"That Monster of Nature": Gender, Sexuality, and the Medicalization of a "Hermaphrodite" in Late Colonial Guatemala

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Abstract. In Guatemala City in 1803, the court of the Royal Protomedicato requested that the physician Narciso Esparragosa examine Juana Aguilar, called by the court a "suspected hermaphrodite," as part of the legal proceedings against her for double concubinage with men and women. This essay considers Esparragosa's report on Aguilar's sexual ambiguity and his efforts to classify her. The first section analyzes the scope and purpose of the report and places Esparragosa's anatomical and physiological assertions within the context of Enlightenment-era understandings of sexuality and sexual difference. The second section traces how Esparragosa built the argument that led him to classify Aguilar and her ambiguous sexuality into a separate category of "neither man nor woman." Throughout his medical report, Esparragosa appropriated the language of monstrosity to underpin his characterization of Aguilar's sexual and physical difference, recast in gendered and racialized terms. He used these assertions to make certain claims of categorization that attempted to naturalize the female genitalia and to argue that female anatomical and physiological ambiguity led to sexual deviance.

In Guatemala City in 1803, the criminal court began prosecuting Juana Aguilar for the crime of double concubinage with men and women. As the court pursued the case against Aguilar, whose sexual ambiguity quickly came to the fore, the judge referred the matter to the court of the Royal Protomedicato, the bureaucracy that regulated medical and health issues in the colonies. The Protomedicato requested that the physician Narciso Esparragosa examine Juana Aguilar, called by the court "a suspected hermaphrodite," and present his findings.[1]

Esparragosa, in a meticulously written medical report, noted that at first glance Aguilar's external genitalia appeared "the same as in every

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woman," except for what he described as an enlarged clitoris that he measured to be an inch and a half long. A further physical examination of Aguilar revealed that the skin of the vaginal area was "stuck together." And, to his expressed surprise, Esparragosa discovered near the clitoris what he called "two glandular bodies, with an oval shape, of the size of a cacao bean." He judged these to be either misplaced ovaries or incompletely formed testicles. Esparragosa submitted his report on Aguilar to the Protomedicato court. The *Gazeta de Guatemala*, a colonial-era newspaper, published it over two issues under the headline "Hermaphrodites" (*Hermafroditas*).

The Audiencia of Guatemala, which in the colonial period stretched from what is today the Mexican state of Chiapas through much of Central America, is an important but largely overlooked site to analyze the material and ideological interactions surrounding medicine and healing in colonial Latin America. At the time of Juana Aguilar's legal case, the capital, Nueva Guatemala, had a medical school, public health board, medical court, hospitals, and active formal and popular medical cultures. The community of physicians, healers, and scientists practicing in colonial Guatemala, in which Esparragosa played a major role, was neither insular nor parochial. Its members engaged with broader issues facing health policy and medical practice, not only in Central America, but also in the Spanish Empire and Europe. The case of Juana Aguilar and Esparragosa's proposed framework to define sexual difference drew on his medical experiences in Guatemala, while at the same time he placed his findings within the context of the larger intellectual debates about sex difference and sexuality of the Enlightenment era and its aftermath.[2]

This essay in two parts considers Esparragosa's report on Juana Aguilar's sexual ambiguity and his efforts to classify her. The first section analyzes the scope and purpose of Esparragosa's report and places his anatomical and physiological assertions within the context of Enlightenment-era understandings of sexuality and sexual difference. In the report, Esparragosa asserted not only that Juana Aguilar was not a hermaphrodite, but that the hermaphrodite, what he called "that monster of nature," was a fiction perpetuated by certain mistaken learned physicians, anatomists, and philosophers, as well as an example of the ignorance of "the common people."[3] Through his report debunking the hermaphrodite and its publication in the *Gazeta de Guatemala*, Esparragosa strove to establish his place among other Western medical physicians in what he called "this new century of learning," based on his experience in healing cultures of colonial Central America.

The second section traces how Esparragosa built the argument that

led him to classify Juana Aguilar and her ambiguous sexuality in a separate category, not as "man and woman" (which is how he defined a hermaphrodite) but as "neither man nor woman." Esparragosa's categorization relied on the juxtaposition of the anatomy and physiology of the female genitalia, and particularly the clitoris, in what he called its "natural state." He contrasted this with a description of Aguilar's ambiguous genitalia and her enlarged clitoris.

Throughout his medical report to the Royal Protomedicato, Esparragosa appropriated the language of monstrosity to underpin his characterization of Aguilar's sexual and physical difference, recast in gendered terms to make certain claims of categorization. This new categorization hinged on an attempt to naturalize the female genitalia, and in particular the clitoris, that could then be used as a contrast to other women's "deformed" and "excessive" physical bodies and body parts, and to make claims about the potential for sexual deviance based on women's anatomy and physiology. Esparragosa's reconfiguration of ideas of monstrosity to depict anatomical and physiological ambiguity and outline its tendency to sexual deviance, placed within the context of scientific frameworks and language of sexuality, worked to legitimize medicine's authority, and his own as a medical practitioner, to judge cases of sexual ambiguity.

In the process, the medical description of Aguilar and her anatomy became a way to circulate explicit information about male and female genitalia and their physical functions. It also became a means to circulate information about Aguilar's exotic, exceptional body, both to the legal court and to the broader public. The representation of Aguilar and her body for the cause of medicine and scientific inquiry effectively put her on public display, in a way that informed readers about scientific and medical analytic processes and at the same time entertained them with anatomical details of women's bodies and racialized claims about certain women's sexual proclivities.

Debunking the Monstrous Hermaphrodite

Hermaphroditism and other physical expressions of sexual ambiguity are today known as intersexuality and can be attributed to genetic or hormonal anomalies.[4] In historical analyses of cases of intersexuality, the use of gendered pronouns proves a difficult issue. This is especially the case here, as so far I have not found any legal testimony or other information that recorded Juana Aguilar's own words. For purposes of this essay, I will refer to Aguilar as "she." Aguilar's given name, as recorded in Esparragosa's medical report, is feminine, and he refers to her as "La Juana"

and "she." Aguilar is also briefly described as wearing female clothing.[5] In addition, Esparragosa referred to Aguilar in the report as "Juana La Larga," which appears to be in reference to the size of her clitoris, as this nickname roughly translates into "Long Juana."[6] She was commonly known as "Juana La Larga," as rumors of her sexual ambiguity had spread throughout the capital city, presumably also fueled by the publication in the newspaper of Esparragosa's medical report. The documents do not record Aguilar's age, race or ethnicity, genealogy, or family life; nor do they shed light on the resolution of the legal case.

Esparragosa was a rising star in medicine who eventually became head physician of the Protomedicato, the medical court of colonial Central America. Born in Venezuela, he emigrated to Guatemala in 1785. He studied medicine under the premier late-eighteenth-century physician José Flores at the University of San Carlos in the capital city of Santiago (now Antigua).[7] Esparragosa came to hold a chair in the medical school at the university and performed new surgeries such as the first successful cataract operation in Central America. He also invented new medical tools and instruments including the *asa elástica*, rubber forceps designed to aid in the delivery of healthy infants in difficult births. He also helped manage the anti-smallpox campaigns of the late eighteenth and early nineteenth centuries. He published on his research in Guatemala and Europe. At the height of his career, Esparragosa was arguably one of the leading physicians in Central America with a growing international reputation.

Esparragosa began his medical report on Juana Aguilar's sexual ambiguity by telling the reader that she was not a hermaphrodite. This assertion contradicted the claims of those who had previously examined her. It also contradicted public speculation about Aguilar that was rampant in the capital. Esparragosa wrote:

> Naturally, the present case of Juana La Larga, object of my investigations and of this report, has been cited previously as something certain, [as] irrefutable proof of hermaphroditism for future ages. If it had not been for the criminal excesses that have been attributed to her, she would not have been subject to the judgment of the Tribunal [of the Royal Protomedicato] and had [the issue] resolved by the most prudent and only means [necessary] to unmask that phenomenon.

Esparragosa also argued that the legal arena of the Protomedicato court of the Audiencia of Guatemala was the appropriate place to definitively judge Aguilar's "suspected" hermaphroditism.

To bolster his assertion that Aguilar was not a hermaphrodite, Esparragosa challenged the findings of female midwives (*parteras*) and surgeons

(*cirujanos*) who had previously examined her body and categorized her. "As a result," Esparragosa wrote,

> there remains to be dissipated [by] the brilliant light of my experience the darkness of whim and the ignorance with which it has been concluded [that Aguilar was a hermaphrodite], as those who have charged that she consummated the carnal act as a man, such as the midwives and surgeons who, by recognizing what they believed and asserted to be a hermaphrodite, gave weight to such an error, so that the unhappy one [Aguilar] should suffer at the very least some same punishment as the Athenians and Romans have agreed to for supposed hermaphrodites, the result of their ignorant superstition, and by their false philosophy.

Here Esparragosa attacked three kinds of medical practitioners and creators of medical knowledge: female midwives, lay healers (such as empiric surgeons), and ancient philosophers whose scholarship had underpinned conceptions of illness, healing, and the body into the medieval and early modern periods. Between the seventeenth and the early nineteenth centuries, the cultural authority and power to interpret illness was gradually transferred to licensed male medical physicians, as part of the professionalization of medicine. This transformation broke down the authority of the midwives, lay healers, and ancient scholars who previously had structured cultural understandings and scientific practices of health and healing.[8] Esparragosa was conscious of his place in this new era. Through this medical report he sought establish a place for himself as part of the Enlightenment, what he called the *siglo de más ilustración*, the "century of great learning." He also disseminated his findings to the broader public by publishing his report in the *Gazeta de Guatemala*.[9]

Within this intellectual and historical context, Esparragosa depicted himself as a heroic physician using the weapons of reason and observation to slay the misguided belief in the "fantastic being" (*ente quimérico*) of the hermaphrodite: "[The hermaphrodite] is opposed to [what we know from] experience, claimed by the invariable laws of nature. And, with the weapons so invincible of the learned . . . of this century that is about to end, [who] fight against that monster [*monstruo*] between a multitude of physiques and anatomies, [and] whose profound knowledge and respected authority, erected above the insurmountable throne of observation and of the most decisive reasoning, obliges me to follow in their footsteps."

Here, what is monstrous to Esparragosa is the figure of the hermaphrodite, as a relic of the ignorance of ancient scholars, and as an example of the tendency of the common people to "easily give their credulity to all that

is presented with a mysterious air and outside of nature's scope." The classification of the hermaphrodite as a monster drew on familiar medieval and early modern tropes used to represent beings that Europeans speculated about or expected to find outside of Europe, and that were written about and represented in maps, travel accounts, artwork, and other sources. For Esparragosa, in this "new century of learning," the monstrous hermaphrodite needed to be debunked, using the newfound tools of reason and observation, to leave behind the previous era of ignorance.

Esparragosa linked his depiction of Aguilar to historical traditions of the monstrous and marvelous, reconfigured in late colonial Guatemala. At the time of European colonization of the New World, the monstrous and marvelous together were components of late medieval and early modern conceptions of "wonder," and were often invoked to distinguish between the known and the unknown, the civilized and the barbaric, in European intellectual thought and the popular imagination.[10] Scholars have analyzed the role that the monstrous and marvelous played in discovery accounts as a key literary strategy that shaped written descriptions of encounters between Old and New World peoples and landscapes.[11]

These discourses also played a central role in everyday conceptions of health and illness in southern New Spain as European wonder interacted with Mesoamerican ideologies of monstrous and marvelous exceptionalism. Physicians, popular healers, and colonial peoples appropriated and used descriptions of monsters and marvels in the context of physical expressions of health, illness, and pain in daily life throughout the colonial period. While Esparragosa used what can be seen as a traditional rhetoric of monsters to talk about exceptionalism, here and as we will see below, he is commenting instead on Aguilar's genital anatomy.

Esparragosa was not exceptional in his intellectual curiosity and medical investigations regarding hermaphrodites. Hermaphrodites were a key preoccupation of the early modern and modern eras, and the hermaphrodite frequently appeared in medical, legal, and popular works.[12] Lorraine Daston and Katharine Park argue that a wide range of interpretations of hermaphrodites existed in the early modern period, as did distinctive differences among the various European national medical traditions.[13] At stake were competing ideas regarding generation, sexual difference, and their social implications. The mid-nineteenth to the early twentieth centuries again saw a preoccupation with defining sexual identity and sexual difference through the lens of the hermaphrodite, as Western medical and scientific men sought to establish the categories of "true" male and female, and link them to emerging ideologies that naturalized heterosexuality.[14]

Esparragosa's analysis of Aguilar and his arguments about how to clas-

sify her sexuality bridges early modern writings on the topic with emerging modern approaches to sexual identity and sexual difference from the mid-nineteenth century on, such as the famous case of Abel/Alexina Barbin of France, who, after committing suicide in Paris in 1868, was "discovered" to be a hermaphrodite during a postmortem exam.[15] Esparragosa's writings show that he was familiar with a larger literature on hermaphrodites, as well as anatomy and other medical writings on the human body. He also anticipated issues that become key to late-nineteenth- and early-twentieth-century writings on the topic, as we will see below, as he strove to establish a definition of "natural" female genitalia, and juxtapose that with what he found during his examinations of Aguilar's body to construct the category "neither man nor woman."

Medicine, Monstrosity, and Categories of Sexual Difference

As Esparragosa proceeded, he developed the argument that sexual categorization was not defined by gendered social roles—what economic activity one performed, whether one took care of children and the elderly or gathered and prepared food for the family. Nor did sexual categorization depend on the clothing one wore or how an individual self-identified. Instead, according to Esparragosa's model, sexual categorization turned on whether or not the person had male or female sexual organs: "But how such a deceptive understanding can be so capable of being mistaken! And such outlandishness can support ignorance! Juana La Larga not only does not join [together] the two sexes, she is lacking the male [sexual] organs, and also nature has denied her the necessary [sexual organs] to constitute a woman. Rare phenomenon!"

