.⁶⁹ Thirteenth-century medical discussions of the menses based on Pliny, moreover, rarely referred to theological (ultimately Levitical) representations of menstrual blood as unclean and polluting. Both traditions agreed that contact with menstrual blood led to negative consequences, but, while Levitical tradition emphasized both spiritual and physical impurity, medical writings stressed only the physical or material dangers.⁷⁰ By including only the Pliny passage in their texts, the thirteenth-century encyclopedists explained in a purely physical sense the negative attributes found in the writings of William of Conches. Medical authors thus regarded menstrual blood as problematic not because it was spiritually or physically polluting but rather because it was mutable and tended toward "corruption." The menses provided a

needed purge of the nongravid woman's body but were volatile rather than inherently unclean.

The scholastic encyclopedists furthered the discourse on the dangers of the menses, viewing the blood with increasing suspicion. By the mid-thirteenth century, they had taken the Roman natural-philosophers' views of menstrual blood as pernicious and combined those with Arabic practical pediatric material. In the 1240s, Thomas of Cantimpré incorporated his embryological narrative into the final sections of the first book (on anatomy) of *De natura rerum*, immediately after discussing male and female genitalia. In his treatment of conception and embryological development, he combined ideas from Aristotle and William of Conches and quoted extensively from the latter. After repeating verbatim William's account of the liver's purifying power and of the amnion, Thomas gave his own version of the fetus's relations with menstrual blood. Thomas—and Vincent, who quoted this passage in full—elaborated on the importance of the liver and placenta as intermediaries between the menses and the fetus. In the blood's transformation into the embryo's sustenance, the liver's natural heat acted as a purifying agent now deemed crucial to fetal survival:

Therefore, as all the philosophers say, the child lives by menstrual blood, but by the best and purest digested blood, mediated of course by a more pleasant and more agreeable part of the body—that is, the liver. Indeed, if there were no intermediary or not the best intermediary, the menstrual blood would pass through to the child, and through its malignity [the blood] would kill more than nourish [the fetus]. This is evident in some people born such that they have stains on their faces or on another part of the body. Truly this arises from menstrual blood, which, when there is too great an abundance, falls on the child in the mother's womb. And unless the little sack [*folliculus*] of the placenta is the intermediary between the falling blood and the child, [the blood] by penetrating would kill him who is exposed. Nevertheless, from this there remains on the child a stain, which can never be destroyed, even when his skin has been stripped.⁷¹

Thomas made explicit what harm the menses could inflict if the body did not create defenses against them. The stains on and possible death of the child parallel the Isidorean-Plinian mythology of the unnatural havoc wreaked by the menses on the natural world. Thomas combined the liver's two roles as mentioned by William of Conches but showed that both liver and amnion existed for the same purpose: to protect the fetus from the fluid that surrounded and nourished it. The passage underscored the danger by now identifying the menses as a mortal threat.⁷² Thomas (and Vincent) therefore added to the medical

mythology on menstrual blood a new, extensive discussion of the potential for the nourishment's negative impact. The danger was no longer to the external, nonhuman objects—grass, dogs, iron—but to the internal and the human, the fetus. Direct contact with the menses meant certain death to the child.⁷³

Underlying this discussion was a broader medical belief in a close association between women's bodies and pathology. Discussions of sexual differentiation in the womb further demonstrated this affinity between females and ill health. Following the Hippocratic claim that a woman bearing a girl would be discolored, writers created a list of external signs that would allow for proper identification of the fetus's sex prior to birth. Vincent of Beauvais noted Aristotle's remark that a female fetus would be more of a burden to the mother than would a male fetus.⁷⁴ Conversely, a mother's robust health indicated that the child was male.⁷⁵ Although his source, Soranus, denied the argument, Mustio's translation had argued that languid movement, sickly color, and an inflamed left breast suggested the existence of a female child.⁷⁶ By the thirteenth century, discussions of sex differentiation and the association of maternal pathology with female children had become standard fare, particularly in the encyclopedias. Similarly, the womb was pathologized in relation to the fetus. In one of the rare moments when medical writers considered the danger posed by men to fetuses, the *Prose Salernitan Questions* observed that a man could transmit leprosy to his children. Acknowledging that the initial source of the "corruption" is the father, the writer notes, however, that "the womb attracts [the illness] to itself and transmits it into the essence of the fetus."⁷⁷ Through many avenues, medical writers when they considered the fetus's problems almost always focused their attention on the female, particularly maternal, responsibility.

If women's bodies were so inherently unstable and prone to illness, especially during pregnancy, what course of action did medical writers advocate to protect the fetus from the dangerous environment that surrounded it until parturition? How did fears over women's bodily functions manifest themselves in terms of practical medical advice? Avicenna provided a lengthy list of illnesses that indicated conception, suggesting that pregnancy was by definition pathological for the woman involved.⁷⁸ After discussing the dangers faced by the fetus in the womb, the thirteenth-century encyclopedists responded by providing a detailed regimen demanded of the pregnant woman. The Soranian and Arabic texts included detailed advice on maintaining the expecting mother's physical and psychological health through diet, exercise, and leisure activities. Such lists generally concerned themselves with the mother's health only as it was perceived

to influence the fetus. In Bartholomaeus's encyclopedia, for example, the purpose of the lengthy enumeration of prohibited foods—overly acidic or spicy foods that could produce impurity in the fetus's nourishment—was to prevent harm to the child.⁷⁹ Bartholomaeus also included references to the pathology of pregnancy, regardless of the fetus's sex. He listed the mother's illnesses and disturbances during pregnancy—pain due to the fetus's movements, nausea due to the increasing size of the fetus, the pains of parturition.⁸⁰ Similarly, Aldobrandino in his chapter on the care of pregnant women stated that the reader would learn "how each woman ought to maintain herself" in order to avoid the dangers of pregnancy, possibly suggesting that the vernacular text was intended as a self-help book.⁸¹ The author, invoking the authority of "the philosopher" (Aristotle), advised that pregnant women avoid all things overly salty, as the fetus nourished by a mother with such a diet would be born without fingernails and hair. Aldobrandino warned pregnant women to avoid excessive physical and emotional exertion, whether anger, fear, beatings, thoughts, or pleasures.⁸²

Vincent of Beauvais explicitly noted the nutritional dependence of the unborn child on the mother, asserting that the gravid woman's regimen was the child's regimen: "It is necessary that infants and the old ... have their own regimen, since their strength (*virtus*) is weak [and] their natural heat is weak. Therefore we will begin the regimen of infants with the regimen of pregnant women."⁸³ Vincent then quoted Rhazes, Haly Abbas, and Avicenna, commenting on sharp foods—as Bartholomaeus did—which might induce a menstrual flow and therefore sudden miscarriage (*aborsus*).⁸⁴ These sections included material on physical or emotional dangers (exercise, lack of sleep, anxiety) to pregnancy, but again the focus was on proper nourishment. Haly Abbas, the only Arabic medical writer to ascribe negative attributes to the menses, linked the mother's nutrition with fetal health but noted the fetus's extreme fragility in the first four months and his need for proper food, without which he would die.⁸⁵ Careful control of the mother's body, especially her nourishment, could help to ensure the survival of the fetus. Calls for regulation of the mother's habits predated the Western encyclopedias, but such precaution was validated by thirteenth-century anxieties over menstrual blood.

The Trouble with Midwives

For medical writers, the second site of anxiety over the child lay in the difficult and dangerous birthing process. Medical writers dwelled extensively on the dangers of miscarriage, birth, and the first hours of the child's life when he faced

a variety of new dangers. Birth also brought a new perspective on the child, as several authors for the first time attributed an active role to the child as he attempted to enter the world. Discussions of the fetus's activity generally centered on a classical tradition relating to the most propitious time for birth. According to this system, children born in the seventh or ninth month after conception had a strong chance of surviving, while those born in the eighth generally died. William of Conches describes the "long work" attempted by each fetus in the seventh month, based on the idea that the fetus was extremely active then and would have to rest for another month if its attempt to exit the womb failed.⁸⁶ By the seventh month, the fetus was no longer simply the passive recipient of nourishment from the mother's body but actively sought to separate itself from her.

Here we find some indication of the embryo's movement away from passive dependence on the maternal body. Nevertheless, medical writers continued to stress that the fetus at the moment of birth was an extremely delicate object to be handled with care. Concern over the fragility of the child at birth manifested itself in a detailed attention to the mother's needs. Mustio noted that doctors should be careful with pregnant women in the seventh and eighth months, since the seventh was so crucial for the child's vitality and the eighth for the fetus's period of convalescence after its exertions.⁸⁷ The same author drew a strong distinction between the pregnant woman and the woman who was about to give birth. Like the later Arabic and Western encyclopedists, Mustio had detailed the regimen for pregnant women. Unlike the other writers, he included a separate *regimen parientis*, a guide for women in labor. He suggested that a considerable amount of pathology accompanied the birth process, from nausea and "an appetite for unusual food" to the pain of labor itself.⁸⁸ As the time of parturition approached, increasing care was required in attending to the gravid woman.⁸⁹ To restrain the fetus, the mother was to rest and to avoid overeating and sexual intercourse.

Although they recognized the crucial importance of the mother's physical health during birth, medical writers focused their attention and anxiety on the role of another female figure involved in child care, the midwife. Even more than the treatment of pregnant women, the field of obstetrics was perceived as an exclusively female medical trade, practiced by women trained generally in oral traditions of midwifery.⁹⁰ The midwife was responsible for preparing the parturient woman and alleviating the pain and discomfort of the birthing process. The mother's condition, crucial for maintaining the health of the fetus and

newborn, became the midwife's responsibility. Mustio attempted to describe the correct practice of birthing as an aid to midwives. He counseled against giving the mother a cold bath ("it weakens even men and makes the woman's body cold"), which would corrupt the mother's milk and harm the child.⁹¹ Mustio described the birth itself in great detail, particularly the positions of the five women involved: the mother; the midwife; and three attendants (*ministrae*).

The dangers of childbirth for both mother and child demanded a considerable amount of attention from the midwife, whose skills became the focus of the medical writer's concern. While a "natural" birth—the newborn appearing head first—presented little problem for the midwife, any other positioning of the child at birth could be dangerous and even fatal to both child and mother. A number of texts, based on classical precedents, included descriptions and illustrations of the various positions of the fetus at the time of parturition.⁹² Aldobrandino only briefly mentioned some of the possible fetal positions that caused pain and danger to the mother. When he discussed children born dead, he simply noted that one must provoke the woman to deliver "because there is a very great danger."⁹³ The subject of the dead fetus also appeared in the obstetrical sections of Mustio's *Gynaecia* as well as in the gynecological material of the Arabic and Western encyclopedic works. In their discussions of miscarriages and difficult births, some medical writers referred to the possible harm to the mother, commenting that, in cases of mortal danger to the mother, an induced abortion was appropriate.⁹⁴

Even after the child's successful removal from his mother's womb, the midwife's skills were necessary, since entry into the world was traumatic for the newborn. The transition from the warm womb to the cold air of the outside world brought pain, manifested in the child's cry at birth.⁹⁵ Bartholomaeus supplied a more physiological reason for the cry, asserting that various remedies and poultices should be used to protect the newborn's soft flesh, as it was exposed to a new, cold environment.⁹⁶ In this description, the child appears not only completely helpless but also vulnerable to the midwife's incompetence. The primary danger to both mother and child after birth was the cutting of the umbilicus, the separation of the two bodies and the removal of the fetus's absolute dependence on the mother. Mustio mentioned that there was a possibility that both individuals might bleed if the two ends were not bound correctly. Avicenna agreed with Mustio on the immediate necessity to sever the umbilical cord, which must be tied and dressed "lest it cause pain."⁹⁷

However, one medical writer focused on the midwife's manual skills, not simply

out of fear for the child's physical safety but primarily for the newborn's spiritual salvation. In his *De natura rerum*, Thomas of Cantimpré made reference to two reasons the midwife might endanger the lives of both mother and child. He abruptly introduced a critique of the contemporary scarcity of midwives: "But alas, few are found, and therefore many children are miscarried and cannot be born into this life, and so they cannot be reborn into glory."⁹⁸ A midwife's ignorance could not only kill the child but also keep him from being baptized and thus saved.⁹⁹ As dangerous as their inaccessibility was the possibility that the midwives were incompetent. Thomas, unlike his contemporaries, mentioned the tradition of midwifery as a "knowledge" (*scientia*). On the difficult fetal positions at birth, he commented that "we have added these things to our book carefully on account of the danger of miscarriages and the ignorance of midwives."¹⁰⁰ Few medical writers discussed the midwife's role; those who did, like Thomas, indicated a concern over her abilities and the child's future. Women's knowledge and skill were crucial to maintain the physical and, what is more important here, spiritual health of the child.

Neonatal Care: The Nurse's Milk

Although birth was perhaps the most critical moment in medical writings on child care, the sense of danger to the newborn did not disappear after a successful parturition. Although he was perceived as actively attempting to exit his mother's womb, the child returned to a state of dependence and passivity after birth. We have already seen that the twelfth-century natural-philosophical writings (William of Conches's works and the *Prose Salernitan Questions*) attributed the newborn's physical incapacities to the use of menstrual blood as sustenance in the womb. To the writers, the menses had weakened the child's constitution to such an extent that, even after birth, he was almost paralyzed. Other writers suggested that it was not the mother or midwife who posed the greatest threat to the child but a third figure, once again female, who cared for the newborn—the wetnurse.

All the medical writers agreed that the newborn was immensely delicate and not yet fully formed, despite disagreements as to the exact etiology of his weakened state. In Avicenna's definitions of the various ages of adolescence (infancy, the period of teething, childhood, adolescence, and youth), the infant and child appeared as most vulnerable and weak. Infancy consisted of the time when the child could not move or walk while the second stage, focused on dentition, referred to the period "before he is strong."¹⁰¹ Young children were immediately distinguished from other ages by the types of illnesses from which they suffered.

Unlike youths, children, who were of a phlegmatic nature, suffered often from nausea and vomiting.¹⁰² According to Avicenna, who invoked the authority of Galen, children had an excess of warmth, which derived from the parents' semen and allowed the excess of moisture in the child's body to cause the infant's growth. He anchored these theoretical claims in the assertion that "proof is in the softness of their bones, nerves, or limbs."¹⁰³ It was exactly children's unique inequality of complexions, normally a sign of pathology, that led to their physical development.