Esparragosa began to build his argument to categorize Aguilar as "neither man nor woman," explaining just what he meant by sexual organs, and what parts of those mattered for his assessment. To support his assertions, Esparragosa told his readers that he would first describe female genitalia in what he called their natural state, and then compare them with what he found during his physical examinations of Aguilar's body. This, he believed, would lay the ground work for him to expose the false idea that the natural world included the hermaphrodite:

> To demonstrate this truth to [the Royal Protomedicato], daughter of the most scrupulous and loyal observation, it appears to me absolutely necessary to briefly describe the external sexual organs that one observes in women by simple sight, in their natural state, [and from

> there] provide an analysis of those of La Juana, [that] one observes by an exact result of [the] comparison [of] the differences between them, and the original deformity of the last, so, with regard to the excess and the defect.

This "deformity" and "defect" in Aguilar's genitalia was the clitoris: "The labia, which are separated, [are] joined together in their uppermost part by a somewhat prominent small body, very similar to a [male] member [*miembro*], called a clitoris, whose circumstances it seems to me are necessary to describe, in particular because it is the organ that in this scene assumes a distinguished and admirable role." Here it is the clitoris that stands in for female genitalia as the important factor for Esparragosa in determining just where Aguilar fit in.

There are two strands of historiographical argument about how medical writers and others characterized sexual difference from the early modern to the modern era. Thomas Laqueur has argued for a premodern one-sex model (before the 1800s), that is, medical writers theorized that only one sex existed, the male.[16] Women, according this model, had male genitalia inside their bodies, but this genitalia stayed inside because women had colder bodies than men did. If women's bodies at some point became unnaturally hot, due to inappropriate work, exercise, and so on, the male genitalia could suddenly emerge, transforming them. This was the explanation given in 1573 by Ambroise Paré, a French medical writer who analyzed the case of Germain Garnie. She lived the first part of her life as a female, but then when she was fifteen years old, she ran and jumped over a ditch, causing a penis to appear on her body. Around the turn of the nineteenth century, Laqueur argues, the two-sex model for sexual difference emerged in Western medical literature, a new medical idea that saw male and female sexes as distinct.

Other writers, including Joan Cadden, Lorraine Daston, and Katharine Park, argue that the one-sex model never dominated Western medical thought about sex difference. Instead, the Middle Ages and the early modern era saw two distinct models, the Hippocratic and the Aristotelian.[17] The Hippocratic model viewed sex difference as a spectrum between male and female on either end with possibilities for intermediate sex lying in between.[18] The Aristotelian model saw sex difference as either male or female, with no intermediate possibilities. In the Aristotelian model, the sex of a hermaphrodite was determined not by the genitals he or she possessed but by "the heat of the heart, which in turn determined the complexion of the body as a whole."[19] From these models, two contrasting views of hermaphroditism emerged, each with different sexual and social implications. The Aristotelian model maintained sex difference

as either/or with no intermediate possibilities. The Hippocratic model, however, allowed for a range of categories of sexual difference. The stances occupied by these two schools of thought created the conditions for a lively debate about hermaphrodites and sex difference in the early modern medical literature.[20]

Esparragosa conceptualized the differences between male and female via the genitalia. He focused specifically on the clitoris and penis as the key aspects of Aguilar's genitalia that would reveal which category Aguilar fit into. Esparragosa first considered whether or not Aguilar's clitoris was in fact a male penis in less developed form. His description of the clitoris linked its physiology and function to a penis: "Not only is the exterior configuration of the clitoris very similar to the virile member, but also its internal structure, in the way that according to the uniform consent of the most famous anatomists, it only lacks the urethra or the duct through which urine leaves [the body], for which one can not establish any difference whatsoever between the sexes."

While Greek medical and surgical authors had identified the clitoris as a distinct part of the female genitalia, European medical authors had lost that knowledge, only to rediscover it in the mid-sixteenth century.[21] In early modern European medical literature, Renaldo Colombo, in his treatise *De re anatomica* (*On Anatomy*), published in 1559, was the first to "rediscover" the clitoris and link it to female sexual pleasure.[22] Colombo remarked, "since no one has discerned these projections and their workings, if it is permissible to give names to things discovered by me, it should be called the love or sweetness of Venus."[23]

Esparragosa clearly was aware of this literature when he linked the clitoris to female sexual pleasure in his report on Aguilar: "The organ that I have just described [the clitoris] physiologists have conceded has the property of exciting lustfulness [*concupiscencia*], because during intercourse no other part receives more delight." For Esparragosa's analysis, then, the clitoris was a key part of the female anatomy because of its "lustful" properties, an important element not only in classifying male and female, but also in trying to explain Aguilar's reported sexual behavior.

Esparragosa next focused on size, what he described as Aguilar's overly large clitoris: "At first glance, I observe in La Juana the large labia, the same as in every woman, with the difference that [her] clitoris sticks out from between them a little more than half an inch. That is not very strange, since in some women one observes the same prominence. [And] separating the labia and locating the clitoris one observes it to be an inch and a half from its root to its tip."

As Esparragosa's interest was in whether or not Aguilar was capable of

performing the sexual act as a man, he quickly added that even though the clitoris had a similar anatomical appearance to the penis, Aguilar's clitoris was not, in fact, a penis. "Its exterior configuration exactly resembl[es] that of the virile member with its head, gland and foreskin, but it lacks the urine duct that longitudinally perforates the man's member."

In some ways Esparragosa's focus on anatomy, especially the question of whether or not Aguilar had a clitoris or a penis, anticipated the focus on anatomy in analyses of sexual difference developed in the field of teratology some three decades later, in the 1830s.[24] This highly influential field portrayed sexual difference as a continuum in which sexually ambiguous, "effeminate men" and "masculine women" occupied a gray area between the ideal "types" of man and woman. Katharine Park and Robert Nye point out that for Isidore Geoffroy Saint-Hilaire, "a large clitoris was an 'arrested penis' and a small penis a 'hypertrophied clitoris' and both inclined their bearers away from the 'type' of their sex."[25]

Esparragosa argued that Aguilar's genital anatomy, specifically her enlarged clitoris, was key to placing her in the correct sexual category. But as is apparent here, anatomy and anatomical depictions as reported in medical literature are not fixed but instead vary by historical and cultural context, playing a significant role in the production and maintenance of sexual difference.[26] Lisa Jean Moore and Adele Clark argue that anatomies, while seemingly stable and "known," are "socially constructed and diverse not only across historical time but within particular eras."[27] By labeling the clitoris as the site of women's lustful behavior, and connecting that lust to size, Esparragosa made a medical claim that tied Aguilar's sexuality to the size of her clitoris.

Anatomical labels were important for the establishment and maintenance of what is normal for women's bodies, and by extension their sexual behavior.[28] Sixteenth-century representations of the clitoris by Renaldo Colombo and Gabriele Falloppia both describe it as a "female penis."[29] Within the renewed medical interest in the clitoris, French medical authors Ambroise Paré (1573) and Jean Riolan (1614) were the first post-classical medical authors to extend the connection between the clitoris and female sexual pleasure to the possibilities of sexual desire and sexual activity between women. Park argued that the larger implications for the rediscovery of the clitoris in the medical writing of early modern Europe and the clitoris's function as the locus of female pleasure "proved explosive, triggering a host of contemporary cultural concerns about female sexuality."[30]

Esparragosa pointed out the possibilities and dangers that an enlarged clitoris might pose to Aguilar's sexual activity in particular, and women's

sexual activity in general. For Esparragosa, this possibility turned on whether Aguilar's clitoris could become erect and thus make vaginal penetration possible. He asserted that Aguilar's clitoris could not become erect, even though he tried "many" times to stimulate it: "The consistency of the clitoris is so flaccid that it falls from its own weight beneath the rest of the parts, and despite many different examinations and handlings, I have not noted even a weak erection [of the clitoris]."

Whether Aguilar's clitoris could become erect was an important question, since this would allow her to take the active sexual role in relations with other women, as the charge of having sex with men and women accused her of doing. The question then is how to interpret the meaning of "double concubinage" in Aguilar's case.[31] The crime/sin of concubinage in colonial Latin America referred to the cohabitation of persons not legally married, but this usually referred to a man and a woman. The "double" here appears to have charged that Aguilar cohabitated with men and women, and Esparragosa's detailed analysis of the clitoris and its physiology focuses on this possibility.[32] Esparragosa never used the phrase "double concubinage" in his report. Because Aguilar's clitoris was not a penis and could not become erect, Esparragosa concluded that she was not capable of the sexual act as a man because "even if one concedes that in the act of coitus it was possible for it [the clitoris] to acquire some kind of erection, that pleasure would be little more than that which obscene friction [*la obscena confricación*] would provide, that one is aware of between women, but [such an act] lacks the seminal pollution." The question remained, however, whether Aguilar could participate in other kinds of sexual acts with women, what Esparragosa referred to as sodomy (*pecado nefando*), here raising the possibility of identifying female sexual deviance based on the size of female body parts.

Daston and Park have shown that early modern medical writers often linked hermaphrodites to transgressive sexual behavior of sodomy, transvestism, and sexual transformation.[33] Esparragosa also used this connection in his own analysis. The meaning of sodomy in this historical context included both sexual acts between men and sexual acts between women. Esparragosa was eager to spell out the social implications and dangers that an enlarged clitoris posed: sodomy and masturbation. Even though Esparragosa did not consider Aguilar a hermaphrodite, he continued to associate sexual ambiguity, and what he depicted as a large clitoris, with transgressive female sexual behavior.

In contrast to the present case, most of the work on pecado nefando and sodomy in colonial Latin America has dealt with sexual relations between men. The pecado nefando, or the abominable or unmentionable

sin, referred to the sexual act between members of the same sex. In colonial documents, this was often used with the phrase "against nature" (*contra natura*) and "of sodomy" (*de sodomía*).[34] This act could also be referred to simply as "sodomy." Esparragosa used both terms in his report. The policing of sodomy increased after the Council of Trent reforms (1545–63), when the policing of sexuality became an especially important part of Catholic ideology in colonial Latin America and elsewhere.[35]

Amid the analysis of the link between an enlarged clitoris and the tendency toward sodomy, Esparragosa took the opportunity to argue that this same enlarged clitoris had led the midwives, surgeons, and others to mistakenly declare Aguilar to be a hermaphrodite. He noted that it was not uncommon to see women with large clitorises such as Aguilar's, particularly among "Egyptian women" and other women of the "East":

> One has observed with excessive frequency the extraordinary size [of the clitoris], as have testified various anatomists and surgeons. That excess that is most familiar to us is the excess [found] among Egyptians and the rest of the nations of the East, where it is necessary that their women suffer burning or amputation for the purpose that they remain suitable for marriage; this kind of surgery being very common in those nations, as much for necessity as for honor [and decorum].

Aguilar fell into this category of women who tended toward transgressive sexual behavior due to an overly large clitoris. Esparragosa continued to use the language of monstrosity. The focus shifted, however, from hermaphrodites ("that monster of nature") to the monstrous female bodies of women like Aguilar, whose enlarged clitoris supposedly resembled those of exoticized women of the "East," whose threat had to be tamed through clitoridectomy by burning or amputation.[36] Implicit in Esparragosa's use of the terms "Egyptian" and "nations of the East" is the association with "blackness," applied in sexualized terms to layer racial and gender stereotypes onto his medical interpretation of Aguilar. The theme of non-Christian Egyptians, Ethiopians, and other North African and Middle Eastern peoples as monstrous races dates from antiquity to early modern Europe.[37]

For Esparragosa and, I would argue, for colonial Guatemalan society in general, what was dangerous about monstrous female bodies and body parts was the possibility that this would lead to transgressive female sexual behavior of the kind that Juana Aguilar was charged with engaging in. This included the possibility of women's masturbation, but also sexual interactions between women, both seen as transgressive acts that challenged gendered social roles of colonial society, and the heterosexual relations

that structured it legally, religiously, and socially. Esparragosa wrote: "The excess size [of the clitoris] has contributed much to the reprehensible abuse that some women have committed to capriciously sate their lasciviousness, cheating men of that which nature has granted them."

The possibility of female-female sexual acts also threatened the construction and subsequent naturalization of male sexual roles as the providers of female sexual pleasure. This framework as a biolegal discourse had serious implications. In addition to establishing what is natural in terms of physical bodies, Esparragosa also extended this to make claims as to what is natural in terms of sexual relations—heterosexual sexual relations in which "nature" gives men the active role.

The Medicalization of Sexuality in Late Colonial Guatemala

Esparragosa's medical findings regarding Aguilar, his claims of categories of sexual difference and characterizations of sexual transgression, were given broad authority by their production in the legal context of the Protomedicato court, and by their publication for the broader public in the *Gazeta de Guatemala*. Esparragosa's medical report shows his focus on whether or not Aguilar was physically capable of carrying out the sexual acts of which the court accused her. To do so he analyzed the anatomy and physiology of the clitoris and whether or not Aguilar was physically capable of reproduction, acting as either a man or a woman in sexual relations.

For Esparragosa, the urge for what he called unnatural female sexual activity was located in the monstrous body part of an overly large clitoris. By establishing what was considered a "natural" clitoris, given authority by the weight of professional medical knowledge, these kinds of medical writings worked to establish what was "natural" in terms of sexual activity, in the process marking some women as unnatural or at the very least as having the potential for transgressive sexual behavior. In this case, discourses of monstrosity continued to operate as key signifiers of difference in late colonial society, reconfigured through medical writings and legitimized through a legal system that established the criteria for what constituted a natural female body.