By far the most common attribute of the newborn's physical state, stressed by most of the medical writers of the twelfth and thirteenth centuries, was softness, the pliancy of the child's body. Aldobrandino commented that the child faced grave danger if the nurse, who must open the infant's ears and nostrils with her finger, has not cut her fingernails.¹⁰⁴ Similarly, to Bartholomaeus, the infant's limbs seemed to be soft and weak. The remedy for that included making the limbs "harder through exercise," a suggestion of particular importance to the male infant.¹⁰⁵ Throughout his section on the moments after birth, Mustio often referred to the infant as "very soft" (*multum mollis*) and easily endangered and therefore in need of much attention and correct care. The child's vulnerability surfaces many times in these passages, particularly in a mention of the ease with which the infant's body could be injured or twisted, even by overly soft blankets.¹⁰⁶

To Bartholomaeus, the child was "by nature" weak (*tenera*) and soft (*mollis*). His limbs were considered easily flexible, so that swaddling clothes were thought to be necessary to restrain them and to prevent their acquiring "various shapes."¹⁰⁷ Bartholomaeus and other medical writers provided this concept of the child's excessive malleability as the main argument for swaddling clothes. Among the descriptions of the child (*puer*), he included the corporeal qualities of this stage of life: "Children are soft of flesh and flexible of body."¹⁰⁸

Throughout the medical texts, the concept of solidification of the child's body appeared as one of the most important aspects of the process of growth. The newborn's situation, despite his vulnerability, had improved considerably, as the fetus was thought to be even more tender.¹⁰⁹ To Mustio, the newborn's body became more firm through bathing, walking, and exercising. Aldobrandino's work on neonatal care closely paraphrased and translated the Latin version of Avicenna's *Canon*. After describing the cutting of the umbilical cord, this vernacular text followed Avicenna and advocated the practice of cleansing the

infant's body with cloth soaked in medicaments in order "to make the navel and whole body warm and hardened, since, as soon as the child is born, its whole body is tender and delicate—it quickly feels warm and cold things, which very quickly harm and can destroy and change its natural shape."¹¹⁰

Mustio's concern revolved around the necessity of bathing, but not to excess, since "frequent bathing produces a wasting body."¹¹¹ He described in detail what he saw as the crucial first few hours of the newborn's life. During his account of the anointing process, Mustio again referred to the soft and pliant nature of the child's body, since one reason for the rubdown was to help shape the limbs into their proper positions.¹¹² Mustio admitted that different infants had different levels of health, as he indicated in his description of swaddling, which should continue "as long as the infant coagulates and is solidified with his whole body, which is accustomed to happen more quickly to those who were born with a good body, later to those who have a weak one."¹¹³ He then described the slow process of uncovering the swaddling clothes after the child's body had solidified.

The *Prose Salernitan Questions* included very few comments on neonatal care. In a question concerning a man who suffered from dryness, the author suggested that fault lay with the wetnurse, who may have improperly positioned the child's members.¹¹⁴ In Avicenna's *Canon*, those in attendance at birth were to cleanse the infant's skin in order to "make his body hard, since, when he is born, all the things in that place that touch [the infant] are harmful to it."¹¹⁵ Like Mustio, Avicenna provided a description of the nurse's duty physically to shape the child. Owing to the softness of its limbs, the child's body had a clay-like malleability that could be carefully manipulated in order to create a form close to the ideal of beauty.¹¹⁶ Others could manipulate the body but, Avicenna commented, the infant's own motions might deform what had been shaped: "He will have to be watched over lest, when he sleeps, his neck or some of his extremities or back are twisted."¹¹⁷ After his bath, the child was "rubbed, pressed, and shaped" and then bound with swaddling cloths.¹¹⁸ Vincent of Beauvais simply quoted Avicenna's text, but Aldobrandino reworked the passages from the *Canon* and gave new emphasis to certain sections. This is most apparent in his discussion of the nurse's duty to shape the child. He included Avicenna's comments about carefully stretching and arranging the limbs, but he then digressed into another metaphor. It was the nurse's job to perform this task: "For just as wax when it is soft takes whatever shape one wants to give it, so children take whatever shape their nurses give them, and, because of this, you should know that they owe

beauty and ugliness in great part to the nurses."¹¹⁹

For Mustio, as for many later writers, each new event in the child's life brought its own new disturbance to the infant, whether it was bathing, anointing, eating, or awakening. Mustio stressed that infants must not eat just before their baths, since "they are detained by various and many weaknesses."¹²⁰ He included a list of possible causes of an infant's tears:

How do we know for what reasons the infant cries, as [for example] for food? One should examine mainly the bandage, if it be tightened or if, while lying, he has twisted a hand or leg or has been punctured by some other thing, or if he cries from an abundance of food or milk. One should also see if too many covers burden him, if he is becoming cold by the lack of them, or if he has been warmed by the sun exceedingly. If he has been punctured by anything, he begins to cry immediately... . If, however, he is pressed by an abundance of food or milk, he will throw himself this way and that and will have a full stomach... . If truly it is some irregularity, he neither wants to drink milk nor does so successfully. Therefore, from the above-mentioned signs, anyone will be able to distinguish among his wailings.¹²¹

The passage provides a lengthy list of the many ways in which the infant in his cradle could be harmed simply by his surroundings.

The duty of vigilance over the newborn, prominent in the quotation from Mustio, ultimately lay with the nurse, hired to tend to the child. The passage just cited also alludes to another function demanded of the female caretaker: the provision of food through breastfeeding. Even more problematic than the nurse's potential incompetence in shaping and swaddling the child was the nature of the wetnurse's milk. The infant's nourishment was a constant site of anxiety to the medical writers. Every source containing extensive pediatric material from the twelfth and thirteenth centuries included at least some reference to, if not a detailed analysis of, the source and quality of milk. The amount of space devoted to testing the milk and curing imperfect lactation indicates that medical writers considered the subject to be of the highest importance. They viewed the child's food, as they had viewed the fetus's nourishment, as a source of both sustenance and pathology.¹²²

In the Western natural-philosophical tradition, milk was menstrual blood that had been heated, coagulated, and whitened by hot air, and it was through that understanding that medical writers connected negative views of menses to their concern over milk.¹²³ The Galenic, Hippocratic, and Aristotelian traditions agreed on this and on the belief that the mother's milk was most appropriate for the

child, strengthening the parallel of menses and milk. However, they recognized that maternal milk was dangerous immediately after birth. In several chapters devoted to the feeding process, Mustio argued that maternal milk could not provide sufficient nourishment after the strain of labor. However, he added that a mother could more lovingly feed the infant, although she should regain her health and give the child to a wetnurse to feed "until [her] complexion ... is made temperate."¹²⁴ Avicenna at first demanded that the mother provide milk for the child, noting that mother's milk most resembled what had previously fed the child—that is, the mother's menstrual blood. But, in Avicenna's view, a wetnurse was necessary because the mother was too weak from her labor to provide milk.¹²⁵ The possibility of corruption at the outset of lactation paralleled the belief that external forces could effect negative changes in its quality. Unlike the menses, too potent unless mediated, the mother's milk was considered malleable and easily transformable into a pathological substance. The birth rendered maternal milk too corrupt and harmful for the child.

Discussions of the transformation of blood into milk revived medical misgivings about menstrual blood. Aristotle, quoted by Bartholomaeus, stressed that milk was a superfluity of the menses (they were already a superfluity), which became milk by being boiled (*decoctus*) in the breasts. This purified blood was regarded as "digested and uncorrupted."¹²⁶ Borrowing from Galen, medical writers perceived the metamorphosis from red liquid to a thicker white substance as part of a process whereby blood was transformed into something closer to the nature of the breasts themselves.¹²⁷ As with fetal nourishment, the active agent was heat—here, the warmth of the breasts rather than of the liver. Bartholomaeus summarized the process, again quoting Aristotle: "The breast, therefore, is a necessary member for the nourishment of the fetus [sic]. [The breast] takes up menstrual blood for the creation of milk, purifies the impure blood, digests, changes, whitens, sweetens, thickens, ...shows corruption, is round, oblong, full of nerves, fleshy, is exposed to the teeth of little children, and is full of cavities or porous."¹²⁸ In the *Pantegni*, Constantinus traced a slightly different path for the milk's journey, locating the transformation in the veins to and from the heart. Constantinus and Vincent stressed that the blood remained in the veins "until it is boiled most perfectly."¹²⁹

Given their apprehension over the maternal body's inability to transform blood into milk just after birth, medical writers agreed that a wetnurse was needed. In more than ten lengthy chapters, Mustio stressed the importance of choosing the correct wetnurse, who must be the right age and have the experience, size,

cleanliness, intellect, and temperament for this job.¹³⁰ Bartholomaeus also devoted a chapter each to the wetnurse and the midwife, particularly how each of these women affected the child after birth. Given the amount of time the nurse would devote to the child, hers was a very important position. Among the nurse's many requirements was the duty that she "apply medicine, so that she may lead the sick child to health."¹³¹

Vincent of Beauvais cited the qualifications for a wetnurse as described by his three pediatric authorities, the Arabic doctors Rhazes, Haly Abbas, and Avicenna. The qualifications according to Avicenna included her age (twenty-five to thirty-five), body size, habits, diet, and emotional state, and the sex of her most recent child, who would be the newborn's milkbrother. Here the child has been pushed to the background as the text concentrates instead on the infant's source of sustenance. The nurse must have given birth to a boy within the previous two months, must have had the child "according to a natural time" (that is, after a proper nine-month pregnancy), and must not have aborted this or any previous child.¹³²

Like Vincent, Aldobrandino followed the *Canon* but incorporated his own concerns through the occasional rewriting of Avicenna's material. Following Avicenna's advice relating to the nurse's previous birthing record, Aldobrandino added that "she should have given birth at full term [and] that she should not have lost her previous child either from beating or from other causes."¹³³ In mentioning the nurse's size and health, Aldobrandino elaborated on the *Canon's* dicta: "You ought to look at the woman so that she resembles the mother as much as she can, and so that she has a good color of mixed red and white ... and is as healthy as any you can find, since sick nurses kill children before the due time."¹³⁴ He saw a direct correspondence between the nurse's pathology and the possibility of extreme danger to the child's life.

In relation to childhood illnesses, milk served two potential functions, as both cause and cure of illnesses. The ambivalence of medical writers about lactation was most readily apparent in a new genre that appeared in the Latin West over the course of the twelfth and thirteenth centuries: the earliest Latin texts exclusively devoted to Practical pediatric care. The Hippocratic *Aphorisms*, well known to Arabic and Latin medical writers, contained a list of illnesses unique to childhood but simply described the pathologies without providing any etiology or cure.¹³⁵ While Mustio briefly treated pediatric illnesses,¹³⁶ it was only with the Arabic encyclopedists that an extensive discussion of practical pediatrics appeared. Rhazes, Haly Abbas, and Avicenna included discussions of a variety of

childhood pathologies, discussing symptomology, prognosis, and cures.¹³⁷ Most important, the quality of milk was a focus of concern in three independent treatises that dealt exclusively with pediatric illnesses. Rhazes' *De curis puerorum*¹³⁸ and two brief Western treatises of the twelfth and thirteenth centuries concentrated on the practical side of children's pathology. The Western texts, *Passiones puerorum* and *Ut testatur Ypocras*, both provide a short list of illnesses and their cures.¹³⁹

In these texts, the wetnurse acquired a further responsibility, to treat infants during times of illness. Avicenna stated from the outset of his lengthy discussion of practical pediatrics that various illnesses (constipation, diarrhea, etc.) were to be cured by changing the wetnurse's diet. In this and other practical treatises on children's diseases, the nurse appeared numerous times as a source of illness. The *Ut testatur* demanded that her diet be watched cautiously: "In the first place, whatever the child's illness, caution must be imposed on the nurse's diet and so exact a diet must be observed, as if the nurse were suffering from the little child's ailment, because nurses' milk that is derived from contrary foods generates an ailment in little infants not previously existing and aggravates one already found."¹⁴⁰ The statement implies a symbiosis between nurse and infant.

Rhazes notes a distinction between two types of illness—"natural" (congenital) and "accidental" (arising after birth).¹⁴¹ Rhazes and Avicenna most often addressed a postpartum external source of diseases, citing in several places the corruption of the nurse's milk as the origin of both the disease and its cure. Rhazes attributed to corrupt milk such illnesses as insomnia, vomiting, diarrhea, some forms of epilepsy, and pustules in the mouth, while Avicenna, who rarely discussed origins, invoked that etiology but once, for colic.

All medical writers agreed that children had weak bodies. Many argued accordingly that strong medication should never be given directly to the child. Instead they more often suggested that it be given to the nurse, through whom the child would thus regain his health.¹⁴² Avicenna stated this emphatically at the beginning of his chapter "On illnesses that occur to children": "The first attention for healing children is to guide the nurse." By this he meant that the nurse should be looked after if either she or the infant were unwell.¹⁴³ By controlling the nurse and particularly her diet, one could, all the writers believed, more easily keep the infant healthy. Avicenna counseled that another nurse be found for those days during which the usual nurse might be receiving some necessary strong medication. Rhazes' text contained more-specific references to the nurse and stated that children must not be given powerful medications, not even with the

nurse as intermediary.¹⁴⁴ His most common suggestion for curing the child's ills through attending to its food source was to purge the nurse's head and body.

However, each author sometimes advocated the application of medicines directly to the child, albeit with great care. Rhazes hinted several times that, just as there were illnesses unique to children, so also there were courses of treatment appropriate particularly to them. In describing eye ailments, he concluded his discussion by stating that children could be cured through the use of medicines that were mentioned for adolescents, youths, and others, adding that they should be used in smaller amounts. Even here, some authors blamed women for the children's diseases. Rhazes claimed that some eye ailments were caused in part by "women [who] put astringent medications on the heads of children."¹⁴⁵ Rhazes stressed that the weakness of children demanded particular attention with regard to dosage, declaring that coughs "ought not to be cured with strong or powerful medications."¹⁴⁶ For the most part, the authors prescribed that soothing lotions and massages be applied to the afflicted parts of the child's body or that curative foods be added to the nurse's or the child's diet. In these texts, each author adamantly stressed the uniqueness of children's pathologies, which paralleled and derived from the special status of children as weak and defenseless creatures entirely dependent on others, particularly the nurse.