The case of Juana Aguilar suggests that by the late eighteenth and early nineteenth century, medical frameworks of sexual difference were not uniform. Nor did medical practitioners in colonial Latin America simply follow European writers on the subject. In his report Esparragosa argued that his examinations of Aguilar's body did not allow him to declare her

as either male or female. Nor did she fall into the category of "hermaphrodite," what Esparragosa stridently declared to be a "fiction" of ancient scholars, surgeons, midwives, and common people, as he staked a claim for himself as part of the Enlightenment. Instead he constructed a new category of "neither man nor woman" and carefully worked through his analysis his medical assessment of Juana Aguilar to draw the contours of this new category.

Through medical writings such as Esparragosa's report, one can identify the development and maintenance of ideologies of sexual difference and the construction of the boundaries of natural sexual behavior in late colonial Latin America. Esparragosa's report, his integration of both traditional languages of monstrosities and the larger European medical literature on hermaphrodites and sexual difference, show him to be connected to an Atlantic World circulation of medical theories and writings. This included medical works that addressed the creation and maintenance of medical definitions of sexual difference, as well as the categorization of specific individuals, especially hermaphrodites, in those frameworks, often working in tandem with legal efforts to do the same.

Notes

The medical report that is the basis of this essay was also published in Carlos Martínez Durán, *Las ciencias médicas en Guatemala: Origen y evolución* (Guatemala City, 1941), 267–77. Martínez Durán also included some background information, discussed below, but did not include any citations for this information. Part of his report was printed under the title "Hermafroditas: Informe del Cirujano honorario de Cámera Doctor D. Narciso Esparragosa, hecho a la Real Audiencia en el 3 de febrero de [1803], por orden del Protomedicato, sobre una supuesta hermafrodita," as the lead article in an 1803 edition of the *Gazeta de Guatemala*. A copy of this issue of the *Gazeta* is held at the Archivo General de Centro América, Guatemala City (hereafter AGCA), A1–6083–55038, 1803. All the translations are mine. Previous versions of this essay were presented at the Women's Studies Colloquium at the University of Arizona, October 2004; the American Association for the History of Medicine meetings, Madison, WI, May 2004; "New Directions in Latin American History: A Conference Celebrating New Research on Latin America," Center for Latin American Studies and Department of History, University of Miami, April 2004; and the American Historical Association (cross-listed with the Committee on Latin American History), Washington, DC, January 2004. I thank Guido Ruggiero and Laura Giannetti for their helpful discussions about the history of sexuality and the literature on this topic for early modern Europe. I thank Lisa Vollendorf, who generously shared her research on hermaphroditism, sexuality, and the Inquisition in early modern Spain, part of her book *The Lives of Women: A New History of Inquisitional Spain* (Nashville, TN, 2005). I also thank Pete Sigal and the two anonymous reviewers for their helpful comments.

1 Martínez Durán, in setting up the medical report, noted that a previous criminal case pursued against Aguilar, which began in September 1792 in Cojutepeque, located in what is now El Salvador, charged her with "violat[ing] and tak[ing]" a woman named Feliciana María Mejía. He wrote that the case continued (most likely on and off) for nine years (ending in 1801). During this time period, Aguilar was ordered to submit to at least three physical examinations, by two female midwives (*parteras*) and one male court official (*maestro*). In the end, however, the court does not appear to have made a ruling.

Martínez Durán also noted that, sometime later, Aguilar traveled to Guatemala City and set up an alchemist's shop just off the city's central plaza, the capital's most high-profile, expensive location for businesses and residences. Someone, presumably from Cojutepeque, recognized Aguilar and denounced her to Guatemalan officials. It appears from this background information provided by Martínez Durán that he had access to the original court records and other documents, and that he may have even selectively quoted from them. However, because he provided no footnotes for this information, and because I have not yet been able to locate these documents despite a fairly thorough search at the AGCA in Guatemala City, I will not, at this time, include this information in my analysis.

2 The relatively recent development and application of Atlantic World analytic frameworks to colonial history in the Americas has reinvigorated the analysis of key issues of European colonialism, and this study takes advantage of its strengths. The Atlantic World framework places the circulation of ideas, political culture, and economic exchange within the wider comparative geographic context of North and South America, Europe, and Africa, seeing the region as an interactive whole.

3 Here I draw on Ruggiero's argument that a key issue at stake in the transition to modern medical understandings and practices involved excising what he calls the "everyday cultural" understandings of illness, healing, and the body of the early modern world; Guido Ruggiero, "The Strange Death of Margarita Marcellini: *Male*, Signs, and the Everyday World of Pre-modern Medicine," *American Historical Review* 106 (2002): 1–41.

4 See Alice Domurat Dreger, *Hermaphrodites and the Medical Invention of Sex* (Cambridge, MA, 1998); and Suzanne J. Kessler, *Lessons from the Intersexed* (New Brunswick, NJ, 1998). For a comparative case of hermaphroditism investigated through the Inquisition court in early modern Spain, and an analysis of it in relation to contemporary explanatory frameworks for sexual ambiguity, see Vollendorf, *Lives of Women*.

5 Vollendorf, analyzing the Inquisition case of the hermaphrodite Eleno/a Céspedes, refers to Céspedes as "he" since that was how he identified himself in the testimony. Mary Beth Hall, in her discussion of Thomas/ine Hall in colonial America, uses the gender-neutral "T"; Hall, *Founding Mothers and Fathers: Gendered Power and the Forming of American Society* (New York, 1996). An analysis of the Hall case can also be found in Kathleen M. Brown, *Good Wives, Nasty Wenches, and Anxious Patriarchs: Gender, Race, and Power in Colonial Virginia* (Chapel Hill, NC, 1996), esp. 75–80.

6 This may not be the only possible intention of the nickname, as the word *larga* can have multiple meanings depending on context.

7 Santiago de Guatemala, now Antigua, was the capital of colonial Central

America from 1541 to 1773. After a severe earthquake in 1773 destroyed much of the city, the capital moved to Nueva Guatemala, today known as Guatemala City.

8 Ruggiero argues that the transition to modern medical practice transformed everyday understandings and practices of illness and healing in early modern Italy: "*The program of knowledge* that we label science developed not just from intellectual changes in the high tradition of ideas, not just from new social structures of knowing, but also in crucial and little understood ways by breaking away from everyday ways of knowing and strategies for dealing with the world—the breaking away, that is, from everyday culture" (Ruggiero, "Strange Death," 7; original emphasis).

9 *La Ilustración* is the Spanish term for the Enlightenment.

10 For an analysis of the role of wonder and wonders in Europe from the Middle Ages to the Enlightenment, see Lorraine Daston and Katharine Park, *Wonder and the Order of Nature, 1150–1750* (New York, 1998). And for an analysis of how tropes of wonder and the marvelous operated in discovery narratives of the New World, see Stephen Greenblatt, *Marvelous Possessions: The Wonder of the New World* (Chicago, 1991). On monsters, see, e.g., Park and Daston, "Unnatural Conceptions: The Study of Monsters in Sixteenth- and Seventeenth-Century France and England," *Past and Present* 92 (1981): 20–54; Zakiya Hanafi, *The Monster in the Machine: Magic, Medicine, and the Marvelous in the Time of the Scientific Revolution* (Durham, NC, 2000); and Jeffrey Jerome Cohen, ed., *Monster Theory: Reading Culture* (Minneapolis, 1996).

11 See esp. Greenblatt, *Marvelous Possessions*.

12 An important work that identifies the hermaphrodite as a central object of intense medical, legal, and popular interest in early modern Europe is Lorraine Daston and Katharine Park, "The Hermaphrodite and the Orders of Nature," *Gay and Lesbian Quarterly* 1 (1995): 419–38.

13 Daston and Park, "Hermaphrodite," 419–20. Daston and Park cite the following examples of medical writers concerned with hermaphrodites: Ambroise Paré, *On Monsters and Prodigies* (1573); Jacques Duval, *Treatise on Hermaphrodites* (1612); Jean Riolan, *Discourse on Hermaphrodites* (1614); and Gaspard Bauhin, *On the Nature of Births of Hermaphrodites and Monsters* (1614).

14 Alice Domurat Dreger, *Hermaphrodites and the Medical Invention of Sex* (Cambridge, MA, 1998), 10, 15. See esp. chap. 4, "Hermaphrodites in Love."

15 Barbin's memoirs, dating from 1864, were discovered after his death and published in 1874. For more on this case see Dreger, *Hermaphrodites*, 21–23; and Herculine Barbin, *Herculine Barbin: Being the Recently Discovered Memoirs of a Nineteenth-Century French Hermaphrodite*, intro. Michel Foucault, trans. Richard McDougall (New York, 1980).

16 Thomas Laqueur, *Making Sex: Body and Gender from the Greeks to Freud* (Cambridge, MA, 1990).

17 Much of this discussion is taken from Daston and Park, "Hermaphrodite," 420–24. See also Joan Cadden, *The Meaning of Sex Difference in the Middle Ages: Medicine, Science, and Culture* (Cambridge, MA, 1993).

18 This model is associated with Hippocratic writers and with Galen.

19 Daston and Park, "Hermaphrodite," 421. For more on these two traditions that continued to frame sex difference into the early modern period, see Cadden, *Meaning of Sex Difference*, 15–37.

20 Katharine Park and Robert Nye, "Destiny Is Anatomy," *New Republic*, 18 February 1991, 54.
21 Katharine Park, "The Rediscovery of the Clitoris," in *The Body in Parts: Fantasies of Corporeality in Early Modern Europe*, ed. David Hillman and Carla Mazzio (New York, 1997), outlines this process in early modern French medical writing. Park writes (188n10) that lay healers presumably never lost the knowledge regarding the clitoris and its functions, and they used this knowledge in treating certain female ailments with clitoral stimulation.
22 Ibid., 177. According to Park, Gabriele Falloppia, an Italian medical author and professor of anatomy at Pisa and Padua, wrote about the clitoris around 1550, but he did not publish this work until 1561.
23 Quoted in Laqueur, *Making Sex*, 64.
24 See Isidore Geoffroy Saint-Hilaire, *Histoire générale et particulière des anomalies de l'organisation chez l'homme et les animaux, . . . ou Traité de tératologie* (*Treatise on Teratology*), 4 vols. (Paris, 1832–37).
25 Park and Nye, "Anatomy Is Destiny," 56.
26 See Lisa Jean Moore and Adele E. Clark, "Clitoral Conventions and Transgressions: Graphic Representations in Anatomy Texts, c1900–1991," *Feminist Studies* 21 (1995): 255–301.
27 Ibid., 257.
28 Ibid., 292.
29 Ibid., 265; see also Laqueur, *Making Sex*, 64–66.
30 Park, "Rediscovery of the Clitoris," 173.
31 The crime of "double concubinage with men and women" is ascribed by Martínez Durán, *Ciencias médicas*, 267. He did not explain the meaning of this crime.
32 For good overview of sexuality in colonial Latin America, see the essays in Asunción Lavrin, ed., *Sexuality and Marriage in Colonial Latin America* (Lincoln, NE, 1989), esp. Lavrin, "Sexuality in Colonial Mexico: A Church Dilemma," 47–95.
33 Daston and Park, "Hermaphrodite," 423.
34 For more on this topic, see, e.g., Pete Sigal, ed., *Infamous Desire: Male Homosexuality in Colonial Latin America* (Chicago, 2003); Geoffrey Spurling, "Honor, Sexuality, and the Colonial Church: The Sins of Dr. González, Cathedral Canon," in *The Faces of Honor: Sex, Shame, and Violence in Colonial Latin America*, ed. Lyman Johnson and Sonya Lipsett-Rivera (Albuquerque, NM, 1998), 45–67; and Richard C. Trexler, *Sex and Conquest: Gendered Violence, Political Order, and the European Conquest of the Americas* (Ithaca, NY, 1999).
35 The Council of Trent reforms responded to the Protestant Reformation; Geoffrey Spurling, "Under Investigation for the Abominable Sin: Damien de Morales Stands Accused of Attempting to Seduce Antón de Tierra de Congo (Charcas, 1611)," in *Colonial Lives: Documents on Latin American History, 1550–1850*, ed. Richard Boyer and Geoffrey Spurling (New York, 2000), 112–29.
36 Park notes this Orientalist trope in early modern European medical literature of Egyptian women and other women from the "East" with large clitorises as having a tendency toward sexual deviance in "Rediscovery of the Clitoris." Jorge Cañizares-Esguerra, *How to Write a History of the New World* (Stanford, CA, 2001), 14, briefly notes that a kind of crude Orientalism began to be used in Enlightenment-era analogies of pre-Columbian Amerindian cultures, a shift

from earlier assertions that pre-Columbian Amerindian cultures were analogous to ancient Roman and Greek polities.

37 For more on this, see Valeria Finucci, "Maternal Imagination and Monstrous Births: Tasso's *Gerusalemme liberata*," in *Generation and Degeneration: Tropes of Reproduction in Literature and History from Antiquity to Early Modern Europe*, ed. Valeria Finucci and Kevin Brownlee (Durham, NC, 2001), 41–80.

CRITIQUES AND CONTENTIONS

A Woman Down to Her Bones

The Anatomy of Sexual Difference in the Sixteenth and Early Seventeenth Centuries

By Michael Stolberg*

ABSTRACT

Based on a wide range of Latin and vernacular sources, this essay reexamines Thomas Laqueur's and Londa Schiebinger's influential claim that the idea of incommensurable anatomical difference between the sexes was "invented" in the eighteenth century, reflecting, in particular, a need to resort to nature in order to justify female subordination against new ideals of equality and universal rights. It provides ample evidence that already around 1600 many leading physicians, rather than proclaiming a "one-sex model" of female inferiority, insisted on the unique and purposeful features of the female skeleton and the female genital organs and illustrated them visually. The author shares Laqueur's and Schiebinger's assumption that the shift toward incommensurable anatomical difference helped legitimize woman's subordinate position as housewife and mother as naturally given. But around 1600 Enlightenment ideals as yet played no role. Instead, this shift reflected, in particular, contemporary physicians' growing appreciation of personal discovery and innovation, the rise of a specialist gynecology, and new views on marriage and motherhood in the upper classes among whom the physicians lived and whose support they sought.

IN A WIDELY QUOTED PAPER, published in 1986, Londa Schiebinger presented "the drawings of the first female skeletons," which appeared "in England, France, and Germany between 1730 and 1790." These illustrations, Schiebinger argued persuasively, were part of a more comprehensive trend toward positing a fundamental—natural—bodily dif-

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ference between man and woman. Their message was that sexual difference was more than skin deep. Men and women not only looked different; they were different down to the innermost parts of their bodies. Soon thereafter, Thomas Laqueur drew on Schiebinger's findings to support his own claim, in *Making Sex: Body and Gender from the Greeks to Freud,* that until the eighteenth century medical notions of the female body were based on a "one-sex model."[1] According to Laqueur, the history of the female skeleton paralleled developments in the anatomy of the female reproductive system, the focus of his primary concern. Before the eighteenth century, ideas about sexual difference were based on the Galenic notion that males and females basically had the same genitals. Women were considered essentially as "men in whom a lack of vital heat—of perfection—had resulted in the retention, inside, of structures that in the male are visible without." The scrotum was thus like the body or fundus of the uterus (the "uterus" of modern terminology), but pushed outside of the body; the penis was like the neck of the uterus (the "vagina," in our modern sense); the female testicles (ovaries) were like those of the male; and so forth. Correspondingly—still according to Laqueur—there were not even proper terms for the female genitals. The "language simply did not exist, or need to exist, for distinguishing male from female organs."[2] Only "in and about the late eighteenth [century]," "sometime in the eighteenth century," or, at most, in the late seventeenth and eighteenth centuries—Laqueur is not quite clear on this point—"sex as we know it was invented," "science fleshed out . . . the categories 'male' and 'female' as opposite and incommensurable biological sexes." The genitals became the "foundation of incommensurable difference," and the old one-sex model gave way to "a new model of radical dimorphism, of biological divergence."[3]

Both Schiebinger and Laqueur placed the new emphasis on fundamental bodily differences between the sexes within a specific intellectual and social context. The Enlightenment, with its universalistic claims for human liberty and equality, threatened to subvert traditional social and political hierarchies based on male superiority and dominance. In this situation, "Nature had to be searched if men were to justify their dominance of the public sphere, whose distinction from the private would increasingly come to be figured in terms of sexual difference." Female "nature" helped to "define the position of women in bourgeois society at large and in science in particular." This position was held to be determined primarily by the "natural" predestination of women for motherhood to which their anatomy bore witness. Schiebinger also remarked on the positive revaluation of motherhood in the context of contemporary "mercantilist interests in population growth."[4]

Laqueur and Schiebinger are two of the most prominent scholars who have fruitfully applied a social or cultural constructionist framework to the historical study of gender. They rightly insist that scientific concepts and representations of the human body are always closely and inextricably bound to their respective social, cultural, and political

[1] Londa Schiebinger, "Skeletons in the Closet: The First Illustrations of the Female Skeleton in Eighteenth-Century Anatomy," *Representations,* 1986, *14:*42–82, on p. 42; see also Schiebinger's more general study of sexual and racial difference in eighteenth-century biology: *Nature's Body: Gender in the Making of Modern Science* (Boston: Beacon, 1993). Thomas Laqueur, *Making Sex: Body and Gender from the Greeks to Freud* (Cambridge, Mass./London: Harvard Univ. Press, 1990). Laqueur somewhat misrepresents Schiebinger's findings, claiming that it was not "until 1759 that anyone bothered to reproduce a detailed female skeleton in an anatomy book to illustrate its difference from the male" (p. 10).

[2] Galen, *De semine* 2.5, in *Claudii Galeni Opera omnia,* ed. C. G. Kühn, Vol. 4 (Leipzig, 1822; rpt., Darmstadt: Olms, 1964), pp. 626–642, esp. pp. 634–640; Galen, *De usu partium* 2.11, *ibid.,* pp. 188–193; and Laqueur, *Making Sex,* pp. 4, 97 (see also p. 5).

[3] Laqueur, *Making Sex,* pp. 5, 149, 154, 6.

[4] *Ibid.,* p. 194 (searching nature); and Schiebinger, "Skeletons in the Closet" (cit. n. 1), pp. 67, 53.

context and that "sex," like other objects of scientific inquiry, cannot be understood as an ahistorical natural given—as opposed to "gender," understood as a social and cultural category. Their work has provided an important stimulus and has served as a starting point for many others in the history of gender as well as, more generally, in the history of the body and literary history. Laqueur's work, in particular, has also been criticized. As Joan Cadden and others have pointed out, the "one-sex model" was already contested in ancient and medieval medicine, and the historical divide between the periods when the "one-sex" and the "two-sex" model prevailed was less clear-cut than Laqueur suggests. But more than a decade after its first publication, the idea that a "one-sex model" dominated Western culture until the eighteenth century continues to serve as a major and largely uncontested principle. The fullest criticisms, on the other hand, remain those expressed by Katharine Park and Robert Nye in their 1991 review of Laqueur's book.[5]

In this situation, a detailed reassessment seems overdue. I want to show in this essay that there are, in particular, serious problems with Laqueur's and Schiebinger's chronology. In sixteenth-century medical writing—that is, at least two hundred years earlier than Laqueur and Schiebinger suggest—there was already a broad movement toward a much more explicit sexual dimorphism that encompassed skeletal and sexual anatomy alike. This is not just a question of getting the dates right: if this is true the context from which this earlier discourse of sexual difference emerged also differed from that described by Laqueur and Schiebinger. In what follows, I will draw on a wide range of sixteenth- and seventeenth-century medical writing—in particular from Germany, Switzerland, France, Italy, and the Netherlands, and mostly in Latin—to trace this growing and, by the early seventeenth century, dominant belief in anatomical difference between the sexes. My essay will start with an analysis of the growing interest in the peculiar features of the female skeleton. I will then proceed to sketch the roughly simultaneous trend toward dimorphic accounts in sexual anatomy. Finally, I will point out some major developments in contemporary medicine and society, that, I believe, gave crucial impetus to this new medical discourse of sexual difference.

I

Differences between the male and the female skeleton were rarely mentioned in pre-Renaissance medical writing. Only from the late fifteenth century did such differences attract a more sustained interest among leading contemporary anatomists such as Alessandro Benedetti and Giacomo Berengario da Carpi, and this interest increased in the sixteenth century. At first they focused mainly on the different structure of the pelvis, which modern anatomists still consider to be the locus of the most striking differences between the skeletons of men and women.[6] All the various pelvic bones were seen to be in some way

[5] Joan Cadden, *Meanings of Sex Difference in the Middle Ages: Medicine, Science, and Culture* (Cambridge: Cambridge Univ. Press, 1993); and Katharine Park and Robert A. Nye, "Destiny Is Anatomy," *New Republic,* 18 Feb. 1991, pp. 53–57. As Janet Adelman has recently remarked, the authoritative status of Laqueur's thesis is highlighted particularly well by its frequent citation even in places where it is quite tangential to the argument involved: Adelman, "Making Defect Perfection: Shakespeare and the One-Sex Model," in *Enacting Gender on the English Renaissance Stage,* ed. Viviana Comensoli and Anne Russell (Urbana/Chicago: Univ. Illinois Press, 1999), pp. 23–52, on p. 43n.

[6] For pre-Renaissance mentions of differences see Celsus, *De medicina,* ed. W. G. Spencer (London/Cambridge, Mass.: Heinemann, 1961), p. 488; see also my discussion, below, of Aristotle's claim that women have fewer cranial sutures. For modern views see, e.g., Richard S. Meindl *et al.,* "Accuracy and Direction of Error in the Sexing of the Skeleton: Implications for Paleodemography," *American Journal of Physical Anthropology,* 1985, *68:*79–85; and Tracy Rogers and Shelley Saunders, "Accuracy of Sex Determination Using Morphological Traits of the Human Pelvis," *Journal of Forensic Sciences,* 1994, *39:*1047–1056.

different in women. The pelvis in general and the iliac bones in particular were wider than those of men, in order to accommodate the uterus and to help support its growing weight during pregnancy. The lower pelvic cavity was also wider, providing the necessary space for the child to pass through in birth; the pubic bones, in particular, and the ischia were more curved toward the outside. The coccyx was said to stick out more toward the back in women or to be connected more loosely to the os sacrum above it, which allowed it to move or tilt backward during birth. In fact, according to Andreas Vesalius and Juan de Valverde, this was the reason why, among many peoples of the world, women preferred to give birth in a kneeling position or sitting on a chair with a hole in the middle.[7] The commissura anterior—the connecting line between the two pubic bones—was described as shorter in women, while traditional claims that their pubic bones could actually separate during birth increasingly came to be considered mistaken. At most the cartilage might be slightly stretched during birth; or perhaps it was artificially loosened in the newborn girl by "ignorant midwives" who, as some later authors complained, were in the habit of pressing this area hard with their thumbs, presumably to ease birthing in later life.[8]

In 1583 anatomical writing on the female skeleton entered a new stage. In his *De corporis humani structura et usu libri III* Felix Platter (1536–1614), professor of anatomy at Basel University, provided the first comprehensive and systematic account of the peculiar features of the female skeleton. What is more, he accompanied it with the picture of a "sceletos mulieris adultae" offering what is, to my knowledge, the first illustration of a female skeleton and its peculiar features in the history of Western medicine. (See Figure 1.)[9] Letters from *A* to *M* indicated the various parts or areas of the body where the female skeleton differed from the male. They included the iliac and pubic bones, the coccyx, the lower lumbar spine, the cranial sutures, the ribs, the chest bone or sternum, and the collarbones or clavicles. The nature of these differences was briefly expounded in a table of explanations on the opposite page; I will shortly describe them in greater detail.

Most of Platter's findings were again set out, though without an illustration to go with them, in a series of anatomical tables published under his name that opened the 1586 and 1597 editions of the *Gynaeciorum,* a well-known compendium of earlier and contemporary writings on female diseases. The tables dealt primarily with the anatomy of the female

[7] On the wider pelvis and iliac bones see Alessandro Benedetti, *Historia corporis humani sive anatomice* (1502), ed. Giovanna Ferrari (Florence: Giunti, 1998), pp. 340–342; Giacomo Berengario da Carpi, *Isagogae breves / perlucidae ac uberrimae / in Anatomiam humani corporis* (1530), p. 62r; Charles Étienne, *De dissectione partium corporis humani libri tres* (Paris: Colinaeus, 1545), p. 33; Andreas Vesalius, *De humani corporis fabrica libri septem* (Basel: Oporinus, 1543), pp. 128–132; and Juan de Valverde di Hamusco, *Anatomia del corpo humano* (Salamanca: Cafrery, 1560), p. 21r. On the pubic bones and the ischia see Benedetti, *Historia corporis humani,* ed. Ferrari, p. 342; Berengario, *Isagogae breves,* p. 69r; Vesalius, *Fabrica,* p. 131; and Étienne, *De dissectione,* p. 33. On the coccyx see Valverde, *Anatomia,* p. 21r; and Realdus Columbus, *De re anatomica libri XV* (Venice: Bevilacqua, 1559), p. 58. On birth positions see Vesalius, *Fabrica,* p. 131; and Valverde, *Anatomia,* p. 21r.

[8] On the commissura anterior see Vesalius, *Fabrica,* p. 131. For the claim that the pubic bones could separate see Benedetti, *Historia corporis humani,* ed. Ferrari, p. 342; and Berengario, *Isagogae breves,* p. 69r. This was disputed by Vesalius, *Fabrica,* p. 131; Leonhart Fuchs, *De humani corporis fabrica, ex Galeni et Andreae Vesalij libris concinnatae epitomes pars prima, duos, unum de ossibus, alterum de musculis, libros complectens* (Tübingen: Morhard, 1551); and Valverde, *Anatomia,* p. 21r. For the complaint about "ignorant midwives" see Pieter Paaw, *De humani corporis ossibus* (Leiden: Colster, 1615), p. 167.

[9] Felix Platter, *De corporis humani structura et usu libri III* (Basel: Froeben, 1583); for the illustration see Bk. 3, Table II. Bk. 3 is—perhaps mistakenly—dated 1581. The illustrations—many of which were borrowed from Vesalius, as Platter freely admitted (*ibid.,* Bk. 1, letter to the reader)—were probably the work of Abel Stimmer; see Platter, *Tagebuch (Lebensbeschreibung) 1536–1567,* ed. Valentin Lötscher (Basel/Stuttgart: Schwabe, 1976), editor's note on Table 58. On Platter's life see *ibid.* Platter got his medical training in Basel and Montpellier. From 1560 he taught practical medicine at Basel and later also served as a town physician.