One of the many illnesses common to each of the practical pediatric texts will serve to illustrate the differences between the texts and the variety of cures available. Dysentery, the illness from which the four-year-old prince Louis suffered in 1191, appeared in every manual that listed childhood diseases and their cures. There is considerable variety in the different texts' presentation of the ailment. Mustio provided no etiology or name for the illness, but he gave a brief description of the affliction ("if the infant will have loosened his belly") and of the cure, and he specified that the nurse should receive the medication.¹⁴⁷ Rhazes and Avicenna included the most extensive discussions of the etiologies of the disease yet disagreed considerably. In the *De curis*, Rhazes suggested three possible causes for what he called "flowing of the bowels" (*fluxus ventris*)—dentition, the child's exposure to cold when he was swaddled, and milk corrupted by bile and phlegm. He provided an extensive list of signs and cures of the disease. In his *Ad Almansorem*, he mentioned infantile diarrhea in his chapter on the nurse's regimen, stating that a change in the nurse's diet could cure the child.¹⁴⁸ In a similar vein, Haly Abbas provided a long list of curative recipes, using various liquid oral medicaments, plasters placed on the stomach and

ointments rubbed on the belly, and medications to be given to the wetnurse.¹⁴⁹ The two short practical treatises on children's diseases provided various remedies for diarrhea, with no explicit etiology and little symptomology. Both suggested baths in warm water prepared with various herbs and plasters for the belly, although neither mentioned the use of the wetnurse as intermediary.¹⁵⁰

Although he was trained as a doctor, the chronicler Rigord only briefly alluded to the medical tradition (*a physicis dissinteria vocatur*) in his account of the royal child's dysentery. He focused instead on a cure based not on herbal or dietary therapeutics but on miraculous healing. Medical and religious healing were the two main and often competing options available throughout this period.¹⁵¹ One of the most important elements of the account revolved around the use of holy relics and the intercessory power of Saint Denis to cure Louis's illness. Rigord specifically mentioned the belly (*venter*) as the site of contact with the relics. In its focus on the anatomical source of the symptoms from which relief for the patient is being sought, this treatment is reminiscent of the suggestion, in the medical manuals, that ointments be rubbed on the same spot. The use and ceremonial procession of the relics paralleled the miraculous healings described in hagiographical sources. Many such healing processes involved the invocation of and prayers to the holy patron, a pilgrimage to that saint's shrine, and some physical contact between the afflicted person and the relics at the shrine.¹⁵² In contrast, medical writings fluctuated between treating the patient's body (in an external spot approximating the location of the internal illness, the bowels) and treating a perceived source of the problem, the nurse and her milk.

Many sources—not just the practical pediatric treatises—attempted to prevent childhood illness by stressing surveillance of the nurse's milk. The *Practica puerorum* (*Passiones puerorum*) began by emphatically stating that "first one must consider the milk from which the child is nourished, whether it is good."¹⁵³ The treatise noted that one can visually identify milk's malign aspects, and it discussed precisely how to investigate milk's "qualities." From Soranus and the Arabic writers came a much-varied tradition of testing milk, one that involved four of the senses. Some texts suggested use of a rock, sword, or piece of glass; others, a fingernail on which a drop of milk was placed and inspected for thickness, smell, taste, and color. To correct any deficiencies in these qualities, changes in the nurse's regimen were suggested.¹⁵⁴

Medical writers expressed anxiety over the various causes of corruption in milk. Even if the milk were of good quality in the nurse's breast, it could still sour in the child's body if, for example, by rocking the child too violently the nurse caused

the milk to curdle. Avicenna suggested that the newborn be made to cry before nursing in order to release noxious superfluities, which could otherwise complicate digestion.¹⁵⁵ The fear that food could be corrupted appeared also in discussions of exercise for the child. According to Mustio, the infant should be carried before eating, since inactivity tended to cause corruption, or the infant's rejection, of food.¹⁵⁶

The primary cause of bad milk, however, was perceived to be the woman's own physiology. In the *Prose Salernitan Questions*, the writer treating a question about the feeding of the child discussed the poor sustenance supplied to infants by women engaged in prostitution. He asserted that good and pure blood, which here was deemed necessary for the production of nutritious milk, was wasted in the creation of female seed.¹⁵⁷ Bartholomaeus, paraphrasing Constantinus, repeated the warning (*cavendum est*) that "bad milk and corrupt nourishment" could harm the child and lead to a variety of illnesses.¹⁵⁸ The theory here seems to be that like will feed like—that is, that a healthy child must be fed by a healthy nurse. A parallel can be seen in the idea that somehow the child took more from the feeder than food: "And so the virtue of the nurse will complete the defect of the infant."¹⁵⁹ Bartholomaeus offered a maxim: "From the good disposition of nourishing milk, a good consistency of the offspring occurs." He then went on to assert that corrupted blood from the nurse could harm the infant's body.¹⁶⁰

The potential for corruption at the milk's source received the closest attention from medical writers, who accordingly devoted much attention to the nurse's regimen. The apparent power of the mother's or wetnurse's body to influence the child's health led Mustio to suggest extreme monitoring of the woman's actions. In fact, he provided more detail for the regimen of the wetnurse than for that of the pregnant woman. Avicenna's greatest concern in his pediatric writings appeared to be the milk by which the newborn was nourished and particularly its source, the wetnurse. In a chapter on child care, he devoted considerable attention to the quality of the milk and, therefore, to the health and even morality of the wetnurse. Her emotions were extremely important. If "she suffers from bad illnesses of the soul, such as anger, sadness and fear," that will corrupt her complexion and provoke bad milk.¹⁶¹ Avicenna believed that the nurse, through her physical, emotional, or moral weaknesses, could harm the child physically by nourishing the infant with bad or corrupt milk. The author provided a long digression about how to cure bad milk, whether too thick or too thin, whether of fair or foul odor. Mustio, who likewise showed great concern that the milk given to the child always be good and nutritious, also indicated his belief that a woman's

milk was corrupt not from any innate cause (i.e., the menses) but from external causes, including illness, intercourse with her husband, and poor or inappropriate eating and drinking habits.¹⁶²

Like the *Canon*, on which he based this section, Aldobrandino's pediatric material devoted a considerable space to the nurse's regimen. On the subject of the nurse's habits, Aldobrandino included a list of unacceptable emotional states similar to those that the mother was to avoid: anger, sadness, fear, and foolishness. He explained the proscriptions by noting that "these things change the complexions of children and make them become silly and [full of] bad habits."¹⁶³ And so the child could be affected positively or negatively both by the nurse's physical function of breastfeeding and by her emotional state. In Avicenna's *Canon*, the nurse must not have sexual intercourse while feeding a child lest, if she conceived, the blood necessary both to feed the newborn and to nourish the fetus would be lessened, thereby weakening both the born and the unborn children.¹⁶⁴ Vincent, Bartholomaeus, and Thomas all acknowledged the importance of Avicenna's caveats. Yet Aldobrandino heightened this concern for the safety of the child, again reworking a passage from Avicenna and stressing the vital interest of the child. In advising against allowing the nurse to have intercourse while lactating, the writer claimed that "she should not sleep with a man, since it is the thing which most corrupts milk ... because a pregnant woman kills and destroys the child when she breastfeeds."¹⁶⁵ What was simply a danger (*nocumentum*) in the *Canon* has now been transformed into something with fatal consequences. Twice in his text, Aldobrandino mentioned the chances that the child would die because of the nurse's mistakes.

In describing the specific regimens that the mother and nurse must follow, medical writers suggested ways to control the child's health through the use of various women as intermediaries. Focus on the detrimental effects of corrupt milk provided a framework for explaining not only infantile illness but even infant mortality. However, despite the emphasis on the dangers of bad milk and the view of the woman's body (that is, of either the mother or the nurse) as harmful to the child, medical writers expressed a belief that, properly regulated, the mother or wetnurse could produce uncorrupted milk to preserve the child's health and promote its growth.

In contrast to the extensive details on fetal and neonatal growth, there existed far less pediatric material for the period after weaning. Weaning, precisely the moment when the infant was no longer entirely dependent on women's bodily fluids, became an important moment of rupture in the medical narrative of human

life. From this moment onward, the child became increasingly stable and independent. Dentition, the only moment between infancy and puberty that received any attention in medical writings, illustrated this pattern of stability and returned to the idea of solidification. Just as swaddling reflected an attempt to harden and shape the newborn's body, the growth of teeth became a sign of the solidification and strengthening of the child's body without external assistance. Avicenna noted the parallel here between the growth of teeth (and the consequent ability to eat food and forgo the breast) and the ability to walk, both of which were seen as important steps in the child's independence from his caretakers. Avicenna called for extreme care when the child first began to walk and grow teeth. For the first time, the infant was able and allowed to move around on his own. In fact, the author warned that any attempt to force the child's motions could harm his back and legs.¹⁶⁶

While the encyclopedists, Arabic and Western, included extremely detailed instructions for the early stages of human life, they provided far less detail in their discussions of childhood (*pueritia*, ages seven to fourteen) and of the later stages. Aldobrandino's paucity of information on older children implies that this age group was thought to be less vulnerable than the earlier stage and more like the normative adult medical model. In the final chapter of the first book, Aldobrandino did little more than list the ages of man and follow Avicenna's breakdown of *adolescentia* into four categories.¹⁶⁷ For the stage of *pueritia*, he provided little medical advice, stressing instead the need for "good habits," as "this is the age where children retain more and learn good and bad habits; and know that good habits are the protection of the health of body and soul."¹⁶⁸ Only after this caveat did Aldobrandino offer some brief warnings about issues of more obviously medical and physical import. Similarly, Bartholomaeus turned to a discussion of the child's activities, particularly to the idea that children "desire for themselves those things that are harmful and contrary."¹⁶⁹ Some medical and natural-philosophical writers mentioned physical needs and illnesses of older children. William also concluded his discussion of infancy and childhood by stressing that the age was full of heat and humidity—on account of which children desired and required food often—which would enable them to learn discernment. Quoting Rhazes, Aldobrandino in a similar vein declared that children between the ages of seven and fourteen must not drink cold water with meat, "since that could aggravate them too much." Also on dietary proscriptions for children, Aldobrandino forbade milk, fruit, and cheese "as much as you can," for fear of generating stone. In the remainder of their respective sections on children, Aldobrandino and the encyclopedists briefly mentioned the importance of education

and the need for a good instructor to teach and chastise the child, but here they rarely supplied material suggesting the child's frailty.¹⁷⁰ The critical danger posed to the life of the fetus and of the newborn was now replaced by moral concerns over the older child's activities and educational rearing.

Medical writers concentrated on regimens for pregnant women, nurses, and infants more than on child care because they recognized the fetus and the infant to be creatures far more vulnerable and fragile. The child after infancy (from age seven to fourteen, according to Isidore of Seville) was still not as robust as the adult but was closer to adulthood than the entirely dependent infant.¹⁷¹ The child was considered more physiologically stable and capable of resisting the physical corruption that threatened him than was the infant, who was still dependent on his mother's or nurse's milk.

Conclusions

Before the influx of Arabic writings in the eleventh and twelfth centuries, pediatric material appeared only sporadically in the medical literature of the Latin West, the main exceptions being the two latinized versions of Soranus's *Gynaecology* by Mustio and Caelius Aurelianus. William of Conches in the 1120s was one of the first Western writers to single out as his subject the nature of child development and the physiology of the fetus and child. The *Prose Salernitan Questions* contained information on child rearing and embryology, but the contradictory and scattered nature of the collection prevented it from providing a coherent picture. Only with the emergence of Latin translations of Aristotelian natural philosophy around the beginning of the thirteenth century and with the continuing influx and influence of Greco-Arabic works can we observe a more-exhaustive literature on pediatrics and developmental biology.

It was as a consequence of the translation and assimilation of the works of Rhazes and Avicenna that a coherent, Galenic pediatric literature appeared. With the encyclopedic trend of scholastic culture came the first extensive Western attempts at defining and discussing the problems of fetal, neonatal, and infant care in a consistent and detailed narrative.¹⁷² Bartholomaeus Anglicus, Thomas of Cantimpré, Vincent of Beauvais, and Aldobrandino of Siena represented different stages in the assimilation of Arabic medical learning and in the creation of a coherent, indigenous literature. Thomas and Aldobrandino both exhibited an increased concern for the safety of the child, the former stressing the child's complete weakness and vulnerability and the latter rewriting his Arabic sources to emphasize the various threats to the child's life.

During every phase of the fetus's and infant's development, women were singled out as the primary sources of danger. Distrust of women's bodies as sources of neonatal nourishment was joined with concern over the habits of nursing women, and both were linked to moral worries about women's actions and their consequences for children. Despite emphasis on the dangers of bad milk and views of the woman's body as detrimental to the child, medical writers expressed the belief that, were the regimens properly followed, both mother and nurse could produce healthy nourishment to preserve the fetus and child and promote their growth. Medical writers suggested feasible, practical solutions to the vulnerability of the fetus and child to female bodily fluids. This literature nonetheless left the women involved in child care in an ambiguous position. While pregnant, the mother played a clearly essential part in the fetus's growth, yet she could harm it in many ways, intentionally or otherwise. Similarly, after the child's birth, mother and nurse brought both necessary sustenance for life and the possibility of death to the child. Medical literature here expressed a profound ambivalence toward women, who were represented as essential yet dangerous nurturers.¹⁷³

In twelfth- and particularly thirteenth-century medicine, this ambivalence appeared in the intellectual context of the integration and extension of contradictory strands of knowledge: the Greek concept of women as physically weaker than men and the Roman natural-philosophical claim that women's bodies were powerful owing to their potential threat. We must, however distinguish paradox from contradiction. The paradox of women as nurturers and corruptors, creators and destroyers, epitomized the ambivalence of thirteenth-century medical authors toward women. There is no contradiction when these statements are understood within thirteenth-century medical discourse. To medical writers, the female role in child care left fetus and newborn vulnerable to a threat that lay in the inability of women to control their bodily functions and fluids. Women's weakness was synonymous with their threat, their lack of control. Women's strength and threat, also synonymous, lay in the assumption that the menses and milk were not weak but all too potent. Thirteenth-century medical writers followed in a misogynist tradition of medical thought (Hippocratic theories of the wandering womb; Aristotelian ideas of women as imperfect men) in which they tried to biologize the female threat as women's lack of control over their nutritive yet dangerous bodily fluids. There was thus an irresolvable impasse between the child's need for female nourishment and the danger that nourishment posed to him.

Medical literature of the twelfth and thirteenth centuries centered on the child's

inherent disposition toward illness and sought to explain infant and fetal illness and death. Given the reality of high rates of miscarriage and infant mortality, this literature suggested that women's bodies were the source not only of puerile pathology but of the child's weakness and vulnerability as well. Given the necessity of women's bodies in generation, before birth and through weaning, blame for the child's weakness became attached to women's physiological inadequacies or imperfections, particularly the menses. The problematizing of the female body, particularly of the sources of nourishment for fetus and child, heightened thirteenth-century concerns for the health of mother and child alike.