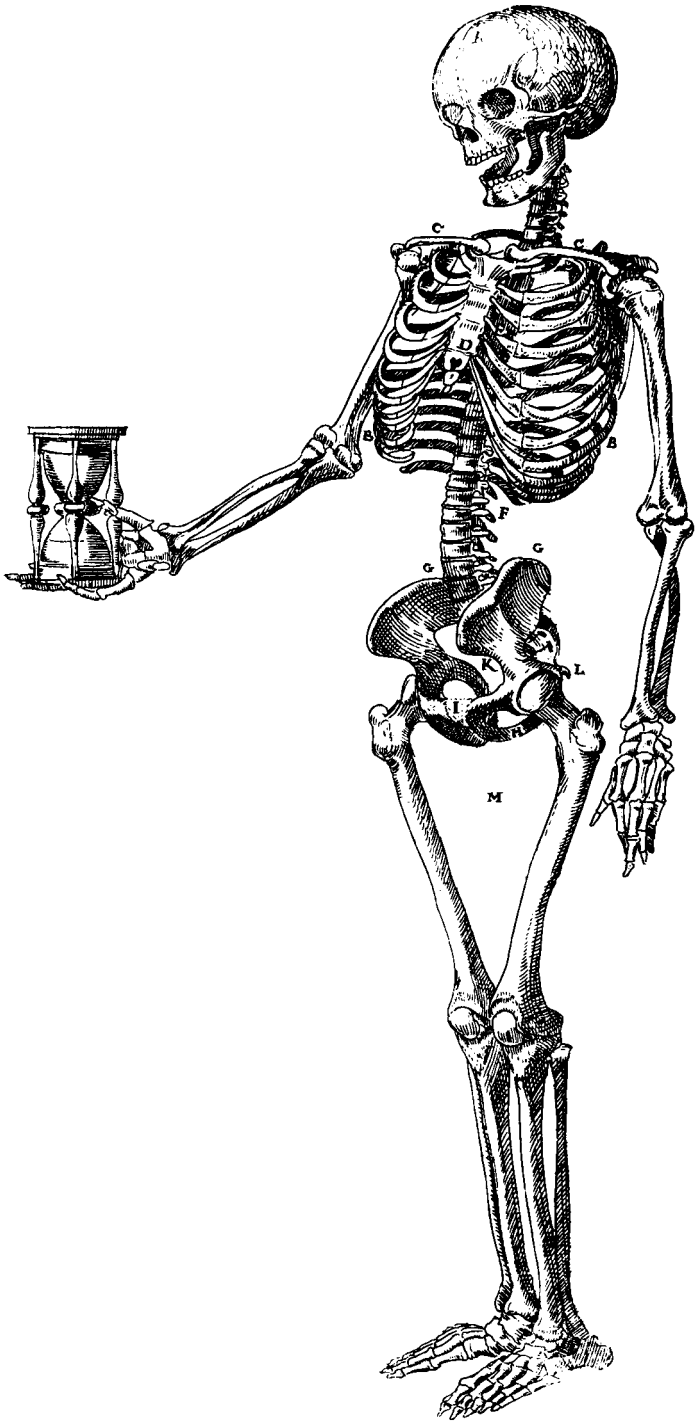

Figure 1. *Skeleton of a grown woman. From Felix Platter,* De corporis humani structura *(1583), Book 3, Table II.*

genitals, but the last one described the bones of women that differed from those of the male as a result of their having a uterus and breasts.[10]

In 1597 Caspar Bauhin (1560–1624), Platter's junior colleague in Basel, generously drew on Platter's list of distinguishing features in his *Anatomica virilis et muliebris historia.*[11] His popular *Institutiones anatomicae* also listed them, and in his *Theatrum anatomicum* of 1605 Bauhin represented these differences visually in an illustration of a "mulieris sceleton" that was basically a copy of Platter's. In this edition Bauhin's explanations were scattered throughout the work in the various passages dealing with the respective areas of the body. But when the illustration was reprinted, in 1620, in the *Vivae imagines partium corporis humani,* it was accompanied by a list of explanations on the facing page.[12]

Actual illustrations of the female skeleton did not become a standard feature of anatomical textbooks in the wake of Platter's and Bauhin's publications. Illustrations were expensive, and the specific features of the female skeleton were not easy to depict. But in written form their findings were almost immediately taken up and repeated by many other authors. Some anatomists devoted a whole chapter to the topic. Indeed, Platter's and Bauhin's influence can be traced into more popular, vernacular publications. In 1616 Helkiah Crooke published illustrations of a female clavicle and a female chest bone—with their specific female characteristics—in his *Mikrokosmographia;* he explicitly cited Bauhin and Platter among his major sources. In Germany, around 1650, the Augsburg surgeon Joseph Schmidt (or Schmid) published in his *Spiegel der Anatomy* another illustration of the "skeleton of a woman" ("die Gebein einer Weibsperson"), indicating the sites where it differed from the male (see Figure 2).[13] And the tradition continued well into the eighteenth

[10] Felix Platter, "De mulierum partibus generationi dicatis icones, Item: Tabulae structuram vsumque methodice describentes: Quibus quoque quo pacto ossa mulieris a viri oßibus hisce sedibus varient, breuiter adiecta fuerunt," in *Gynaeciorum sive de mulierum affectibus commentarii* (Basel: Waldkirch, 1586); for the 1597 edition see Israel Spachius, ed., *Gynaeciorum sive de mulierum . . . affectibus et morbis libri* (Strasburg: Zetzner, 1597), unpaginated. It is not clear whether these tables were done by Platter himself or whether, more likely, someone else extracted them from his work; the first, smaller, edition of the *Gynaeciorum* was compiled by Caspar Wolff in 1564.

[11] Caspar Bauhin, *Anatomica virilis et muliebris historia* (N.p.: Le Preux, 1597); in his introduction to the first edition of 1592, Bauhin gave explicit credit to the "laboriosissimas et ingeniosissimas Cl. Viri Felicis Plateri Collegae mei honorandi, tabulas." Bauhin, the son of a physician, obtained his medical degree in Basel in 1581 and was appointed professor of anatomy and botany in 1589; see Gweneth Whitteridge, "Gaspard Bauhin," in *Dictionary of Scientific Biography,* ed. Charles Coulston Gillispie, 18 vols. (New York: Scribner's, 1970–1986), Vol. 1, pp. 522–525.

[12] Caspar Bauhin, *Institutiones anatomicae corporis virilis et muliebris historiam exhibentes,* 5th ed. (Basel: Schroeter, 1615), pp. 79, 105–106; and Bauhin, *Theatrum anatomicum* (Frankfurt: Becker, 1605), Table 4. The explanations were given in a separate *Appendix tabularum ad theatrum anatomicum sive explicatio characterum omnium qui figuris totius operis additi fuere: Quae seorsim compingi debet* (Frankfurt: Becker & De Bry, 1600 [*sic*]). In the second edition of Bauhin's *Theatricum anatomicum* ([Frankfurt]: De Bry, 1620), the illustrations were printed in the appended *Vivae imagines partium corporis humani aeneis formis expressae & ex theatro anatomico Caspari Bauhini desumptae* ([Frankfurt]: De Bry, 1620), pp. 246–247. In the *Theatrum anatomicum* Bauhin even maintained the letters from *A* to *M* with which Platter had indicated the loci of differences in the picture. In Bauhin's illustration the skeleton appears somewhat slimmer, and it "looks" to the left rather than to the right—perhaps owing to the technique used to copy Platter's image. Strikingly, Schiebinger does mention Bauhin's illustration of a female skeleton in his 1605 publication and even reproduces it (though on a smaller scale), but it clearly does not fit into her account. She describes the illustration as crude, though in fact the quality was quite good by contemporary standards (admittedly, it does not stand comparison with the outstanding images in Vesalius's *Fabrica*)—and certainly not worse than that of the other illustrations in Bauhin's widely read and quoted work. Schiebinger does not even mention the fact that the illustration served specifically to indicate differences between the sexes and that those differences depicted in it were further explained in the text. See Schiebinger, "Skeletons in the Closet" (cit. n. 1), p. 54.

[13] Helkiah Crooke, *Mikrokosmographia: A Description of the Body of Man, Together with the Controversies and Figures Thereto Belonging* (London: Iaggard, 1616), p. 393, Table XVII, Figs. 4, 8 (the same illustration

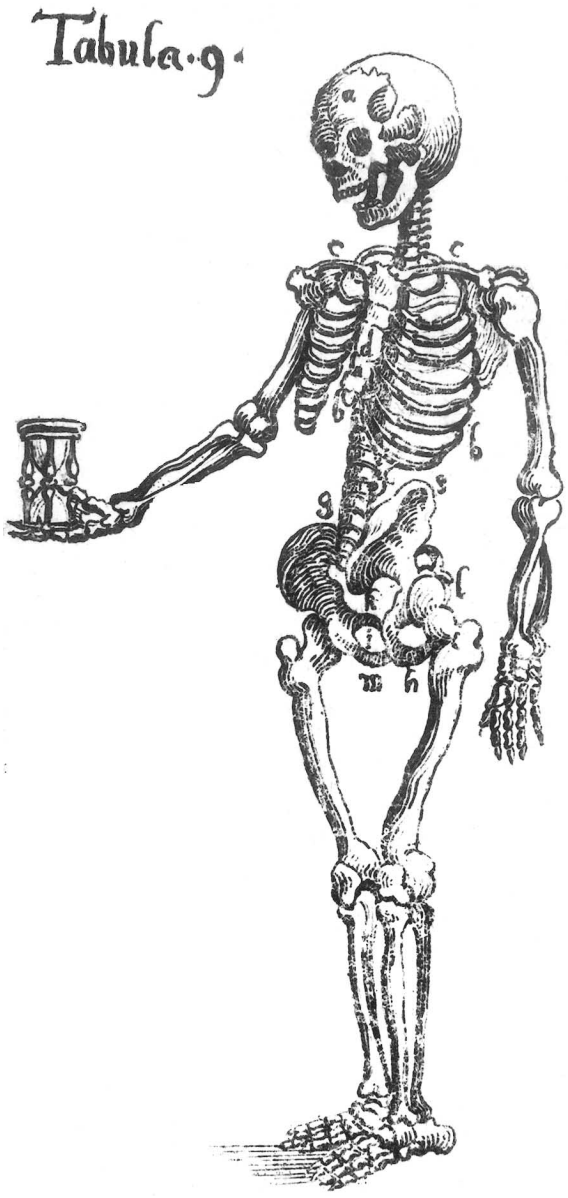

Figure 2. *Female skeleton. From Joseph Schmidt,* Spiegel der Anatomy *(1654), Table IX.*

century. In 1765, the article "Squelete" in Denis Diderot's and Jean d'Alembert's *Encyclopédie* still presented Platter's and Bauhin's canon of distinguishing features in a virtually unaltered form. There was just one significant addition. Reflecting Enlightenment beliefs

recurs on p. 981); and Joseph Schmidt, *Spiegel der Anatomy* (Augsburg: Weh, 1646), Table IX. In both copies of this work that I have seen, Schmidt's book also carries a second frontispiece, dated 1654, that gives the author's name as Schmid and the title as *Spiegel der Anatomiae.* Schmidt's dedication and his portrait (at age forty-five) were both dated 1646. Schmidt, unlike Platter and Bauhin, simply gave the (German) anatomical terms for the various structures in which the female skeleton differred from the male, without explaining the

in the paramount influence of civilization and life-style on bodily constitution, the tuberosity of the ischion—or "Sitzbein" ("sitting bone"), as it is tellingly called in German—was said to be flatter in women owing to their mostly sedentary lives. Only in the late eighteenth century, above all through the works of Samuel Theodor Soemmering (1755–1830) and his students, was the canon Platter and Bauhin had established expanded. Dozens of other more subtle differences in various parts of the body were now described, such as the different shape of the female jawbone and frontal sinus.[14]

II

What were the distinguishing features of the female skeleton that Platter, Bauhin, and those who followed them emphasized?[15] With regard to the pelvic bones, they largely repeated earlier observations. The female iliac bones were wider, to support the uterus. The branches of the pubic bones and the coccyx were more curved toward the outside in women. In addition, the anatomists now remarked that the wider pelvis brought the thigh bones farther apart than in men, leading to a particularly noticeable and appreciated difference in outward appearance—namely, the larger female buttocks. Also, the commisura anterior, where the two branches of the pubic bones meet, was not only shorter in women but was filled with thicker, laxer cartilage to allow for a certain expansion—but not separation—during birth. Immediately adjacent to the pelvis, finally, the lower lumbar spine was more curved in women than in men. This lordosis helped women to balance the growing weight of the pregnant uterus by bringing their upper bodies further backward.[16]

A second set of distinguishing features pertained to the thorax. Here the anatomists found no pre-sixteenth-century authorities to support their claims. To start with what might have been the most conspicuous difference: the "vulgar" belief that men lacked a rib because God had taken one from Adam when he formed Eve no longer seemed plausible. Men and women, the anatomists insisted, both had twenty-four ribs, twelve on each side. In rare cases either men or women might have an additional rib or lack one, just as some people had six or four fingers on a hand.[17] Caspar Bartholin's more literal interpretation

actual differences. For authors who devoted chapters to the topic of differences see Adriaan Spieghel, *De humani corporis fabrica* (Venice, 1627), pp. 72–73; and Philippe Verheyen, *Corporis humani anatomiae liber primus* (1693; Leipzig: Fritsch, 1718), pp. 575–576: "De differentia inter ossa virorum et mulierum."

[14] *Encyclopédie; ou, Dictionnaire raisonné des sciences, des arts et des métiers,* Vol. 15 (1765), pp. 482–483: "Squelete"; Samuel Thomas Soemmerring, *Tabula sceleti feminini iuncta descriptione* (Frankfurt: Varrentrapp & Wenner, 1797); and Jacob Fidelis Ackermann, *Dissertatio inauguralis anatomica de discrimine sexuum praeter genitalia* (Mainz: Alef, 1788).

[15] For the following see, in particular, the illustrations and tables of explanations in Platter, *De corporis humani structura* (cit. n. 9), Bk. 3, Table 2; and Bauhin, *Vivae imagines partium corporis humani* (cit. n. 12), pp. 246–247.