Notes:

Note 1: *Oeuvres de Rigord et de Guillaume le Breton, historiens de Philippe-Auguste*, ed. H. François Delaborde (Paris, 1882), 1:111–12: "Sequenti mense, x kalendas augusti, Ludovicus filius Philippi regis cepit egrotare morbo gravissimo qui a physicis dissinteria vocatur." The standard biography on Louis, Ch. Petit-Dutaillis' *Etude sur la vie et le règne de Louis VIII* (Paris, 1894), contains only the briefest reference to the event, on pp. 2–3. [back](#)

Note 2: Delaborde, 1:111: "Ad tactum clavi et spinee corone et brachii sancti Simeonis per totum ventrem pueri in modum crucis, eodem die ab imminente periculo est liberatus; et pater suus Philippus rex in transmarinis partibus existens, eodem die et eadem hora, a consimili morbo curatus." There was a similarly large celebration when Louis was born: "civitas Parisii in qua natus est, tanto gaudio fuit repleta, quod per septem dies ... populus totius civitatis, laudes debitas solventes creatori suo, ducendo choreas canere non cessavit" (Delaborde, 1:81–82). The chronicle by Guillaume le Breton abbreviated Rigord's account and added simply that Louis was the "little son" of the king (*filius parvulus*) and that the processions and prayers made for Louis caused the "greatest miracle" on account of which "he was restored to the most whole health" (*restitutus est integerrime sanitati*) (Delaborde, 1:192). [back](#)

Note 3: By Philip Augustus's reign, the Capetian dynasty had established itself as the legitimate ruling family of France; hence there was no need for anticipatory association, or crowning of the heir apparent before the death of his predecessor, for Louis VIII. See Andrew Lewis, *Royal Succession in Capetian France: Studies on Familial Order and the State* (Cambridge, Mass., 1981), esp. 37, 81–82. [back](#)

Note 4: I will return to the account of Louis' illness later when discussing children's illnesses. [back](#)

Note 5: Even the earliest literature of "magico-religious medicine," from Egypt and Mesopotamia, reveals a large emphasis on child care and a preoccupation with the birth process itself; see Henry E. Sigerist, *Primitive and Archaic Medicine*, vol. 1 of *A History of Medicine* (Oxford, 1951), 273 and passim. See also A. Peiper, *Chronik der Kinderheilkunde* (Leipzig, 1955), 5–14. [back](#)

Note 6: The material appears sporadically throughout the Hippocratic Corpus and has been described (though with no attempt at thoroughness) in R. Radicchi, "La pediatria nella opere di Ippocrate," *Appunti di storia* (Scientia veterum 125), 115–51, and in L. Stroppiana, "Spunti di pediatria nel Corpus hippocraticum," *Rivista di storia della medicina* 14 (1970): 77–95. There is only one text that deals exclusively with children, *De la dentition*, in E. Littré, *Oeuvres complètes d'Hippocrate* (Paris, 1853), 8:542–49. Apparently no translation of this brief treatise appeared in Latin. However, the embryological text *The Nature of the Child* was available—see P. Kibre, *Hippocrates Latinus: Repertorium of Hippocratic Writings in the Latin Middle Ages* (New York, 1985). [back](#)

Note 7: On the complicated relation of medicine to natural philosophy, see J. Bylebyl, "The Medical Meaning of Physica," *Osiris*, 2nd ser., 6 (1990): 16–41. [back](#)

Note 8: Although, as will be apparent later, writers on medicine often included the miraculous and the unusual, particularly in chapters devoted to "twins and monsters." [back](#)

Note 9: On these translations and their differences, see Monica Green, "The Transmission of Ancient Theories of Female Physiology and Disease through the Early Middle Ages" (Ph.D. diss., Princeton University, 1985), esp. chap. 3. For the edition of Mustio (or Muscio), see Valentine Rose, *Sorani Gynaeciorum vetus translatio latina* (Leipzig, 1882), cited here as Must.; for Caelius, see Caelius Aurelianus, *Gynaecia: Fragments of a Latin Version of Soranus' "Gynaecia" from a Thirteenth-Century Manuscript*, ed. Miriam and Israel Drabkin (Baltimore, 1951), cited here as CA. Caelius's translation had a limited textual history, appearing in only a few manuscripts as a fragment. [back](#)

Note 10: See Christ. Ferckel, *Die Gynäkologie des Thomas von Brabant: Ein Beitrag zur Kenntnis der mittelalterlichen Gynäkologie und Ihrer Quellen* (Munich, 1912), 30–31. Composing his encyclopedic *De natura rerum* in 1230/40, Thomas of Cantimpré borrowed from many of his predecessors, including Aristotle, Avicenna, Pliny, and William of Conches. [back](#)

Note 11: Caelius's text was also known to Fournival. On Richard of Fournival's catalogue, known as the *Biblionomia*, there is a considerable literature. For an edition of the entire catalogue, see L. V. Delisle, *Le Cabinet des manuscrits de la Bibliothèque Nationale* (Paris, 1874), 2:518–35. On the medical works included therein, see Eduard Seidler, "Die Medizin in der 'Biblionomia' des Richard de Fournival," *Sudhoffs Archiv* 51 (1967): 44–54, and for a detailed identification of each text in the library, see A. Birkenmajer, "La bibliothèque de Richard de Fournival, poète et érudit français du début du XIIIe siècle," in *Studia Copernicana I: Etudes d'histoire des sciences et de la philosophie du moyen âge* (Warsaw, 1970), 73–88. [back](#)

Note 12: Must., 3–5. Although the term *obstetrix* here seems to have applied to female medical practitioners in general, it also more often specifically denoted a woman who assisted pregnant women. [back](#)

Note 13: Chartres has received a considerable amount of twentieth-century scholarly attention. See L. MacKinney's *Early Medieval Medicine, with Special Reference to France and Chartres* (Baltimore, 1937) and J. Tribalet, *Histoire médicale de Chartres jusqu'au XIIe siècle* (Paris, 1936). [back](#)

Note 14: He may have taught at Paris or Chartres. The location of his teaching career remains controversial; see P. Dronke, "New Approaches to the School of Chartres," *Anuario de estudios medievales* 6 (1969): 117–40. The best recent biography appears in the edition of William's *Glosae in Iuvenalem*, ed. B. Wilson (Paris, 1980), 75–86, esp. 77, where he dates the *De philosophia* to c. 1120–30. There is no modern critical edition of the *De philosophia*; I use here the edition published (twice) in, *PL* 90.1127–78 (attributed to Bede under the title *Elementorum philosophiae*) and *PL* 176.39–102 (attributed to William's contemporary Honorius Augustodunensis under the title *Didascalicon et historia*), cited henceforth as Conches, Phil. [back](#)

Note 15: The best source on Constantinus and his relation to, and influence on, the School of Salerno remains Paul Kristeller's "The School of Salerno: Its Development and its Contribution to the History of Learning," in *Storia e Letteratura: Raccolta di studi e testi 54: Studies in Renaissance Thought and Letters* (Rome, 1956). On the rise of Galenic theory in Islam and then in the Latin West, see Owsei Temkin, *Galenism: Rise and Fall of a Medical Philosophy* (Cornell, 1973), chaps. 2 and 3. [back](#)

Note 16: On the Chartrian awareness of Salernitan medical writings, see Charles Burnett, "The Contents and Affiliation of the Scientific Manuscripts written at, or brought to, Chartres in the time of John of Salisbury," in M. Wilks, ed., *The World of John of Salisbury* (Oxford, 1984), 127–160 at 129. Burnett shows that Chartres's library contained two medical manuscripts of the twelfth century, one a copy of the central Salernitan corpus, later known as the *Articella*, and the other a set of commentaries on the same texts. On the *Articella*, see Paul Kristeller, "Bartholomaeus, Musandinus, and Maurus of Salerno and Other Early Commentators of the 'Articella,'" *Italia medioevale e umanistica* 19 (1976): 57–87. [back](#)

Note 17: The *Dragmaticon* has no modern edition and appears only in a

sixteenth-century printing, *Dialogus de substantiis physicis: Ante annos ducentos confectus, a Vuilermo Aneponymo philosopho* (Strasbourg, 1567, Minerva rpt. Frankfurt am Main, 1967), cited here as Conches, Drag. In 1141, some of William's statements in the *De philosophia* were declared heretical; he used the introduction to the new work to renounce his old beliefs and declare his orthodoxy. What heretical statements he may have made apparently did not apply to the sections on biology, which retained most if not all of the *De philosophia*'s claims. [back](#)

Note 18: They have been edited as *The Prose Salernitan Questions edited from a Bodleian Manuscript* (Auct. F.3.10), Brian Lawn, ed. (London, 1979, cited here as *PrSalQ*), esp. the Introduction with its list of mss, pp. ix-xiv. The largest collection, which Lawn uses as the basis for his edition, contains 332 questions. For the background on the original questions, see Lawn's earlier work, *The Salernitan Questions: An Introduction to the History of Medieval and Renaissance Problem Literature* (Oxford, 1963), esp. 156–77 which contains an edition of the original verse rendition. Lawn suggests that this English scribe may have possessed a more extensive version of William of Conches's work than we now have in the 1567 edition, *PrSalQ*, p. xv. [back](#)

Note 19: On the translations of Aristotle's works, see Sibyl Wingate, *The Mediaeval Latin Versions of the Aristotelian Scientific Corpus, with Special Reference to the Biological Works* (London, 1931). For the influence of medicine on the intellectual movement, see A. Birkenmajer, "Le rôle joué par les médecins et les naturalistes dans la réception d'Aristote au XIIe et XIIIe siècles," in *Studia Copernicana I: Etudes d'histoire des sciences et de la philosophie du moyen âge* (Warsaw, 1970), 73–88. [back](#)

Note 20: On the importance of Aristotle's biological works in the mid- and late thirteenth century, see Joan Cadden, "The Medieval Philosophy and Biology of Growth: Albertus Magnus, Thomas Aquinas, Albert of Saxony, and Marsilius of Inghen on Book 1, Chapter V of Aristotle's *De generatione et corruptione*," (Ph.D. diss., Indiana University, 1971). [back](#)

Note 21: On the so-called school at Toledo, see Heinrich Schipperges, *Die Assimilation der arabischen Medizin durch das lateinische Mittelalter*, *Sudhoffs Archiv*, beihefte 3 (Wiesbaden, 1964), 85–95, D. Jacquart and F. Micheau, *La médecine arabe et l'occident médiéval* (Paris, 1990). For a list of the works that Gerard's pupils attributed to him (all translations), see K. Sudhoff, "Die kurze 'Vita' und das Verzeichnis der Arbeiten Gerhards von Cremona," [*Sudhoffs*] *Archiv für Geschichte der Medizin* 8 (1914): 73–82, with an edition of the Vita containing the list. [back](#)

Note 22: The best but still very general overview of this material and its relation to pediatrics appears in Helen Lemay's article "Arabic Influence on Medieval Attitudes toward Infancy," *Clio Medica* 13.1 (1978): 1–12. [back](#)

Note 23: See Jacquart and Micheau, *La médecine arabe*, pp. 57–68 on Rhazes' writings and biography. On his reception in the West, see *Ibid.*, 150–64, and Schipperges, *Assimilation*, 90–92. [back](#)

Note 24: See Lynn Thorndike, "Latin Manuscripts of Works by Rasis at the Bibliothèque Nationale, Paris," *BHM* 32 (1958): 54–67. [back](#)

Note 25: There is again no modern edition. Karl Sudhoff reproduced a renaissance edition of the *De curis*; see *Erstlinge der pädiatrischen Literatur* (Munich, 1925), tafeln 2–8, cited henceforth as *De curis*. Translations exist in Italian and English: V. T. Passalacqua, "La 'Practica puerorum' di Rhazes," *Pagine di storia della medicina* 3 (1959): 26–53, and Samuel Radbill's excellent translation, "The First Treatise on Pediatrics," *American Journal of Diseases of Children* 122, no. 5 (November 1971): 369–76. Luke Demaitre, "The Idea of Childhood and Child Care in Medical Writings of the Middle Ages," *Journal of Psychohistory* 4.4 (1977): 461–490 at 464 claims to have found some forty mss of the work and that it is taken from the *Ad Almansorem*, a claim I have yet to substantiate. The text I am using here is culled from a comparison of Sudhoff's reprint and two manuscripts from the Yale Medical Historical Library collection, medieval scientific and medical mss. 4 (fourteenth century, Northern Italy), fols. 151v–153v and 28 (Paneth Codex, c. 1300, Bologna), fols. 332v–336v. All notes will refer to the pagination of the Sudhoff reprint. [back](#)

Note 26: Constantinus's translation can be found in his *Opera Omnia* (Basel, 1536). Stephen of Antioch's full translation appears in a 1523 edition, *Haly filius abbas Liber*

totius medicine necessaria ... regalis dispositionis nomen assumpsit (Lyon, Typis Jacobi Myt), Liber primus Practice, chap. 19–21, fols. 151ra–153va. Stephen retranslated the *Liber regalis dispositionis*, which Constantinus Africanus had in the previous century already translated from the Arabic. See George Sarton, *Introduction to the History of Science*, 2:236–37, and Charles H. Haskins, *Studies in the History of Mediaeval Science* (Cambridge, Mass., 1927), 131–35. [back](#)

Note 27: The *Canon* is too large to describe in any detail here. For a good introduction to the work's organization and its Western redaction, see Nancy Siraisi, *Avicenna in Renaissance Italy* (Princeton, 1987), esp. chap. 2. [back](#)

Note 28: See Danielle Jacquart, "La réception du Canon d'Avicenne: Comparaison entre Montpellier et Paris au XIIIe et XIVe siècles," *Actes du 110e Congrès national des sociétés savantes, Montpellier* (Paris, 1985), pp. 69–77, and Eduard Seidler, *Die Heilkunde des ausgehenden Mittelalters in Paris, Sudhoffs Archiv*, beihefte 8 (Wiesbaden, 1964), 56–62. [back](#)

Note 29: *Canon*, 1.1.3. In quoting from the *Canon*, I have used three sources, there being as yet no modern edition of Gerard's translation: principally Avicenna, *Canon medicinae*, libri 1, 2, 4, and 5, Yale Medical Historical Library, medieval scientific and medical ms. 4 (late twelfth century, Spanish) which I have compared with *Avicenne Liber canonis medicine Cum castigationibus Andree Bellunensis* (Rome, 1524) and *Avicennae principis et philosophi sapientissimi Libri in re medica omnes qui hactenus ad nos pervenire* (Venetiis apud Vincentium Valgrisium, 1564), cited henceforth as *Canon*. There are several translations of the pediatric sections, all from the Arabic. For an English version, see Mazhar Shah, *The General Principles of Avicenna's Canon of Medicine* (Karachi, 1966) and in German, Erhart Kahle, *Avicenna über Kinderkrankheiten im Kinderregimen seines Qanun* (Erlangen, 1979). The Latin translation by Gerard contains many variations on the original Arabic. [back](#)