[16] On the pelvic bones see Bauhin, *Institutiones anatomicae* (cit. n. 12), p. 79; Iohannes Bokelius, *Anatome vel descriptio partium humani corporis* (Helmstedt: Lucius, 1585), p. 102; Archangelo Piccolomini, *Anatomicae praelectiones* (Rome: Bonfadini, 1586), p. 378; Jean Riolan, *Anatome,* in *Opera omnia* (Paris: Perier, 1610), pp. 66, 182; Guido Guidi, *De anatome corporis humani libri VII* (Venice, 1611), pp. 68–69; and Spieghel, *De humani corporis fabrica* (cit. n. 13), p. 68. On the buttocks see Piccolomini, *Anatomicae praelectiones,* p. 378; and Johannes Jessenius, *De ossibus tractatus* (Wittenberg: Selfisch, 1601), p. 30r. On the commissura anterior see Bauhin, *Anatomica virilis et muliebris historia* (cit. n. 11), p 67; Bauhin, *Institutiones anatomicae,* p. 79; Bokelius, *Anatome,* p. 102; and Riolan, *Anatome,* pp. 182–184. On the lower lumbar spine see Bauhin, *Anatomica virilis et muliebris historia,* p. 67; and Bauhin, *Institutiones anatomicae,* p. 79.

[17] Melchior Sebisch, "Dissertatio de discrimine corporis virilis et muliebris," in *Exercitationes medicae* (Strasburg: Staedel, 1672), pp. 706–767, on p. 712 (misnumbered 710; "vulgar" belief). For insistence on twelve pairs

of the biblical account remained exceptional: following Philipp Melanchthon, he suggested that Adam might originally have had an additional, thirteenth rib on one side, which left him with twelve when God took one away.[18] There were other marked differences between men and women, however. Men's collarbones, or clavicles, were more arched toward the outside, which gave their arms greater freedom of movement and made them better at throwing stones or striking balls. In recompense, the straighter collarbone of woman contributed to her beauty. Her skin did not sink in underneath the collarbone, making for the smoother surface of her chest.[19] The rib cage was also flatter and less arched toward the outside in women because of the weight of their breasts. And the anterior, cartilaginous parts of the ribs that, in men, ossified only in advanced old age hardened in women during puberty. This enabled the rib cage to support the growing weight of the breasts and protected the lungs against undue pressure.[20]

A particularly striking peculiarity of the female thorax was ascribed to the sternum or chest bone or to its cartilaginous appendix, the xyphoid (or xyphoid process).[21] Platter and Bauhin claimed that in women a heart-shaped hole could "sometimes" be found in the xyphoid or just above it. This hole, they believed, served as a pathway for the veins that carried the blood from the uterus to the breasts, where it was changed or "concocted" into milk. According to traditional medical theory, milk was produced from the menstrual blood that, during pregnancy and postpartum, was not excreted but instead served to nourish the fetus and then the newborn infant. The idea was that the menstrual blood, from which the milk was produced after birth, flowed directly from the uterus to the breasts. While Platter and Bauhin did not claim that this hole occurred in all women, their illustration (reprinted in Crooke's *Mikrokosmographia*), with its clearly visible heart-shaped hole in the sternum, carried the implicit message that that was what a female skeleton looked like (see Figure 3), adding the authority of the visual image to their statements. More than 250 years later, the author of an article on the "xyphoid cartilage" for the *Encyclopédie* still took this

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of ribs see Paaw, *De humani corporis ossibus* (cit. n. 8), p. 116; Spieghel, *De humani corporis fabrica,* p. 66; Isebrand van Diemerbroeck, *Anatome corporis humani* (Geneva: De Tournes, 1679), p. 814; and Vesalius, *Fabrica* (cit. n. 7), pp. 88–89. On exceptional cases see Valverde, *Anatomia* (cit. n. 7), p. 12v, who reports having seen a rib cage with thirteen ribs in Pisa in 1544; and Columbus, *De re anatomica* (cit. n. 7), p. 60.

[18] Caspar Bartholin, *Anatomicae institutiones corporis humani, utriusque sexus historiam et declarationem exhibentes* (Strasburg: Scher, 1626), pp. 398–399; cf. Philipp Melanchthon. *Liber de anima* (Wittenberg: Heirs of Peter Seitz, 1556), p. 22v. On Bartholin and his strong Protestant commitment see Ole Peter Grell, "Caspar Bartholin and the Education of the Pious Physician," in *Medicine and the Reformation,* ed. Andrew Cunningham and Grell (London/New York: Routledge, 1993), pp. 78–100.

[19] On collarbones see Bauhin, *Anatomica virilis et muliebris historia* (cit. n. 11), p. 86; Johannes Vesling, *Künstliche Zerlegung des gantzen menschlichen Leibes* (1st Latin ed., 1641; Nuremberg: Hoffmann, 1676), p. 71; and Stephanus Blancardus, *Anatomia reformata* (Leiden: Luchtmans & Boutesteyn, 1687), pt. 2, p. 260. Among those who noted the advantages conveyed see Bauhin, *Theatrum anatomicum* (1605) (cit. n. 12), p. 349; Crooke, *Mikrokosmographia* (cit. n. 13), p. 392f. (with Table XVII, Fig. IIII, showing the collarbone of a woman, "which is straighter then of a man"); Pierre Dionis, *Anatomia corporis humani* (Amsterdam: Cramer & Perachon, 1696), p. 83; and Joannis Munnicks, *Anatomia nova qua juxta neotericorum inventa tota res anatomica breviter et dilucide explicatur* (Lyons: Tenet, 1699), p. 576 (in addition, according to Munnicks, the configuration of the collarbone made it easier for men to shoulder heavy loads). On the corresponding beauty of the female chest see Bauhin, *Anatomica virilis et muliebris historia,* p. 86; Bartholin, *Anatomicae institutiones corporis humani,* pp. 402–403; Crooke, *Mikrokosmographia,* p. 980; Riolan, *Anatome* (cit. n. 16), p. 66; Dominicus de Marchetis, *Anatomia* (Padua: Cadorinus, 1654), p. 145; and Dionis, *Anatomia corporis humani,* p. 83.

[20] Bauhin, *Anatomica virilis et muliebris historia,* pp. 87, 88; Bauhin, *Theatrum anatomicum* (1605), p. 358; Crooke, *Mikrokosmographia,* p. 984; Spieghel, *De humani corporis fabrica* (cit. n. 13), p. 69; Diemerbroeck, *Anatome corporis humani* (cit. n. 17), p. 814; and Verheyen, *Corporis humani anatomiae* (cit. n. 13), p. 549 (though he modifies his claim regarding early ossification by adding "if those who report it can be trusted").

[21] In contemporary terminology it carried various names: "cartilago ensiformis," "cartilago mucronata," "pomum granatum."

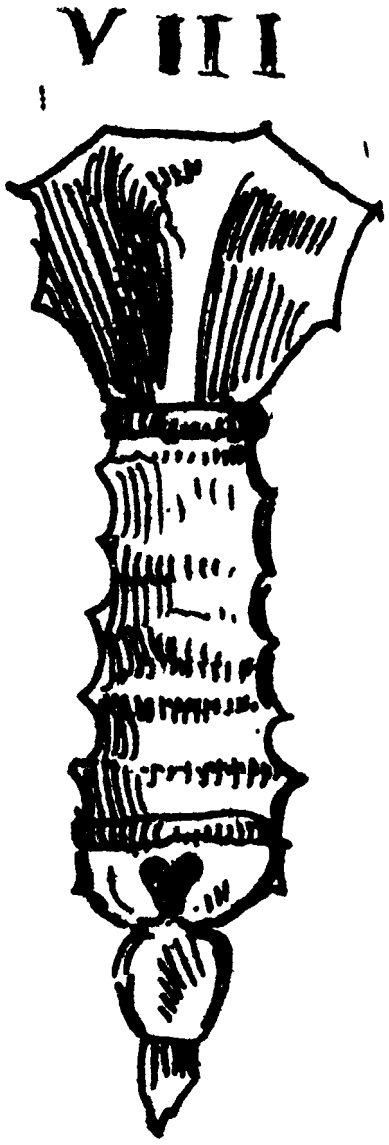

Figure 3. *Female chest bone with a heart-shaped hole. From Felix Platter,* De corporis humani structura (1583), *Book 3, Table VIII, Figure VIII.*

finding for granted. He specified that there was sometimes a hole in the middle of the sternum and that in women in whom this hole was missing there was "almost always" one in the xyphoid.[22]

[22] Platter, *De corporis humani structura* (cit. n. 9), Bk. 3, Table VIII, Fig. VIII (the explanation runs: "fig. pectoris oßis mulieris anterior pars, foramen illius ad cordis figuram formatum ostentans"); and Bauhin, *Anatomica virilis et muliebris historia* (cit. n. 11), p. 87. On menstrual blood and milk see Berengario, *Isagogae breves* (cit. n. 7), p. 26r; and Heinrich Vogtherr, *Außlegung vnd Beschreybung der Anatomi / oder warhafften*

Apart from the pelvis (including the lower lumbar spine) and the thorax, only one other site of presumed sexual difference was widely commented on, and this was a matter of dispute: the cranial sutures, which connect the various bones of the upper surface of the skull. While Aristotle's claim that men had three sutures and women only one was by this point unanimously refuted, interest now focused on the sagittal suture, which runs along the top of the skull and usually ends at the transversal, "coronal," suture above the forehead. In 1560 Valverde had maintained that the sagittal suture sometimes, but much more rarely in women than in men, continued farther down the forehead toward the bridge of the nose. Platter seems to have followed him on this point. Caspar Bauhin also rejected the "vulgar" opinion that this suture necessarily distinguished female and male skulls, but he concluded that a prolonged sagittal suture was more common in women.[23] Others denied any sexual difference at all and declared the prolonged sagittal suture a mere "lusus naturae"—a whim of nature—that could occur in either sex. Around 1700, however, Philippe Verheyen still insisted that the sagittal suture remained open more frequently in women than in men, though he felt compelled to criticize those who thought that this was an exclusively female phenomenon.[24] Why women should have an extended sagittal suture more or less often than men was, in fact, difficult to explain. The cranial sutures were generally believed to serve as a point of attachment for the cerebral membranes and as an outlet for hot, impure fumes or vapors that originated in the body and rose upward toward the cranial cavity. The Aristotelian notion that men had more cranial sutures thus made sense: the hotter male body was bound to produce more of these hot vapors or fumes. But what use could there be for a slightly longer sagittal suture, especially in the colder women? Bauhin and Jean Riolan, in fact, implicitly suggested a different logic: since a prolonged sagittal suture was known to be common in children, their accounts located women somewhere between immature children and fully grown-up men.[25]

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abconterfetung eines inwendigen Cörpers des Manns vnd Weybes (Nuremberg: Guldenmundt, 1539), Ch. "Von weyblichen und männlichen Brüsten" ["On Female and Male Breasts"], unpaginated. Without mentioning a hole in the sternum, Vogtherr even suggests a reversed flow of nourishment from the breasts to the uterus during pregnancy. For the illustration see Crooke, *Mikrokosmographia* (cit. n. 13), p. 393, Table XVII, Fig. 8, and p. 981, Table XVIII, Fig. 9. Crooke used the figure, showing a heart-shaped hole, to illustrate his claim that the second bone of the sternum was "in women somtimes [*sic*] toward the end perforated with a broad hole much like a heart"; but he also asserted, referring to the same illustration, that the xyphoid below it sometimes was perforated in women, "to transmit the mammary veins which are accompanied with a nerve" (p. 982). Crooke also claimed that in women the "breast bone is flatter then [*sic*] it is in men because their paps are larger" (p. 393). See also *Encyclopédie,* Vol. 17 (1765), p. 656: "Xiphoide, cartilage." The hole was still mentioned in 1788 by the translator of Ackermann's *Dissertatio inauguralis anatomica de discrimine sexuum praeter genitalia* (cit. n. 14): *Ueber die körperliche Verschiedenheit,* pp. 74–75n.

[23] For Aristotle's claim and refutations see Aristotle, *Historia animalium* 516a.15–19; Fuchs, *De humani corporis fabrica* (cit. n. 8), p. 22v; Ioannes Philippus Ingrassia, *In Galeni librum de ossibus doctissima et expectatissima commentaria* (Panormi: Maringhi, 1602), p. 63; and Bauhin, *Theatrum anatomicum* (1605) (cit. n. 12), p. 515. For the other views discussed see Valverde, *Anatomia* (cit. n. 7), p. 4v (Étienne, *De dissectione* [cit. n. 7], pp. 15–16, had already remarked on and illustrated the possibility of a prolonged sagittal suture but did not mention any sex difference); Platter, *De corporis humani structura* (cit. n. 9), Bk. 3, p. 2r; and Bauhin, *Theatrum anatomicum* (1605), p. 515. Platter had written about the suture: "in pueris semper, in uiris rarissime, in mulieribus rarius quoque deprehenditur." Bauhin may have understood "rarius" as referring to the comparison between children and women rather than that between women and men.

[24] Verheyen, *Corporis humani anatomiae* (cit. n. 13), p. 576. On the "whim of nature" see John Banister, *The Historie of Man, Sucked from the Sappe of the Most Approued Anathomistes, in This Present Age* (London: Daye, 1578; rpt., Amsterdam, Theatrum Orbis Terrarum; New York: Da Capo, 1969), p. 7v; and Paaw, *De humani corporis ossibus* (cit. n. 8), p. 33.

[25] Bauhin, *Theatrum anatomicum* (1605) (cit. n. 12), p. 515; and Riolan, *Anatome* (cit. n. 16), p. 38. On the use of the cranial sutures see Pietro d'Abano, *Conciliator controversarium, quae inter philosophos et medicos versantur* (1471; Venice: Iuntae, 1565), pp. 60r–61v; Valverde, *Anatomia* (cit. n. 7), p. 5v; Bauhin, *Anatomica virilis e muliebris historia* (cit. n. 11), p. 119; Bartholin, *Anatomicae institutiones corporis humani* (cit. n. 18), pp. 361, 364; and Riolan, *Anatome,* p. 40.