Note 30: For what little we know about his life, see E. Wickersheimer, *Dictionnaire biographique des médecins en France au moyen âge* (Paris, 1936) and its *Supplément* by D. Jacquart (Geneva, 1979), under Barthélémy Anglicus. On his work, see Lynn Thorndike's *A History of Magic and Experimental Science* (New York, 1923–58), 2:401–35, and G. Se Boyar, "Bartholomaeus Anglicus and his Encyclopedia," *Journal of English and Germanic Philology* 19 (1920): 168–89. The edition I use here is Bartholomaeus Anglicus, *De proprietatibus rerum*, ed. W. Richter (Frankfurt, 1601; reprint, Frankfurt am Main, 1964), cited here as Barth, *Dpr.* Michael Goodich has included a partial translation of some relevant passages in his "Bartholomaeus Anglicus on Child-Rearing," *History of Childhood Quarterly* 3, no. 1 (1975): 75–84. [back](#)

Note 31: See Se Boyar, 178–79. [back](#)

Note 32: The edition I will be using is that of 1624, *Bibliotheca mundi Vincentii Burgundi ... Speculum quadruplex, naturale, doctrinale, morale, historiale* (Douai, Balthazar Bellerus). On Vincent's biography, see the unreliable *Histoire littéraire de la France* (Paris, 1835), 18:449–519. On the statistics for Vincent's sources, see A. J. Minnis, *The Medieval Theory of Authorship* (1984), 155. The three Arabic authors provide the basis for his pediatric sections. [back](#)

Note 33: See a new edition of Vincent's introduction, in Anna-Dorothee von den Brinken, "Geschichtsbetrachtung bei Vincenz von Beauvais: Die Apologia Actoris zum Speculum maius," *Deutsches Archiv* 34 (1978): 410–99, esp. 483–85. Vincent added that, despite their ignorance of Christianity, the pagan writers quoted in the *Speculum* often included ideas on Creation remarkably similar to Christian doctrine. [back](#)

Note 34: *von den Brinken*, 476–77: "... lectoris arbitrio reliquendo, cuius sententiae potius debeat adherere." [back](#)

Note 35: For the modern edition, see *Le Régime du corps de maître Aldebrandin de Sienna: texte français du XIIIe siècle*, ed. L. Landouzy and R. Pépin (Paris, 1911, rpt. 1978), cited here as *Régime*. The most recent review of the literature on Aldobrandino's biography can be found in Enrico Coturri, "La puericoltura de <Le Regime du corps> di maestro Aldobrandino," *Castalia* (1960): 168–75. Beatrice was the mother of Margaret, wife of Louis IX, and Eleanor, wife of Henry III. J.-B. Soalhat's doctoral thesis, published as *Les idées de maistre Alebrand de Florence sur la puériculture* (Paris, 1908), provides a brief descriptive overview of the material in the chapters used here. [back](#)

Note 36: *Régime*, 3–4: "est prouue par les milleurs auteurs ki parolent de ces .iij. sciences devant dites, si com par Ypocras, par Galien, par Constantin, par Jehenniste, par Ysaac, par Aristotele, par Diogenen, par Serapion, par Rasis, et par Avicenne, et autres auteurs que cascun detierminara en sen capitele, li .i. par l'autorite de l'autre." This prologue, in which Aldobrandino is referred to in the third person, asks that all those who see and hear this book (*tout cil ki ce livre verront et orront*) not doubt the author since he used as his "witnesses" (*tiesmoignages*) the various authors of each science. Here *auteur* means authority as much as author. [back](#)

Note 37: Note that, although the majority of thirteenth-century medical writers referred to Hippocrates and Galen as the most important authorities in medicine, very few actually quoted from the two Greeks. In fact, those authors who knowingly quoted from Hippocrates or Galen could easily have found the information in later compendia, particularly the Arabic encyclopedists. [back](#)

Note 38: I do not mean to imply in my cursory discussion of each text that there was a smooth progression from Soranian and indigenous knowledge through Constantinus, Salerno, and Toledo to the incorporation and assimilation of Aristotle and Galen as the main models for natural philosophy and medicine in Western thought. On the contrary, I wish to stress the extent to which writers simultaneously preserved and combined various intertwined though potentially contradictory traditions. [back](#)

Note 39: A warning concerning the terminology used in this chapter: There was in the medical literature an incredible amount of fluidity in the use of terms to describe the fetus/infant/child. In the Latin literature (all but one of the texts used here), the terms *puer* and *infans* were used in the embryological sections, in which case they usually (though not always) meant *embryo* or *fetus*. I know of only one instance in which *fetus* (which means simply *offspring* as well as *fetus* in the narrower modern sense of the term) was used to describe a child postpartum; see CA, 61–62. Although technically, according to the ages of man as described by Isidore and Avicenna (the two most commonly invoked systems), the term *puer* denoted a child (ages seven to ten) in the period following and distinct from infancy (birth to ten years), many authors used *puer* interchangeably with *infans*. See Elizabeth Sears, *The Ages of Man: Medieval Interpretations of the Life Cycle* (Princeton, 1986), 9–37, for an extended study of the history of concepts of the Ages. [back](#)

Note 40: On the various medieval theories of embryology, see Claude Thomasset, "Quelques principes de l'embryologie médiévale (de Salerne à la fin du XIIIe siècle)," in *L'Enfant au moyen âge: Littérature et civilisation*, special issue, *Senefiance* 9 (Aix-en-Provence, France, 1980): 107–21. Recently a considerable amount of research has concentrated on embryology; see *The Human Embryo: Aristotle and the Arabic and European Traditions*, ed. G. R. Dunstan (Exeter, 1990), *passim*. [back](#)

Note 41: See John W. Baldwin, *The Language of Sex: Five Voices from Northern France around 1200* (Chicago, 1994), 116–37. [back](#)

Note 42: On the influence of Arabic astrology on Constantinus and other Western writers, see C. S. F. Burnett, "The planets and the development of the embryo," in Dunstan, 95–112. [back](#)

Note 43: For example, Vince, *Spec. Nat.*, 31:38–39, col. 2320–21: "Haec est sententia Albumasar, ex qua noster astrologus vult probare sexum utrumque a constellatione fieri, sicut et caeteras proprietates quas adiungit. Sed auctoritates et rationes tam Aug[ustini] quam physicorum contradicunt." On the relation of Abu Ma'shar to medieval medicine, see Richard Lemay, *Abu Ma'shar and Latin Aristotelianism in the Twelfth Century: The Recovery of Aristotle's Natural Philosophy through Arabic Astrology* (Beirut, 1962), 50–51. See also 359–63 for Lemay's edition of sections of Abu Ma'shar's works relevant to conception and embryology. See also Joan Cadden, *Meanings of Sex Difference in the Middle Ages* (Cambridge, 1993), 196. [back](#)

Note 44: It is impossible here to discuss all the complexities of the theories of conception held in the twelfth and thirteenth centuries. The best works on the subject to date are M. Anthony Hewson, *Giles of Rome and the Medieval Theory of Conception* (London, 1975) and Danielle Jacquart and Claude Thomasset, *Sexuality and Medicine in the Middle Ages*, trans. M. Adamson (Princeton, 1988, from the French original, Paris, 1985). [back](#)

Note 45: On the Hippocratic theory, see Joseph Needham, *A History of Embryology* (New York, 1959), 31–37; and Prudence Allen, *The Concept of Woman: The Aristotelian Revolution, 750 B.C.—A.D. 1250* (Montreal, 1985), 83–85, 95–103. [back](#)

Note 46: Conches, *Phil.*, p. 90. William allied himself with the prevailing two-seed theory more clearly in his later work, *Drag.*, 239–40. [back](#)

Note 47: *Régime*, 1:18, p. 71: "Pour bien entendre ce ke nous vous dirons, si debes savoir ke li enfes ki est ou cors de le femme est ausi comme li fruis des arbres, car vous vees premierement ke li flors ou li fruis vient qu'il se tient foiblement a l'abre, et par pau de vent ou de pluie chiet, et apries, quant li fruis engrosse, et il se tient fort, et ne chiet mie volentiers; et quant il voit qu'il est meurs, si chiet ausi comme li flors legierement." [back](#)

Note 48: See Constantinus Africanus, *De morborum cognitione et curatione [=Viaticum] in Opera conquisita ...* (Basel, 1536), 133–34. See Herbert Bloch, *Monte Cassino in the Middle Ages* (Rome, 1986), 1:127–34 for a study of Constantinus's works. For Galen's reference to the metaphor of fruit hanging on a tree, see Galen's commentary on Hippocrates' *Aphorisms*, 4.1, in *Claudii Galeni opera omnia*, ed. C. G. Kühn (Leipzig, 1821–33), vol. 17, pt. 2, pp. 632–33. Vincent of Beauvais also used the image, without indicating his source; see Vince, *Spec. Nat.*, 31:54, col. 2332. For earlier agricultural metaphors for fetal development, see *Hippocratic Writings*, ed. G. E. R. Lloyd (London, 1978 ed.), *The Nature of the Child*, esp. 335–41, comparing plants and humans. [back](#)

Note 49: Conches, *Phil.*, 4.14, p. 89: "Inde est quod caetera animalia, ex quo nata sunt, gradiuntur; homo non graditur, quia ex sanguine menstruato homo in utero nutritur." The chapter continued with another comparison between humans and other animals, though this topic was unrelated to the previous, about why women were more libidinous after conception than other animals. Even less related to the chapter title was the subsequent mention of the sexual transmission of leprosy and why women were immune to such transmission but could transmit it to men. [back](#)

Note 50: See questions 38–39 written in the 1110s by the well-traveled Englishman, in *Die Quaestiones Naturales des Adelardus von Bath*, ed. Martin Müller, *Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters*, bd. 31, heft 2 (Münster, 1934), 41–42. [back](#)

Note 51: For an overview, see J. Delaney, M. J. Lupton and E. Toth, *The Curse: A Cultural History of Menstruation* (New York, 1977), 33–42; for medieval views, Charles Wood, "The Doctor's Dilemma: Sin, Salvation, and the Menstrual Cycle in Medieval Thought," *Speculum* 56, no. 4 (1981): 710–27. For early modern ideas, Ottavia Niccoli, "'Menstruum Quasi Monstruum': Monstrous Births and Menstrual Taboo in the Sixteenth Century," in *Sex and Gender in Historical Perspective*, eds. E. Muir and G. Ruggiero (Baltimore and London, 1990), 1–25. Compare Clarissa Atkinson, *The Oldest Vocation: Christian Motherhood in the Middle Ages* (Ithaca, N.Y., 1991), 39–46. Helen Lemay, *Women's Secrets: A Translation of Pseudo-Albertus Magnus' De secretis mulierum with Commentaries* (Albany, N.Y., 1992), also discusses menstrual blood's importance in slightly later medical literature than that discussed here. See Cadden, *Meanings*, passim, for considerable discussion of menses and reproduction. [back](#)

Note 52: Conches, *Phil.*, 4.13, p. 89: "Cum mulier omnis naturalitater frigida sit, calidissima quippe frigidissimo viro frigidior est, cibum non potest bene digerere remanetque superfluitas quae per singulos menses purgatur, menstruumque vocatur. Conceptione vero facta geminatur calor ex fetu, unde melius cibus digeritur, nec tantae superfluitates oriuntur ut prius. Item quia ex sanguine matricis nutritur fetus, non indiget purgatione." [back](#)

Note 53: Conches, *Phil.*, 4.15, p. 90: "Si in dextra parte remaneat, quia hepar est in dextra parte matrici vicinum, meliore et calido sanguine nutritur fetus, masculus efficitur. Si autem in sinistra parte, quae a fonte caloris, id est ab hepate est remota, femina erit." See Cadden (*Meanings*, 170–73), Baldwin (*Language of Sex*, 207), and the older G. M. Nardi (*Problemi d'embriologia umana antica e medioevale* [Florence, 1938], 105–12). [back](#)

Note 54: See *Davidis de Dinanto quaternulorum fragmenta* (ed. Marian Kurdzialek, *Studia Mediewistyczne* 3, [Warsaw, 1963]), 23, 32, 34, 82–83, on the theory of conception, which included an explicit attack on the Hippocratic theory that both men and

women supplied their own seed in the process of generation. See 24, 31 for the statement on women and children as imperfect men: "Videtur autem femina quasi puer siue mas imperfectus et eius menstrua quasi sperma indigestum, sanguineam formam retinens propter debilitatem caloris." For background on David's Aristotelianism, see Enzo Maccagnolo, "David of Dinant and the Beginnings of Aristotelianism in Paris," in *A History of Twelfth-Century Philosophy*, ed. P. Dronke (Cambridge, 1988), 428–42. [back](#)

Note 55: Dinant, p. 23: "Dicit autem ARISTOTELES feminam quodammodo esse marem imperfectum et eius menstruum sanguinem esse indigestum sperma; similem superfluitatem esse sperma viri et menstruum sanguinem mulieris excepto quod superfluitas hec maior in femina est et colorem retinet sanguineum propter defectum caloris digerentis." [back](#)

Note 56: *PrSalQ*, B294, p. 140: "Quare femine primo et secundo conceptus mense non appetanda appetunt, ut carbones et similia; in ceteris autem mensibus non est adeo irrationabilis earum appetitus?" [back](#)

Note 57: *PrSalQ*, B35, p. 19 and P80, pp. 236–37. For the phenomenon beyond the medieval period, see Marie-Hélène Huet, *Monstrous Imagination* (Cambridge, Mass., 1993). [back](#)

Note 58: Conches, *Phil.*, 4.16, p. 90 and *Drag.*, p. 147: "Dicimus quod quibusdam nervis, qui in umbilico sunt matrici coniunguntur, per quos puro sanguine ab hepate matris descendente, nutritur puer et crescit." The *PrSalQ* repeated this phrasing, B25, p. 15. [back](#)

Note 59: Bart, *Dpr.*, 5.47, p. 203, from Constantinus Africanus, *Pantegni* 1.3, in *Opera* (Henricus Petrus, Basel, 1536–39) 2.72: "Est enim vmbilicus secundum Constantinum, ex neruis, venis & arteriis compositus, quo mediante, foetus sanguinem subtilem attrahit & sugit, & per ipsas arterias spiritum recipit." [back](#)

Note 60: Conches, *Phil.*, 4.15, p. 90: "Sed ex seccitate folliculum intra se conceptum continentem creat, ne aliquae superfluitates se illi miscentes, illum corrumpant, hic folliculus cum puero crescit, et oritur." [back](#)