III

Already in the sixteenth and early seventeenth centuries, then, we encounter a broad trend among academic physicians, north and south of the Alps, to describe the female skeleton as different from the male. The message, as Schiebinger has perceptively pointed out for the eighteenth century, was clear: a woman was a woman down to her bones. This finding has obvious implications for Laqueur's claim that pre-eighteenth-century medical notions of sexual difference were based on a "one-sex model" that ranked man and woman according to the strength and perfection of their heat or nature. It would have been extremely difficult to account for these skeletal differences as a result of woman's weaker heat or inferior nature, and no author seems even to have attempted to do so. Indeed, as Roderigo da Castro remarked in 1603, how was one to explain, for example, as a consequence of weaker female heat that women's iliac bones were much wider and thicker than those of men, while her other bones generally were smaller?[26]

Laqueur's claim also does not hold for sixteenth- and early seventeenth-century writings about the genital organs, for various reasons. First, Joan Cadden and Danielle Jacquart and Claude Thomasset have shown that even medieval notions cannot quite so easily be interpreted as based on a "one-sex model." Certainly in the early modern period various conflicting traditions interacted. Generally speaking, Aristotelians inclined more toward hierarchical notions of woman as an imperfect man in Laqueur's sense. Galenists put a somewhat greater stress on complementarity (which is not the same as equality)—for example, by assuming a female as well as a male semen and, by implication, a female orgasm. The Hippocratic tradition went even further: Hippocratic writings denied, for example, that women were colder at all and instead emphasized the fundamental, material otherness of the female body.[27]

Second, Laqueur does not distinguish sufficiently between notions of true homology and mere comparison. Even those Renaissance and early modern anatomists who still alluded to Galen's idea (or image) that the genitals of women were like those of men except that they stayed inside the body usually preferred to describe the relationship between male and female genitals in terms like "quasi," "sicut," or "velut," indicating similarity or comparison rather than homology or identity. This includes most of the authors cited by Laqueur. Obviously, comparison does not necessarily imply a belief in true homology or identity. After all, the anticipated readers of anatomical textbooks were men and presumably much more familiar with the genitals of their own sex. Such comparison, it is true, implicitly identified the male body as the standard and the female body as a deviation. But in this respect the eighteenth century brought no substantial change. Indeed, the same still holds true today.[28]

[26] Roderigo da Castro, *De universa mulierum medicina,* Pt. 1 (Cologne, 1603), p. 78.

[27] Cadden, *Meanings of Sex Difference in the Middle Ages* (cit. n. 5); and Danielle Jacquart and Claude Thomasset, *Sexuality and Medicine in the Middle Ages* (Princeton, N.J.: Princeton Univ. Press, 1988). On the ancient roots of the belief in female otherness see Helen King, *Hippocrates' Woman: Reading the Female Body in Ancient Greece* (London/New York: Routledge, 1998); and Sabine Föllinger, *Differenz und Gleichheit: Das Geschlechterverhältnis in der Sicht griechischer Philosophen des 4. bis 1. Jahrhunderts v. Chr.* (Stuttgart: Steiner, 1996).

[28] For an indication of similarity see, e.g., Gabriel de Zerbi, *Liber anathomie corporis humani et singulorum membrorum illius* (Venice, 1502?), p. 42r: "matrix est n. quasi conuersus instrumentum viri . . . collum autem matricis quasi virga"; almost the same words recur in Berengario, *Isagogae breves* (cit. n. 7), p. 22v; and in Henri de Mondeville (see Michel Thiery and Hans Houtzager, *Der vrouwen vrouwlijcheit* [Rotterdam: Erasmus, 1997], p. 33n). On the situation today see Susan C. Lawrence and Kae Bendixen, "His and Hers: Female Anatomy in Anatomy Texts for U.S. Medical Students, 1890–1989," *Social Science and Medicine,* 1992, *8:*925–934.

Finally, and most important in the context of this essay, Laqueur virtually ignores the profound changes in the perception of sexual difference that occurred in the sixteenth and early seventeenth centuries.[29] Part of the reason for Laqueur's failure to recognize this further shift toward explicit, marked dimorphism is the fact that he largely disregards works in Latin, then the dominant language of scientific and medical discourse; but the shift can also be discerned in vernacular writing. As I want to show in this section, by the early seventeenth century physicians were already almost unanimous in their explicit rejection of any notion of real homology as wrong if not "absurd." They based this rejection on a detailed analysis and description of the respective anatomical structures.[30]

To start with the ovaries, or female "testes": they differed very much in size and substance from those of the male, Lodovicus Vassaeus asserted in 1553. Their form and substance were not even similar, Volcher Coiter claimed in 1573; the ovaries were full of hollow spaces and cysts filled with watery or, at times, yellowish fluid. Indeed, argued Coiter and, soon after, Salomon Alberti, they were much more similar to the male "parastatae" or "epidydimai."[31]

Penis and vagina also had little in common.[32] One was a complex structure with several cavities; the other was a larger, single cavity, a hollow designed to receive the male member. "Whichever way, therefore, you invert the neck of the uterus [i.e., the modern 'vagina']," the Montpellier professor André du Laurens wrote in 1602, "you will never form a penis."[33] In fact, some authors felt there was more similarity between the penis and the

[29] For similar critiques see Ian Maclean, *The Renaissance Notion of Woman: A Study in the Fortunes of Scholasticism and Medical Science in European Intellectual Life* (Cambridge: Cambridge Univ. Press, 1980); for detailed, more recent analyses esp. of the French and German debates see Evelyne Berriot-Salvadore, *Un corps, un destin: La femme dans la médecine de la Renaissance* (Paris: Champion, 1993); Manuel Simon, *Heilige–Hexe–Mutter: Der Wandel des Frauenbildes durch die Medizin im 16. Jahrhundert* (Berlin: Reimer, 1993); and Thiery and Houtzager, *Der vrouwen vrouwlijcheit.* Laqueur's chronology has also been questioned by literary historians. See Katja Strobel, "Die Courage der Courasche: Weiblichkeit als Maskerade und groteske Körperlichkeit in Grimmelshausens Pikara-Roman," in *Maskeraden: Geschlechtsdifferenz in der literarischen Inszenierung,* ed. Elfi Bettinger and Julika Funk (Berlin: Schmidt, 1995); and Adelman, "Making Defect Perfection" (cit. n. 5). Adelman finds little evidence of a hegemonic "one-sex model" in the handful of English vernacular medical texts she has studied and offers some suggestions as to why the idea may nevertheless have exerted such a great attraction on students of early modern drama and literature.

[30] A good example is André du Laurens, *Historia anatomica humani corporis partes singulas uberrime enodans* (Frankfurt: Rhodius, 1602), p. 567. One of the last major exceptions was Piccolomini, who used the ontological argument that women are human to prove that men and women ultimately had the same genital parts: Piccolomini, *Anatomicae praelectiones* (cit. n. 16), p. 184. But, as Riolan remarked condescendingly, he was to be forgiven because he had little experience in anatomical matters: Riolan, *Anatome* (cit. n. 16), p. 142.

[31] Lodovicus Vassaeus, *In anatomen corporis humani tabulae quatuor* (Paris: Fezandat, 1553), p. 10r (similarly, see Valverde, *Anatomia* [cit. n. 7], p. 91r); Volcher Coiter, *Externarum et internarum principalium humani corporis tabulae* (Nuremberg: Gerlatzen, 1573), p. 27 (Coiter had studied anatomy in Italy with Falloppio, Eustachius, and Aranzi); and Salomon Alberti, *Historia plerarunque partium humani corporis, in usum tyronum edita* (Wittenberg: Lehman, 1583), p. 69. See also the detailed discussion in Francesco Plazzoni, *De partibus generationis libri duo* (1621; Leiden: De Haro, 1644), pp. 134–137.

[32] The vagina was usually called the "collum uteri" or "cervix uteri" but was frequently compared to a sheath (Lat.: vagina). Seventeenth-century authors eventually started to call it the "vagina penis." Falloppio was exceptional in his understanding of "cervix" as referring only to the part we call the "cervix uteri" today: Gabriele Falloppio, *Observationes anatomicae* (Cologne: Birckmann, 1562), p. 298.

[33] Du Laurens, *Historia anatomica* (cit. n. 30), p. 552. Having found no comparable positions among previous Galenists, Winfried Schleiner in his recent critique of the Laqueur thesis has attributed a crucial role in overthrowing the one-sex model to Du Laurens: Schleiner, "Early Modern Controversies about the One-Sex Model," *Renaissance Quarterly,* 2000, *53:*180–191. Following Du Laurens, Helkiah Crooke also declared that it was"very absurd to say, that the neck of the wombe inverted is like the member of a man": Crooke, *Mikrokosmographia* (cit. n. 13), p. 250. Crooke's technique of compiling and translating passages from different authors produced a somewhat inconsistent account, however; in another passage he appears much less opposed to the idea that the female genitals were retained in the belly owing to a lack of heat (*ibid.,* p. 216 f.). Noting such discrepancies in

clitoris, which both Gabriele Falloppio and Realdus Columbus each proudly presented as his own discovery. Like the penis, the clitoris was crucial for sexual desire, was covered by a retractable skin, and increased in size with titillation; indeed, it sometimes became so big that it resembled a penis. But, as others argued, that comparison could not be sustained either. The clitoris was usually much smaller than the penis, had no passage inside, and was not connected to the bladder. Some anatomists even found a third structure that could be said to resemble the penis or its glans, namely the "os internum" of the uterus—the "cervix," in the modern sense—the part of the uterus that protrudes into the (modern) vagina. It was firm and round, and, like the penis, it had a small slit or opening.[34]

The comparison between the uterus and the scrotum seemed hardly more fitting. Their surfaces and substances were very different; indeed, as Gregor Horst wrote, one might just as well compare the uterus to the bladder. And the faculties or powers of the uterus were infinitely superior to those of the scrotum: it attracted and retained the male seed, nourished the fetus, expelled the infant, and freed the body of menstrual blood. Finally, various authors noted, the prostate and the parastatae, located above the testicles in men, were not found at all in women.[35]

In short, as Du Laurens summarized his extensive discussion of sexual difference in 1602, "no similarity comes in between the vagina and the male penis; none between the uterus and the scrotum; neither in the structure, form and size of the testicles the same, nor in the distribution and insertion of the spermatic vessels." Consequently, the widely circulating stories of cases of actual sex changes from female to male (or even vice versa) were now almost unanimously rejected by the anatomists.[36] The idea that jumping over a brook or some similar violent movement could turn a girl into a boy simply by pushing her genitals inside out no longer made sense. The form, size, and structure of the female genitals were too different. They could never come to look like male genitals just by changing their place—not to mention the serious if not fatal lacerations and bleeding that

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Crooke's work, Stephen Orgel has argued that Crooke's position depended on context, in that he resorted to homology when his aim was to "establish the parameters of maleness, not of womanhood," and to notions of difference when his aim was to "define the nature of women": Orgel, *Impersonations: The Performance of Gender in Shakespeare's England* (Cambridge: Cambridge Univ. Press, 1996), p. 22. But inconsistencies of this kind are not typical for most authors I have studied.

[34] On similarities between the penis and the clitoris see Coiter, *Externarum et internarum principalium humani corporis tabulae* (cit. n. 31), p. 10; Alberti, *Historia plerarunque partium humani corporis* (cit. n. 31), p. 76; Spieghel, *De humani corporis fabrica* (cit. n. 13), pp. 329–330; Falloppio, *Observationes anatomicae* (cit. n. 32), pp. 298–300; and Columbus, *De re anatomica* (cit. n. 7), p. 447. See also Katharine Park, "The Rediscovery of the Clitoris: French Medicine and the Tribade, 1570–1620," in *The Body in Parts: Fantasies of Corporeality in Early Modern Europe,* ed. David Hillman and Carla Mazzio (New York/London: Routledge, 1997), pp. 171–193; and Thomas Laqueur, "Amor veneris, vel dulcedo appeletur," in *Fragments for a History of the Human Body,* ed. Michel Feher *et al.* (New York: Zone, 1989), Pt. 3, pp. 90–131. Against comparing the penis and the clitoris see Du Laurens, *Historia anatomica,* p. 552. A comparison of the penis and what we would call the cervix is in Bokelius, *Anatome* (cit. n. 16), p. 167.

[35] Du Laurens, *Historia anatomica,* p. 552 (uterus and scrotum); and Gregor Horst, *De natura humana libri duo* (Frankfurt: Kempfer & Berger, 1626), pp. 160–162, exercitatio 7, query 1: "an sexus transmutatio naturae possibilis." On the absence of the prostate and the parastatae in women see Columbus, *De re anatomica,* p. 234; and Du Laurens, *Historia anatomica,* p. 551. That women lacked these parts was already mentioned by Berengario da Carpi: Berengario, *Isagogae breves* (cit. n. 7), p. 22v.

[36] Du Laurens, *Historia anatomica,* p. 567. Regarding sex changes see Park, "Rediscovery of the Clitoris" (cit. n. 34); and for an influential application of Laqueur's findings in literary history see Stephen Greenblatt, *Shakespearean Negotiations: The Circulation of Social Energy in Renaissance England* (Oxford: Clarendon, 1988), pp. 66–93. According to Greenblatt, in the sixteenth and seventeenth centuries "physicians and laymen of sharply divergent schools agreed that male and female sexual organs were fully homologous" (p. 79); but he gives no post-1600 references to support this point and he also mentions "serious doubts on the whole notion of homology" by 1601 (p. 81).

would result if the ligaments and tendons that attached the uterus to the bones around it were torn. There had to be another explanation for the alleged sex changes: either the "girl" had always been a boy—perhaps with relatively small genitals—or these were actually cases of hermaphrodites who had been mistaken for girls.[37]

Laqueur's supplementary claim that contemporary medical men had no language, no specific terms, for the female genitals also finds no support in contemporary writing—in fact, it does not even hold for Galen himself. Early modern terms like "corpus" or "fundus" and "cervix" or "collum uteri," "os externum" and "os internum," "vulva," "labia," "nymphae," and "clitoris," did not always correspond to our modern understanding, and sometimes contemporary anatomists did not agree among themselves on their exact use. But they were widely used and provide additional evidence for a dimorphic view of the human reproductive organs.