Note 61: *PrSalQ*, B 306, p. 144: "Queritur quare pueri non nutriantur menstruo sanguine ut secundum quosdam asseritur? R. Sanguis menstruus corruptus est, qui corruptos et chimos debet generare humores. Pueri ergo non nutriuntur menstruo sanguine quia corruptus est, quoniam si inde nutrirentur cito corrumperentur." On the earlier quote from one such "certain person," see *PrSalQ*, q. B21, pp. 12–13, q. B21: "Igitur sanguis qui de extra deberet emitti, intra retinetur ut cibus fetus." [back](#)

Note 62: *PrSalQ*, B 228, p. 115: "Licet talis puer ex temperatissimo oriatur spermate et nutriatur ex temperatissimo nutrimento, ex loco tamen conceptionis et menstrualibus superfluitatibus ipsum contingentibus, aliquid non ex natura sed ex accidentalibus debilitatis contrahit, quare minus perfectas habet operationes nisi hec debilitas prius tollatur." The author clearly identifies the womb and menses, and explicitly not the sperm, as the problematic elements. This inquiry appears within another question devoted to the subject of why human offspring cannot walk, talk, stand, sit, or preserve themselves. [back](#)

Note 63: Barth, *Dpr.*, 6.4, p. 237: "Sanguine menstruali in vtero nutritur et fomentatur. Ex tam vili enim materia et infirma, homo recipit a principio nutrimentum." Goodich, "Bartholomaeus," 77. Didier Lett has written a beautiful brief study of the image of the child as weak and incapable of self-protection in literary sources of the twelfth and thirteenth centuries; see "L'Enfance: aetas infirma, aetas infima," *Médiévales* 15 (1988): 85–95. [back](#)

Note 64: Barth, *Dpr.*, 4.8, p. 105: "... sanguine menstruali, qui propter superabundantiam humiditatis, & caloris indigentiam, in mulieribus existens, si vltra debitum retineatur, pessimum [sic] causa est & occasio passionum." [back](#)

Note 65: The only reference I have found of medical writings linking women's monthly cycles with the Christian notion of original sin appears in the work of a woman, Hildegard of Bingen's *Causae et curae* (ed. P. Kaiser [Leipzig, 1903]), in which the author emphatically drew a parallel between Eve's actions in the Garden and menstrual cycles: "Quare menstruum. Cum autem fluxus cupiditatis Evam intravit, omnes venae eius in

fluvium sanguinis apertae sunt. Unde omnis femina procellas sanguinis in se habet." (102). To Hildegard, Eve's temptation ("the flow of cupidity") led to Eve's and therefore all women's menses ("a river of blood"). Michael Scot in the early thirteenth century referred in *De secretis naturae* to original sin without remarking on menstrual blood per se, see part 1, chap. 8 (*Forma foetus generati in matrice*) published in *Alberti Magni De secretis mulierum libellus* (Strasbourg, Lazarus Zetznerus, 1601), 271. The influential—though non-medical—*De miseria humane conditionis* by Lothario dei Segni (later Innocent III), saw a link between Pliny's physical danger and Levitical uncleanness (*Lotharii cardinalis De miseria humane conditionis*, bk. 1, chap. 4, Michele Maccarrone, ed. [Lugano, 1955], 11–12). His combination of "unclean" children and mad dogs connects the two traditions, but medical literature avoids any such connection. [back](#)

Note 66: Given the very common cultural taboos concerning menstrual blood, it is difficult to determine the influence of other, nonmedical negative views of the menses on medical and natural philosophical traditions. Hippocratic writings and other classical medical sources expressed negative views concerning menstrual blood, but never with the virulence exhibited by later (Roman and medieval) writers; on the Hippocratic view, see Ann Hanson, "The Medical Writers' Woman," in *Before Sexuality* (Princeton, 1990), 309–37. [back](#)

Note 67: Bart., *Dpr.*, 5.49, p. 207. Taken from Isidore, *Etymologiae*, 11.1.141: "nam mulier solum animal menstruale est. Cuius cruoris contactu fruges non germinant, acescunt musta, moriuntur herbae, amittunt arbores fetus, ferrum rubigo corripit, nigrescunt aera. Si qui canes inde ederint, in rabiem efferuntur. Glutinum asphalti, quod nec ferro nec aquis dissolvitur, cruore ipso pollutum sponte dispergitur." [back](#)

Note 68: See C. *Iulii Solini collectanea rerum memorabilium*, ed. Theodor Mommsen (Berlin, 1864), 17. Pliny provided an extensive study of the detrimental effects of menstrual blood; see C. *Plini Secundi Naturalis historiae*, ed. C. Mayhoff (Stuttgart, 1967), 7:15, 64–65 = 2:22–23. One theme of the deleterious effects of menses, the power of a menstruating woman to darken mirrors, predated Pliny by several centuries, appearing in Aristotle's *On Dreams* (459b–460a). The mirror motif surfaces in the section on human generation in Arnoldus Saxo's early thirteenth-century encyclopedia; see Emil Stange, *Arnoldus Saxo, der älteste Encyklopädist des dreizehnten Jahrhunderts* (Halle a.S., 1885), 50–51. [back](#)

Note 69: Pliny and Solinus had included their analyses of women's bodies in more general discussions of history, mythology, etc. Isidore on the other hand had attempted a more organized overview of human anatomy, discussing each bodily member in turn. For Isidore's dependence upon earlier medicine and his influence on later medical traditions, see William Sharpe, *Isidore of Seville: The Medical Writings (Transactions of the American Philosophical Society, n.s., 54, no. 2 [1964])*, introduction, esp. 9–23. For a more detailed discussion of the medieval encyclopedists' use of sources and their audiences, see Christian Hünemörder, "Antike und mittelalterliche Enzyklopädien und die Popularisierung naturkundlichen Wissens," *Sudhoffs Archiv* 65, no. 4 (1981): 339–65. [back](#)

Note 70: Lev. 15:19–33 dealt with the physical acquisition (through touch, sexual intercourse, etc.) of spiritual *immunditia*. The *Glossa ordinaria* did not elaborate on physical aspects of this uncleanness, but explicated menstruation as indicative of human sinfulness or as comparable to other types of physical illness Christ could cure; see the gloss on Lev. 15:21; for theological dimensions of menstruation, see Wood, "Doctor's Dilemma." [back](#)

Note 71: Thomas, *De natura rerum*, 1.73, ed. Boese, p. 74; Ferckel, *Die Gynäkologie des Thomas von Brabant*, 28; Vince, *Spec. Nat.*, 31.51, p. 2330: "Vivit ergo puer ut dicunt omnes philosophi sanguine menstruato, sed optime purissimeque digesto, mediante scilicet dulciori atque iucundiori parte corporis id est hepate. Si enim nullo medio, vel non optimo medio transiret sanguis menstruatus ad puerum, potius eum sua malignitate occideret quam nutriret. Quod patet in aliquibus hominibus sic natis, ut habeant maculas in facie, vel alia parte corporis. Hoc enim ex sanguine menstruato fit, qui quandoque nimis abundans super puerum in utero matris cadit. Et nisi secundinae folliculus inter sanguinem cadentem et puerum medius esset, ipsum in nudo contactum penetrando occideret. Restat tamen ex hoc in puero macula, que nunquam etiam cute excoriata potest deleri." Thomas solves the dilemma of the menses' destructive and nurturing properties by describing the fetus's nourishment as *purissime digesto*, while the

Levitical tradition saw the menses as by definition impure. [back](#)

Note 72: Soranus, *Gynecology* (1.58) suggests a threat from the womb's liquids, the remaining urine excreted by the embryo. The sack closest to the fetus (the amnion) protected the fetus from the "pungent and destructive" urine, described as excess material. See Soranus, *Gynecology*, ed. Rose, p. 226, and *Soranus' Gynecology*, O. Temkin, trans. (Batimore, 1956), p. 60. Soranus expressed scepticism over the amnion's existence, though no Latin version included this detail; for Mustio, see Rose, p. 19 ("55. Quid est amnion?"); for Caelius Aurelianus, see *Gynaecia*, ed. Drabkin, p. 33. The translation known as *Liber geneciae ad soteris obsetrix* [sic], ed. Rose, p. 134, only hinted at mortal danger to the child; the translator did not discuss the urine. [back](#)

Note 73: Lemay, *Women's Secrets*, intr. pp. 35, 37, notes thirteenth-century "condemnation" of the menses. I argue not for condemnation but for suspicion and suggest that increased elaboration on views of menstrual blood stemmed from ideas present before the New Aristotle appeared. I do not see William of Conches' writings as "dispassionate" but interpret his statements as an extension of Isidore's views on menstrual blood's dangerous effects (combined with Aristotelian ideas on women's inherent imperfection), moving from the nonhuman to the human. I concur with Lemay that there was a thirteenth-century heightening of interest in women's bodily fluids. [back](#)

Note 74: In Vince, *Spec. Nat.*, 31.42 (De signis mulieris praegnantis), col. 2323. [back](#)

Note 75: One theory argued that the child's sex was determined by the location of the seed in the mother's womb. It was believed that there were seven "cells" in the uterus, which would determine the sex and gender of the child. The fetus who developed in the right-most cell would be male and very masculine, because it was closest, again, to the source of heat (and hence of masculinity), the liver: Conches, *Phil.*, p. 90: "... si in dextra parte remaneat, quia hepar est in dextra parte matrici vicinum, meliore et calido sanguine nutritur fetus, masculus efficitur. Si autem in sinistra parte, quae a fonte caloris, id est ab hepate est remota, femina erit. Si in sinistra, ita quod aliquantulum versus sinistram, plus tamen versus dextram, vir effeminatus. Si in sinistra, ita quod aliquantulum versus dextram, mulier virilis." On the notion of sex differentiation based on the fetus's position in the womb, see Fridolf Kudlein, "The Seven Cells of the Uterus: The Doctrine and its Roots," *BHM* 39 (1963): 415–23, which argues that, although the notion that the male was born on the right side and the female on the left dated back to a pseudo-Galenic text, *De spermate*, the belief in a seven-celled womb appeared first in the writings of the eleventh-century Salernitan school. See also Cadden, *Meanings*, 198, and Baldwin, *Language of Sex*, 207. [back](#)

Note 76: Must., chap. 36, pp. 14-15: "Quae signa sunt quae conceptum infantem masculum aut feminam futuram ostendunt?" It is difficult to define terms such as *infans* and *puer*, both of which were used interchangeably in describing the fetus. [back](#)

Note 77: *PrSalQ*, B 33, p. 18: "Matrix illa ad se attrahit et in essentiam fetus transmittit." Some of the few moments dealing with dangers not derived from the mother appear in the very rare discussions of inheritable diseases, where paternal influence was as important as maternal. See Conches, *Phil.*, p. 88 on "incurable infirmities" of the parents. See also the discussion of gout in *Drag.*, p. 236 and the Aristotelian parallel in *On the Generation of Animals*, 724a. [back](#)

Note 78: *Canon*, 3.2.1, p. 915a–b. Out of all the writings under consideration here, Avicenna's account of "the signs of impregnation," like most of his discussions, was the most detailed and extensive analysis of the subject. [back](#)

Note 79: Each of the three Arabic encyclopedists included at least one section on the pregnant woman's regimen: Rhazes, *Ad Almansorem* 4.27 (fol. 20vb), Avicenna, *Canon*, 3.21.2.2 ("De regimine universali praegnantis", pp. 918–19,) Haly Abbas, *Regalis Dispositionis*, Practica, 1.19 (fol. 151ra). Of the three Latin encyclopedists, only Vincent included such a section, but in doing so, quoted directly from each of the Arabic authors; *Spec. Nat.* 31. 116 (col. 2385) and *Spec. Doc.* 12. 25 ("De regimine corporum debiliu[m], et primo mulierum praegnantium", col. 1088,). [back](#)

Note 80: Barth, *Dpr.*, 6.7. This chapter deals exclusively with the fetal child and its relation to the mother. Only at the end of the chapter was there a reference to the child after birth: "however much the mother endures more serious pains on account of the child, so much more she loves the child after birth and lovingly nourishes and instructs it."

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Note 81: While this may have been the case for much of the work, there are references in the same obstetrical chapter to assistance by a midwife (*saige baile*) that moves beyond the realm of a self-help manual. Also while much of the advice could have been followed by non-practitioners, many of the remedies included terms of Arabic origin, being translations from Avicenna's *Canon*. See e.g. *Régime*, p. 74: "metre par deseure pource de sanc de dragon, et de sarcacol, et de coumin, de mirre, et .i. drapel de lin moullie en oile d'olive" compared with *Canon*, 1.3.1 (fols. 65rb-va): "et sanguinis draconis, et sarcocolle, et cymini, et usnee, ut myrrhe partes sumantur equales, et trite umbilico superponantur," both of which describe the proper manner of treating the umbilicus after severing it. [back](#)

Note 82: *Régime*, p. 72: "Et leur estuet garder de courous, de travail, de pensees, de paour, de batures, et user totes choses de joie et soulas, et ce lor convient faire especiaument au premier et au daierain." The belief in salty foods affecting offsprings' fingernails appears in David of Dinant's notebook (p. 25), and is derived from Aristotle's *Historia animalium*, 583a 23–28. [back](#)

Note 83: Vince, *Spec. Doct.*, 12.25, col. 1088: "Infantium quidem et senum, et ab infirmitate convalescentium corpora, necesse est habere regimen proprium: quia debilis est virtus eorum. Infantium quidem et senum, quia calor eorum naturalis debilis est ... Itaque regimen infantium incipiemus a regimine mulierum praegnantium." [back](#)

Note 84: Vince, *Spec. Nat.*, 31.116, col. 2385. On the issue of contraception in the Arabic sources, see John Riddle, *Contraception and Abortion from the Ancient World to the Renaissance* (Cambridge, Mass., 1992), 118–34. [back](#)

Note 85: Vince, *Spec. Nat.*, 31.116, col. 2385, Haly Abbas, *Regalis dispositionis*, Practica 1:19, fol. 151ra: "In primis namque quatuor mensibus est in ea fetus debilis, et opus est ei cibo. Minuit autem cibum minutio, unde et moritur fetus." [back](#)

Note 86: Conches, *Phil.*, 91: "Dicunt enim physici: quia ante septimum mensem, non est tantus motus, in puero, quod si nascatur, vivere posit... . In octavo mense, motu septimi debilitatus, vivere non potest... ." See also Conches, *Drag.*, 248: "Puer, ut praediximus, septimo mense laborans exire, si non exit, longo labore debilitatur. Unde si tunc exeat, viuere non poterit." The notion that a seven months' child could survive while those born in the eighth could not derived from ancient Greek ideas (dating back to the Hippocratic corpus, esp. the brief treatise *Du foetus de huit mois*, Littré, 7:452–61), see Ann Ellis Hanson, "The Eight Months' Child and the Etiquette of Birth: Obsit omen!," *BHM* 61 (1987): 589–602. See also Barth., *Dpr.*, 6.3, p. 236, quoting from Constantinus's *Pantegni* (actually a translation of Haly Abbas's *Liber regalis dispositionis*). However what to the other authors was a seven months' child he referred to as eight months': "omnem infantem in octo mensibus motum habere, quia si adeo fortis esset ut possit exire, quoquo modo ad vitam conualescit. Si vero non exierit ipso motu debilitatur, ita et patitur, vt in sequenti exiens mense nullatenus conualescat." [back](#)

Note 87: Must., passim. [back](#)

Note 88: Must., p. 15, chap. 37: "Quid est cissa?" and p. 21, chap. 59: "Quomodo separamus dolorem qui de fervura venit ab eo qui de praesenti partu occurrerit?" [back](#)

Note 89: Must., pp. 15–16, esp. chap. 44: "Quomodo mense septimo agenda sunt gravidae mulieres? in omnibus patienter et quiete, ne nimia gestatione pecus iam perfectum foris excutiat, siquidem etiam et septimani nasci possunt." Mustio (through Soranus) here made only tacit reference to the classical notion of the possibility of the seven months' child's survival, yet he implied (unlike William of Conches) that the seven months' child is vulnerable, that such an early birth is undesirable, and that all precaution should be taken to avoid such a situation. On the later quote about the eight months' child, see p. 28, chap. 77: "Quibus mensibus vitales nascuntur? ... unde difficile est aliquos evadere qui octavo mense nascuntur." [back](#)

Note 90: See, among others, Monica Green, "Women's Medical Practice and Health Care in Medieval Europe," in *Sisters and Workers in the Middle Ages*, ed. Judith M. Bennett et al. (Chicago, 1989), esp. 39–40. [back](#)

Note 91: Must., p. 22, chap. 64: "deambulare etiam eas et lavari et cibos accipere

antiqui iubebant. nos vero non permittimus haec fieri, quia ambulatio infantem prope foris positum premit et matricem quassat, lavacrum vero et vires minuit et digestum corpus mulieris infrigidat, cibus autem qui in frigore datur corrumpitur et non nutrit." Note again the invocation of previous voices of authority (antiqui iubebant) and Mustio/ Soranus's subsequent revisionist attack on such claims. [back](#)

Note 92: In book 2 of his text, Mustio returned to the subject of birth, devoting several chapters to the various positions of the fetus as it exited, chaps. 17–18; and Rose, 76–94. For a discussion of dangerous childbirths, see Renate Blumenfeld-Kosinski, *Not of Woman Born: Representations of Caesarian Birth in Medieval and Renaissance Culture* (Ithaca, N.Y., 1990), 16–17, where she does not mention the Latin translations and their variants on the original. [back](#)

Note 93: *Régime*, p. 73: "Et se c'est cose ke li enfes soit mors, si se convient haster de le femme delivrer por ce k'il i a trop grant peril." [back](#)

Note 94: As mentioned above, Mustio's section on the variety of difficult birthing positions appeared verbatim in Thomas of Cantimpré's *De natura rerum* and, through Thomas, in Vincent of Beauvais. For twelfth- and thirteenth-century manuscript illuminations of these positions, see Loren MacKinney, "Childbirth in the Middle Ages, as Seen in Manuscript illuminations," *Ciba Symposium* 8 (December 1960): 232. [back](#)

Note 95: Conches, *Phil.*, p. 91: "et quia in calido et humido nutritus est nascens, et ad dissimile prodiens contrarietatem sentit, vocemque aemulationis emittit, et ideo prima vox hominis est vox doloris." [back](#)

Note 96: Barth, *Dpr.*, 6.4, p. 237: "deinde ad aerem nimis frigidum, vel nimis calidum veniens calamitati et miserie exponitur, quod eius innatus clamor apertissime attestatur." Bartholomaeus then provided a recipe to soothe this, taken again from Constantinus. [back](#)

Note 97: *Canon*, 1.3.1. [back](#)

Note 98: Thomas, 1.74 (De virtute nascitiva), p. 75: "Sed heu! pauce inveniuntur, et ideo multi pueri abortiuntur et non possunt nasci ad vitam, et per hoc non renascuntur ad gloriam." Note that Thomas's concern for the fetus revolved mainly around the state of its soul. Later in the same chapter (p. 76), Thomas made another reference to the inaccessibility of midwives (*si obstetrix gnara scientie obstetricandi inventa non fuerit*) and provided advice on how to handle difficult births, suggesting that pepper be placed near the mother's mouth and nose in order to induce sneezing. [back](#)

Note 99: See chap. 3 below for discussion of the necessity of infant baptism. Some advocated basic training in emergency baptism for all midwives; see *DTC*, "Baptême," 2, cols. 283–84. [back](#)

Note 100: Thomas, 1.74, p. 76: "Hec ideo libro nostro diligenter adiunximus propter periculum abortivorum et ignorantiam obstetricum." The term *abortivum* can mean premature birth, abortion, or miscarriage. [back](#)

Note 101: *Canon*, 1.1.3, fol. 6vb: "et hec quidem est cum membra pueri nondum ad motiones et ambulandum sunt apta: et in etatem dentium plantativam que est post ambulationem et antequam sit fortis: et illud est cum nondum gingive sunt omnibus dentibus replete." [back](#)

Note 102: *Canon*, 1.1.3, fol. 6vb: "Signum autem quod vehementioris istimbre existant est quod neque nausea accidit eis [ijuvenibus] in vomitus neque fastidium quemadmodum contingit pueris propter digestive eorum malitiam... . Egritudines autem plurime que pueris eveniunt sunt frigide et humide et eorum febres phlegmatice et plurimum quod vomunt." Avicenna attributed this idea to one of the various sects with which Galen disagreed: "Hoc quidem sunt duarum sectarum sententie et ipsarum rationes, Galenus vero ambabus sectis contradicit." Perhaps the most detailed study of the child's humoral status in medieval medical writers appears in Angela Giallongo, *Il bambino medievale: Educazione ed infanzia nel Medioevo* (Bari, 1990), 107–22. [back](#)

Note 103: *Canon*, 1.1.4, fol. 7ra: "Et corpora puerorum equali sunt humidiora propter augmentum et hoc quidem nobis insinuat experimentum quod est de mollitie ossuum et nervorum vel membrorum ipsorum." [back](#)

Note 104: *Régime*, p. 75. [back](#)

Note 105: Barth, *Dpr.*, 6.4, p. 237: "omnia eorum membra fricentur praecipue masculorum, quorum membra debent esse propter exercitium duriora." [back](#)

Note 106: Must., p. 30, chap. 81: "Ubi infantem iacere oportet? in loco scilicet mediocriter calido ita ut nihil ibi oleat nec valde sit lucidum, strato concavo et nec valde molli, ut non multum iacendo spina infantis aut collum contorqueatur." [back](#)

Note 107: Barth, *Dpr.*, 6.4, p. 238: "Vnde membra infantilia, propter sui teneritudinem, ad diversarum figurarum susceptionem habent flexibilitatem, et ideo fasciis et aliis ligaminibus congruis infantilia membra sunt liganda, ne torta efficiantur seu aliquam incurrant difformitatem." [back](#)

Note 108: Barth, *Dpr.*, 6.3, p. 238. [back](#)

Note 109: Constantinus Africanus described this most succinctly in his *Pantegni* (the theoretical part of Hali Abbas's *Liber regalis dispositionis*): "Eorum ergo membra videntur esse tenera sed iam nata minus sunt tenera quam cum sint in matris vulva." See Constantino l'Africano, *L'Arte Universale della Medicina (Pantegni)*, Parte I, Libro 1 ed. M. Malato and U. de Martini, 68. [back](#)

Note 110: *Régime*, p. 74: "pour le boutine et pour tot le cors escaufer et endurcir, por ce que si tost que li enfes sera nes tous li cors sera tenres et delies, si sent legierement coses caudes et froides apries, ki trop legierement li grievent et porroient amortir se naturel forme et cangier." [back](#)

Note 111: Must., pp. 35–36, chap. 100: "nam frequens lavacrum tabidum corpus efficit." [back](#)

Note 112: Must., p. 37, chap. 104: "et extendere etiam et curvare similiter pedes singulasque partes corporis ita formare ut quae concava esse debent premantur, quae gracilia vero sunt constringantur, quae extantia, adducantur ... caput vero diligenter rotundum facere, patellas etiam in genibus movere, deinde omne corpus suspendere et deponere et universas partes officiis suis restaurare." [back](#)

Note 113: Must., p. 41, chap. 121: "apud nos vero quamdiu integro suo corpore infans coagulet et solidetur. quod citius evenire solet eis qui bono corpore sunt nati, tardius qui inbecilli." [back](#)

Note 114: *PrSalQ*, Ba88, pp. 184–85: "Vel nutricis fuit peccatum, membra pueri inordinate ponendo." The term *peccatum* here seems to mean 'mistake' rather than 'sin.' The mistake refers back to the description (in Mustio, etc.) of the wetnurse shaping the child's pliant body while swaddling it. [back](#)

Note 115: *Canon*, 1.3.1, fol. 65va: "Causa vero quare nobis necessarium est corpus eius durum facere, est quoniam illico cum nascitur, omnia que ipsum tangunt ei nocitiva sunt, sive calida sive frigida sive aspera sentiat ea, et hoc quidem est propter cutis eius subtilitatem, et propter calorem eius." The term *subtilitas* here refers to delicacy and implicitly vulnerability. In 1284, Armengaud de Blaise translated an abbreviated, versified version, known now as the *Cantica Avicennae*, which contains brief chapters on embryology, obstetrics, the nurse's regimen, and neonatal care; see Avicenne, *Poème de la médecine*, ed. H. Jahier and A. Noureddine (Paris, 1956), 162–64. [back](#)

Note 116: *Canon*, 1.3.1, fol. 65va. The passage eloquently describes the process: "Cumque volumus ut fascietur, nutrix eius membra suaviter tangere debet et quod dilatandum fuerit dilatare, et quod subtiliandum subtiliare, et omne membrum secundum convenientiorem figuram figurare, et hoc totum subtilit compressione cum extremitatibus digitorum, quod quidem multis faciendum erit vicibus." [back](#)

Note 117: *Canon*, 1.3.1, fol. 65va: "Et observandum erit ne cum dormierit, aliquid colli ipsius, aut extremorum eius, aut dorsi torqueatur." [back](#)

Note 118: *Canon*, 1.3.1, fol. 65vb: "Deinde fiat ut in primis super ventrem sui iaceat, postea supra dorsum, et preter hoc totum incessanter fricetur et prematur, et figuretur: deinde ad ipsum cum panno fasciandum est redeundum." [back](#)

Note 119: *Régime*, p. 75: "car tot ausi comme li cire quant ele est mole prent tel forme

c'on li veut donner, ensi li enfant prenent tel fourme ke leur norrice leur doune; et por ce, sachies ke biautes et llaidure a avoir tient a grant partie as nourices." [back](#)

Note 120: Must., p. 39, chap. 111: "Quid enim patiuntur infantes qui ante lavacrum aut in ipso lavacro didam accipiunt? scias eos variis et multis languoribus detineri." [back](#)

Note 121: Must., p. 39, chap. 113: "Quomodo cognoscimus quibus causis ploret infans, ut propter cibos? fasciam principaliter inspicientes ne adstricta sit aut ne iacens manum aut pedem torserit aut aliqua re punctus sit, aut abundantia cibi vel lactis ploret, inspicientes etiam ne aut plurimis coopertoriis gravatus sit aut ne parvitate eorum perfrixerit aut nimio sole aestuaverit. si enim aliqua re punctus est, subito plorare incipit. coopertoria etiam plurima vel parva et visu probantur et tactu ... si autem abundantia cibi premitur vel lactis, huc atque illuc se proicit et plena praecordia habet ... si vero aliqua inaequalitas est, et lac accipere non vult et macrior efficitur. ex praedictis ergo signis omnes ploratus eius separari possunt." [back](#)

Note 122: I by no means wish to imply that the writers under consideration here viewed all women's milk as exclusively and necessarily harmful to the infant. Both in medical and nonmedical writings, there is a considerable literature on the image of milk as both healthful and important. Caroline Bynum, for example, has often made reference to the importance of milk imagery in the twelfth and thirteenth centuries; see her *Jesus as Mother* (Berkeley, 1982) and *Holy Feast and Holy Fast* (Berkeley, 1987). In her work, there is no reference to the pathological possibilities of bad milk. Similarly, most literary sources only discuss the positive aspects of milk as nourishment. See Ferdinand Fellinger, *Das Kind in der altfranzösischen Literatur* (Göttingen, 1906) and Doris Desclais Berkvam, *Enfance et maternité dans la littérature française des XIIe et XIIIe siècles* (Paris, 1981), 50–54. Shulamith Shahar's *Childhood in the Middle Ages* (London, 1990) provides a general discussion of breast-feeding throughout the medieval period, but includes little medical material; see 53–70. Compare Atkinson, *Oldest Profession*, 58–61. [back](#)

Note 123: See David of Dinant, pp. 13, 32. [back](#)

Note 124: Must., p. 31, chap. 88: "Materno lacte nutriendus est infans an mammae?" Note that *mamma* usually meant simply "breast," although here it implied the breast of someone who was not the mother, i.e. a wetnurse. Note that Mustio did not acknowledge any "corruption" in the mother's milk due to its origin as menstrual blood. [back](#)

Note 125: *Canon*, 1.3.2, also in Vince, *Spec. Nat.*, 31.78, col. 2336: "De ipsius lactatione." In the lengthy chapter entitled "De regimine lactationis et remotionis a lacte," Avicenna suggested that a wetnurse should only be utilized for the few days after the birth as the mother rested; however, his detailed notes on the exact characteristics needed in the wetnurse suggest a longer period of employment than simply a few days (as the reference to the wetnurse's conceiving while nursing hints; see below). Note also the difference of opinion here between Avicenna (and William of Conches) and the *Prose Salernitan Questions* (written before the *Canon's* reception in the north), which at one point denied that the menses fed the fetus (*PrSalQ*, B 306, p. 144), as discussed above. [back](#)

Note 126: Barth, *Dpr.*, 4.8, p. 106. [back](#)

Note 127: Barth, *Dpr.*, 5.34, p. 179, quoting Constantinus, *Pantegni*, Loci medici 3, chap. 34, De mammillis, v. 2, p. 77. [back](#)

Note 128: Barth, *Dpr.*, 5.34, p. 180: "Mamilla igitur est membrum nutrimento foetus necessarium, sanguinis menstrualis ad generationem lactis susceptium, & suscepti sanguinis impuri depuratum, digestium, immutatium, dealbatium, dulcoratum, inspissatum, pectoris & cordis defensium, sexus & aetatis discretium, corruptionis monstratum, rotundum, oblongum, neruosum, carnosum, paruulorum dentibus expositum, cauernosum seu porosum." This passage does not match any Aristotelian text and may be Bartholomaeus's abbreviation. [back](#)

Note 129: Constantinus, *Pantegni*, Locus medici 3, chap. 34, v. 2, p. 77, and Vince, *Spec. Nat.*, 28.83, col. 2050. [back](#)

Note 130: Must., pp. 31–35, chaps. 88–99. [back](#)

Note 131: Barth, *Dpr.*, 6.9: "Medicina utitur, ut ad idoneitatem perducatur puerum aegrotantem." Bartholomaeus showed less concern for the positive qualities of the nurse

demanded by Mustio and Avicenna and concentrated instead on her personal care of the child, particularly looking after the child to calm his cries. [back](#)

Note 132: *Canon*, 1.3.3. Although each source specified that the nurse's latest child be male, there is some evidence from thirteenth-century medicine that the milk of a mother who was nursing her own daughter could be considered beneficial. In the *Summa medicinalis* (ed. Paul Diepgen, Leipzig, 1911) of the medical author Gualterus Agilon, there are in the recipes many references to one ingredient most often called "lac mulieris puellam parturientis" (the milk of a mother giving birth to a girl), which appears almost a dozen times (pp. 101, 103, 143, 188, etc.). [back](#)

Note 133: *Régime*, p. 77: "si gardes qu'elle soit acoucie a droit terme, qu'ele n'ait perdu sen enfant devant ou par bature ou par autre cose." Twice in sections describing women, the author invoked the term 'bature,' in this case resulting in a miscarriage. [back](#)

Note 134: *Régime*, p. 76: "Vous devez regarder le femme qu'ele soit samblans a le mere tant com ele puet plus, et k'ele ait boinne couleur meslee de rouge en blanc, ... et soit saine tant c'on porra plus trover, car les maladives norrices tuent ains droite eure les enfans." [back](#)

Note 135: See the Hippocratic *Aphorisms*, which were some of the most widely distributed of Hippocratic texts in the Latin West. See *Hippocratic Writings*, ed. G. E. R. Lloyd (London, 1978 ed.), pp. 215–16. The author included a brief statement concerning prognoses in illnesses just before the age of puberty. Galen wrote a commentary on the *Aphorisms* that included an elaboration of the section on Hippocratic pediatric medicine; see *Claudii Galeni opera omnia*, vol. 17, part 2, pp. 627–40. [back](#)

Note 136: *Must.*, pp. 44–46, chap. 136–41. [back](#)

Note 137: In Haly Abbas's *Liber regalis dispositionis, Practica*, bk. 1, chap. 20, p. 151vb ("Accidunt autem infantibus proprie illis passiones et morbi quos meminit hypocras in libro aphorismo dicens ...") and in the incipit of the brief text *Ut testatur Ypocras in afforismis*, on which see below. [back](#)

Note 138: There is no Arabic version of this text, though sections of Rhazes' *Liber ad Almansorem*, Haly Abbas's *Practica*, and Avicenna's *Canon* contain similar (but by no means identical) material. The text is certainly of Arabic origin, as its incipit (*Sahafati accidit*) and many other non-Latin terms suggest. [back](#)

Note 139: For the *Practica puerorum* (also known by its incipit, *Passiones puerorum adhuc in cunabulis iacentium*), see Karl Sudhoff, "Die Schrift des Cornelius Roelants von Mecheln über Kinderkrankheiten und eine ihrer handschriftlichen Quellen" *Janus* 14 (1909): 467–85. For the *Ut testatur Ypocras* and alternate versions of the *Passiones puerorum*, see Sudhoff, "Nochmals Dr. Cornelius Roelants von Mecheln," *Janus* 20 (1915): 443–58. [back](#)

Note 140: *Janus*, 1915, pp. 451–52: "In primis quaecumque sit passio puerilis, nutrici diaetae cautela pro modo aegritudinis est iniungenda et adeo tenuis observanda, ac si nutrix aegritudinem infantuli pateretur, quia lac nutricum ex cibis contrariis generatur aegritudinem infantulis prius non existentem et inventam prius augmentat." For partial translations of these texts, see John Ruhrah, *Pediatrics of the Past* (New York, 1925), 22–26. [back](#)

Note 141: *De curis* (Sudhoff, Tafeln 3–4): "Et signum naturalis est quoniam cum ea nascitur, signum accidentalis est quoniam advenit post partum." Radbill, in the introduction to his translation, discussed this distinction and chose to translate *naturalis* as "congenital," p. 371. [back](#)

Note 142: See *De curis*, passim and esp. the introduction to Avicenna's *Canon*, 1.3.3: "De aegritudinibus quoque infantibus accidunt." [back](#)

Note 143: *Canon*, 1.3.3: "Intentio praemissa de medicandis infantibus est nutricem regere." This quote begs the question of audience—who should be guiding (*regere* [cf regimen] can also mean more emphatically "to rule" or "to control") the nurse? Is it the father, the mother, or the doctor? Or were these texts used only for scholarly study and for no practical application? [back](#)

Note 144: However, Rhazes claimed at the beginning of the chapter on insomnia that it

occurred in young children "ex corruptione lactis," yet he did not suggest that one obvious preventative measure, given his etiology, would be to cure the milk of the corruption (Tafel 3). [back](#)

Note 145: *De curis*, Tafel 6: "et forte hoc accidit ex medicinis stipticis quas mulieres ponunt super capita puerorum sicut alkana et huiusmodi." Later, in the chapter "De pustulis que accidunt in ore puerorum," Rhazes added that "we will cure [this] with the medications mentioned for the age of youth" (*medicabimus cum medicinis dictis in etatibus iuvenum*, Tafel 6). [back](#)

Note 146: *De curis*, Tafel 6: "Isti enim non debent curari cum forti vel vehementi medicina." [back](#)

Note 147: Must, chap. 141, pp. 45–46. Caelius Aurelianus, who named the ailment *fluor ventris*, typically provided a more elaborate description than Mustio but similarly stressed that the nurse would act as intermediary (CA, 1.169, pp. 61–62). Caelius included a reason for giving the medication to the nurse: "But if the offspring [*fetus!*] will have been milking, since it seems to take support with the nourishment of the breasts, a rule of life suitable to the suffering offspring is to be given to the nurse." [back](#)

Note 148: *De curis*, chap. 15 ("De fluxu ventris puerorum"), Tafel 5b-6a, and *Almanson*, 4.30 (fol. 21rb). [back](#)

Note 149: Haly Abbas, *Practica*, 1.20 (fols. 151rb-152va). In translating the work, Stephen of Antioch often simply transcribed the Arabic term, thereby leaving the text full of herbs and fruits undoubtedly exotic to (and most likely unobtainable by) the Latin reader. [back](#)

Note 150: *Janus*, 1909, p. 478, and *Janus*, 1915, 452–53. [back](#)

Note 151: The tension between medicine and religion as viable methods of healing has received very little attention for the central Middle Ages. Valerie Flint's article "The Early Medieval 'Medicus', the Saint—and the Enchanter," *Bulletin of the Society for the Social History of Medicine* 2 (1989): 126–49 deals only with an earlier period. [back](#)

Note 152: Medical historians have utilized saints' lives for over half a century, though most secondary literature deals with the subject as a social historical source (i.e., to provide information on the diseases and accidents most common at the time). See C. Grant Loomis, "Hagiological Healing," *BHM* 8 (1940): 636–42. R. C. Finucane analyzes the problems involved in such endeavors ("The Use and Abuse of Medieval Miracles," *History* 60 [1975]: 1–10) and most recently in a book devoted to the issue, *The Rescue of the Innocents: Endangered Children in Medieval Miracles* (New York, 1997). Eleanora Gordon's articles have focused on the use of hagiography to study medieval pediatrics for England only; see "Child Health in the Middle Ages as Seen in the Miracles of Five English Saints, A.D. 1150–1220," *BHM* 60 (1986): 502–22 and "Accidents among Medieval Children as seen from the miracles of six English saints and martyrs," *Medical History* 35 (1991): 145–63. I have found a comparably rich number of sources in the hagiography of Louis IX; out of sixty miracles recounted in *Les Miracles de Saint Louis* by Guillaume de Saint-Pathus (ed. Percival Fay, Paris, 1931), more than twenty concern children. [back](#)

Note 153: *Janus* 1959, p. 476: "Primo igitur consideratur lac, de quo nutritur puer, si sit bonum, quod sic dinoscitur." [back](#)

Note 154: Glass, Haly Abbas, *Practica* 1.21: "De electione nutricum," in Vince, *Spec. Nat.*, 31. 79, col. 2337. Rock or sword, *Passiones puerorum*, p. 476. Fingernail, Rhazes in Vince, *Spec. Nat.*, 31. 78, col. 2336. See also Must., pp. 33–34. [back](#)

Note 155: Avicenna, *Canon*, 1.3.1; Vince, *Spec. Nat.*, 31.79, col. 2336. [back](#)

Note 156: Must., p. 40, chap. 117. [back](#)

Note 157: *PrSaIQ*, B 252, pp. 122–23: "In ipsa celebri venerea actione, in spermate bonus sanguis emittitur et purus qui deberet in lac converti unde puer debet nutrir." Here it was acknowledged that women could produce their own seed. However, this statement contradicted the quote that the scribe had borrowed from William of Conches—namely, that prostitutes performed only for money and not for pleasure and so did not produce sperm. Yet the question that was not answered is whether or not the blood that produced milk was menstrual blood; in another passage (B 306), the author denied that it was.

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Note 158: Barth, *Dpr.*, pp. 237–38: "Super omnia cauendum est, ne malo lacte et corrupto nutrimento nutriantur, quia ex viscoso lacte nutriti, pessimas solent incurrere passiones, sicut oris vlcerationem, vomitum, febrem, spasmus, ventris solutionem, et huiusmodi." [back](#)

Note 159: Barth, *Dpr.*, p. 238: "sic infantis defectum suppleat virtus gerulae nutricis, sicut ibidem dicit Constantinus." [back](#)

Note 160: Barth, *Dpr.*, 6.4, p. 238: "Ex bona autem dispositione lactis nutrimentalis, bona fit consistentia prolis, et converso, et ex corruptione sanguinis nutricis necessario laeditur corpusculum pueri vel infantis, et hoc propter puerilis naturae mollitiem." [back](#)

Note 161: *Canon*, 1.3.2, fol. 66ra: "Secundum mores vero suos consideratur, quoniam ipsam oportet bonorum morum et laudabilium esse, que tarde a malis anime passionibus patiatur, sicut ira, tristitia et timore: et reliqua ab istis. Omnes enim iste corrumpunt complexionem." [back](#)

Note 162: *Must.*, esp. p. 35, chap. 98. [back](#)

Note 163: *Régime*, pp. 76–77: "car ces choses remuent les complexions as enfans, et les fait devenir sos et mal acoustumes." The term *coustume* appears in the full sentence three times in various forms and is difficult to define. It seems to apply to the woman's emotional state and so could be translated as "temperament," but later in the sentence it is used to describe those wise nurses with good temperaments (*sages nourices et bien acoustumees*) who are contrasted with bad nurses (*le malvaiste de lor nourrices*). [back](#)

Note 164: *Canon*, 1.3.3, fols. 66va-b: "Nutrici preterea est precipiendum ut temperato utatur et ut nutrientibus boni chimi alatur et ne ullo modo aliquis cum ea coeat: hoc enim sanguinem permiscet menstruum, et lactis odorem corrumpit, et ipsius minuit quantitatem, immo fortasse impregnatur in quo nocumentum duobus attinens filii existit." [back](#)

Note 165: *Régime*, p. 77: "et soi garder qu'ele ne gise a homme, car c'est li cose qui plus corrunt le lait, et por cou qu'ele ne deviegne encainte, car femme encainte quant ele alaite tue et destrait les enfans." [back](#)

Note 166: *Canon*, fol. 67ra: "Cum autem ambulare inceperit, et moveri, duris motibus non erit permittendus, nec ad ambulandum, et sedendum est ponendus antequam secundum naturam ei desiderium fiat, ne cruribus ipsius, et dorso nocumentum accidat." [back](#)

Note 167: *Régime*, pp. 79–80, chap. 20: "Comment on doit le cors garder en cascun aage." Aldobrandino even used the Latin terms with which Gerard of Cremona had translated Avicenna's Arabic (*infantia*, *dentium plantatura*, *pueritia*, and *adolescentia*). [back](#)

Note 168: *Régime*, p. 80: "c'est li aages ou li enfant detienent plus et aprenent les boines costumes et les malvaies costumes; et sachies que boinnes costumes sont garde de la sante du cors et de l'ame." Again, the term *coustume* seems to indicate "manners" or "habits," although it could also indicate temperament. [back](#)

Note 169: Barth, *Dpr.*, 6.5, p. 239: "[pueri] sibi noxia et contraria desiderant." This statement ties in with another discourse about children's irresponsible behavior and unique priorities (desiring apples over gold, etc.). Bartholomaeus quickly condemned all of these puerile actions as morally reprehensible: "Item paruuli pueri sepius malos habent mores." [back](#)

Note 170: *Régime*, p. 80. This movement around age seven from the female world of nurse and mother to the male world of tutor and father is a commonplace in the twelfth- and thirteenth-century literature on pedagogy. Note also that Aldobrandino was discussing only the male child here, since although girls often received some instruction, they would not have gone to "l'escole" to study under a "maistre." [back](#)

Note 171: In all my research, this observation comes closest to the controversial Ariès thesis, which suggests that the Middle Ages treated children—as opposed to newborns and infants—as little adults. Ariès argued mainly from art-historical sources rather than

medical materials. See *Centuries*, p. 33 and passim. [back](#)

Note 172: Soranus's works did not provide much discussion of embryology and stopped with neonatal care. Only with the introduction of the Arabic encyclopedias (Rhazes, Avicenna, and Haly Abbas) does there appear an equally well-organized and complete discussion in Western writings (Bartholomaeus, Thomas, Vincent, Aldobrandino). [back](#)

Note 173: This ambivalence toward women parallels the findings of Penny Schine Gold, *The Lady and the Virgin: Image, Attitude, and Experience in Twelfth-Century France* (Chicago, 1985), esp. chap. 1, "Secular Image: Women in Chansons de Geste and Romance." [back](#)