The anatomists were far from alone in their growing interest in sexual difference. Similar and sometimes even more radical positions can be found, indeed at an even earlier date, among contemporary "gynecologists"—or, more precisely, among the growing number of physicians who wrote specialist treatises on "women's diseases"; this was a field that was much more extended than today's gynecology because a wide range of diseases in women were thought ultimately to be caused by uterine pathology or menstrual irregularities.[38] The genre boomed in the second half of the sixteenth century and counted some of the most renowned medical authorities of the time among its representatives.[39] Quite a few of these works dealt explicitly with the issue of sexual difference in prefaces or dedicatory letters, and some even devoted a special chapter to it. And they tended to be quite outspoken. For Luìs Mercado, for example, "the different structure and location of the genitals" was a "most powerful reason for the difference between the sexes." Indeed, Joannis Varandaeus of Montpellier asked, what did the uterus, that most noble organ of reproduction, have in common with that "miserable, hanging sack of men"?[40]

[37] Du Laurens, *Historia anatomica,* p. 551; and Horst, *De natura humana* (cit. n. 35), pp. 160–162. On the firm attachment of the uterus see Vogtherr, *Außlegung vnd Beschreybung der Anatomi* (cit. n. 22), Ch. "Von der Muotter"; and Joannis Varandaeus, "An foemina sit imperfectior mare," in *Opera omnia theorica et practica* (Montpellier: Chouët, 1658), pp. 477–482, esp. p. 480. For alternative explanations see *ibid.;* Horst, *De natura humana,* p. 162; and Crooke, *Mikrokosmographia* (cit. n. 13), pp. 249–250.

[38] The term "gynecology" was coined somewhat later, probably by Johann Peter Lotichius; it referred, at first, more generally to the science of woman. See Johann Peter Lotichius, *Gynaicologia, id est de nobilitate et perfectione sexus feminei* (Rinteln: Lucius, 1630). Related terms like "gynaeceia" and "genecia" were already used in the Middle Ages; see Monica Helen Green, "The Transmission of Ancient Theories of Female Physiology and Disease through the Early Middle Ages" (Ph.D. diss., Princeton Univ., 1985).

[39] Giovanni Marinello, *Le medicine partenenti alle infermità delle donne* (Venice: Senese, 1563); Hieronymus Mercurialis, *De morbis muliebribus praelectiones,* 4th ed. (Venice: Iuntae, 1601); Jean Liébault, *Trois livres appartenans aux infirmitez et maladies des femmes* (Lyons: Veyrat, 1597); Ioannes Heurnius, *De gravissimis morbis mulierum liber,* ed. Otto Heurnius (Leiden: Raphelengus, 1607); Hermann Corbeus, *Gynaeceium, sive de cognoscendis, praecauendis, curandisque praecipuis mulierum affectibus libri duo* (Frankfurt: Heirs of D. Palthenius, 1620); and Daniel Sennert, *Practica medicina,* Bk. 4: "De mulierum et infantium morbis ac symptomatibus," 2nd ed. (Wittenberg: Heirs of T. Merius, 1649); see also the various editions of the *Gynaeciorum* (see note 10, above). While the obstetrical ambitions of early modern physicians and their conflicts with midwives have attracted considerable attention in recent scholarship, the massive increase in interest in "women's diseases" in the contemporary sense has, to my knowledge, not yet been studied in any greater depth. For a brief sketch see Maclean, *Renaissance Notion of Woman* (cit. n. 29).

[40] Luìs Mercado, *De mulierum affectionibus libri quatuor* (Venice: Societas Veneta, 1602), p. 9 ("potentissima causa diuersitatis est diuersa genitalium structura et sedes"); and Varandaeus, "An foemina sit imperfectior mare" (cit. n. 37), p. 480 (cf. Heurnius, *De gravissimis morbis mulierum,* p. 2). For separate discussions of sexual difference see Martin Akakia, *De morbis muliebribus,* in *Gynaeciorum,* ed. Spachius (1597) (cit. n. 10), pp. 745–801, on pp. 745–746, "Prolegomena"; Mercado, *De mulierum affectionibus,* Ch. 1: "De sexu et eius differentia"; Castro, *De universa mulierum medicina* (cit. n. 26), Pt. 1, pp. 1–2 ("Quid sit foemina, quaque ratione a viro

In the eyes of these "gynecologists," sexual difference was not just a theoretical issue. It also possessed great practical relevance. The truly learned physician had to be well aware of the differences between the male and the female body—and not just with regard to temperament—and take them into consideration in his choice of treatment.[41] There were two principal reasons for this. First, there were many diseases that were totally unknown in men because they affected those parts that men did "not share in the least" with women or that distinguished women "more evidently" from men than their temperament: the uterus and the breasts. Time and again Democritus's letter to Hippocrates was quoted to the effect that the uterus was the cause of six hundred diseases in women.[42] Second, all diseases, including those they shared with men, had peculiar features in women. This was due, in particular, to the great influence of the uterus on the whole female body. On this point the Galenists even agreed with the Paracelsian and Helmontian minority, though the latter groups based their view on different etiological and nosological concepts. God had created man and woman according to his own image, the Brandenburg court physician Leonhard Thurneisser explained in 1575, but he had provided them with reproductive parts that differed greatly not only in form but also in kind and substance.[43] Paracelsus had indeed argued that those who said men and women were identical were liars. Two different "monarchies" ruled in them; therefore their diseases were different, too—"a man has one jaundice, and a woman another one"—and, accordingly, the physician had to treat them by different means. Along similar lines, Johann Baptist van Helmont insisted on the dominion of the uterus over the whole female body and ridiculed the "schools" for treating women's diseases with drugs that were suitable for men. The *Encyclopédie,* as well as various late eighteenth- and early nineteenth-century gynecological works, frequently referred to his (alleged) dictum that "woman is what she is due only to her uterus."[44]

IV

By the early seventeenth century, in anatomical as well as "gynecological" writing, notions of sexual dimorphism thus prevailed widely and even diseases were seen to be markedly "sexed." The old Galenic notion of genital homology, or at least analogy, can still occa-

dissideat") 76–79 ("De similitudine in sexu; et an foemina viro imperfectior sit"); and Johannes Nicolaus Pfizerus, *Zwey sonderbare Bücher / von der Weiber Natur / wie auch deren Gebrechen und Kranckheiten* (Nuremberg: Andreas & Heirs of W. Endter, 1673), pp. 5–8 (Ch. 2: "Ob wahr sey / was etliche vor Alters gelehret / daß nemlich die Weiber nicht vollkommene Menschen wären").

[41] Thus, e.g., Israel Spachius, in the preface to his 1597 edition of the *Gynaeciorum* (cit. n. 10): "Multum enim muliebres morbi et viriles curatione discrepant"; very similarly, see Ioannes Guerilius, in the dedicatory letter to Mercado, *De mulierum affectionibus.* See also Hippocrates, *De morbis mulierum* 1.62.

[42] Albertino Bottoni, *De morbis muliebribus* (Padua: Meietum, 1585), p. 1r ("not share in the least"); and Mercado, *De mulierum affectionibus,* p. 8 ("more evidently"). Quoting Democritus's letter see, e.g., Corbeus, *Gynaeceium* (cit. n. 39), dedication. Much more rarely, specifically male diseases were also pointed out, like impotence and priapism; see Mercado, *De mulierum affectionibus,* p. 7.

[43] Staatsbibliothek Berlin, MS germ. fol. 106, 168r–172v, handwritten consultation (draft with marginal corrections) dated 4 May 1575; according to Thurneisser, the symptoms of the patient in question originated primarily from the uterus. For the pathological influence of the uterus see Heurnius, *De gravissimis morbis mulierum* (cit. n. 39), p. 1; and Joannes Varandaeus, *De morbis mulierum libri III,* ed. Romanis a Costa (Montpellier: Chouët, 1620), preface.

[44] Paracelsus, *Opus paramirum,* in Paracelsus, *Bücher und Schrifften,* Vol. 1, ed. Johannes Huser (Basel: Waldkirch, 1589), pp. 65–237, on p. 212; Johann Baptist van Helmont, *Aufgang der Artzney-Kunst* (Sulzbach: Endters, 1683; rpt., Munich: Kösel, 1971), p. 85; and Jacques Devers, *Essai sur la cessation des règles* (Paris: Didot, 1822). The phrase was even used as a motto on frontispieces; see, e.g., C. P. L. Gardanne, *Dissertation sur les avis à donner aux femmes qui entrent dans l'âge critique* (Paris, 1812). So far, however, I have not been able to find the literal quotation ("Propter solum uterum mulier est id quod est") in Helmont's works.

sionally be traced in certain types of later "popular" vernacular writing.[45] But within the dominant medical discourse Laqueur intends to reconstruct, the shift toward explicit, anatomically based sexual dimorphism took place some two hundred years earlier than his account suggests.[46]

What then were the driving forces behind this broad trend toward a revaluation of female physical otherness? The need to counter Enlightenment views of female equality and universal rights by insisting on "naturally" given fundamental bodily difference can hardly have been the cause. These are later developments. Nor did the physicians feel particularly threatened by female ambitions to enter academic medicine.[47]

The simplest and seemingly obvious explanation would seem to be the marked shift toward more empirical approaches in early modern science and medicine. Though learned anatomical treatises continued to draw extensively on the writings of ancient authorities, and above all on Galen, the new ideal of personal observation ("autopsia") as the "most trustworthy judge" brought forth numerous new discoveries and led the anatomists to correct Galen on many crucial points.[48] This approach originated primarily in the northern Italian universities, but especially after the publication of Vesalius's work the "new" anatomy spread throughout Europe. When, in the process, the details of male and female skeletal and sexual anatomy became better known, one might thus argue in retrospect, older notions based on homology were bound to be increasingly discredited because they were clearly at odds with empirical observation.

Greater attention to empirical detail certainly has to be taken seriously as an explanation.[49] It is significant in this context that some of the major "protagonists" of my story, like Platter, Bauhin, Valverde, and Du Laurens, ranked among the leading representatives of the new post-Vesalian anatomy. This interpretation is also very much in line with the self-perception of contemporary anatomists: Hippocrates, Aristotle, and Galen, they routinely emphasized, were "friends," but "truth," as revealed by the "book of nature," was the greatest authority of all.[50]

For good reasons, however, historians of medicine and the sciences have become increasingly reluctant to assume that "natural facts" literally impose themselves on the observer. Modern Western anatomy clearly is not an inevitable result of serious scientific

[45] But see also, e.g., *The Compleat Midwife's Practice Enlarged,* 2nd ed. (London: Brook, 1659), p. 69: "The stones of women, although they do perform the same actions, and are for the same use as mens, yet they differ from them in scituation [*sic*], substance, temperament, figure, magnitude, and in their covering."

[46] A different question is to what degree ordinary men and women followed this shift toward sexual dimorphism; however, the little we know about popular medieval disease concepts and healing practices—e.g., the manifold drugs "for the uterus"—rather suggests that the Galenic analogy model was never very important, in the first place, for the ways ordinary people experienced their bodies. For the changing metaphors in vernacular English writing on female bodies see Mary Fissell, "Gender and Generation: Representing Reproduction in Early Modern England," *Gender and History,* 1995, *7:*431–456.

[47] Female healers and midwives, it is true, were perceived as very unwelcome competition and were harshly attacked for their ignorance, but so, too—and usually in the same breath—were their male counterparts, the itinerant "charlatans," the "urine-prophets," the drug-pedlars, and so forth. Physicians primarily led a campaign against "ignorance" and "superstition," with only occasional misogynistic (and anti-Jewish) undertones.

[48] Paaw, *De humani corporis ossibus* (cit. n. 8), p. 116.

[49] Berriot-Salvadore, *Un corps, un destin* (cit. n. 29), puts this aspect at the center of her interpretation.

[50] Bauhin, *Institutiones anatomicae* (cit. n. 12), "Ad lectorem." Platter and Bauhin, in particular, witnessed and participated in autopsies as students and later, in Basel, performed both public and private ones themselves. Platter reports several autopsies he saw as a medical student in Montpellier: Platter, *Tagebuch,* ed. Lötscher (cit. n. 9), pp. 211–212, 352–353, 428; see also editor's note on p. 353. Bauhin studied anatomy in Padua, Bologna, Montpellier, and Paris and counted Fabrizio d'Aquapendente and Giulio Cesare Aranzi among his teachers: Whitteridge, "Gaspard Bauhin" (cit. n. 11); and Caspar Bauhin, *De corporis humani partibus externis* (Basel: Ex Officina Episcopiana, 1592), preface.

analysis—think of the highly sophisticated and yet radically different anatomical concepts of ancient China or Japan.[51] Already what we perceive and what we try to "see"—and not just our interpretation—is markedly shaped or "framed" by our respective cultural and mental frameworks. Thus, even if we do not accept the tenets of radical constructionism and postmodern textualism and insist that the body "as such" can and does deeply influence how we perceive and experience it, the mere force of empirical evidence alone offers no complete and satisfying explanation as to why sixteenth- and seventeenth-century anatomists and physicians came to insist on difference and incommensurability rather than homology and female imperfection. The "discovery" of the peculiar characteristics of the female skeleton is particularly illuminating in this respect. After all, early modern anatomists based their new notion of sexual difference partly on findings that modern anatomy does not accept. Anatomists no longer believe that the female ribs ossify decades before those of the male or that the female thorax is flattened by the weight of the breasts. They know nothing of a different shape or position of the female coccyx, let alone its flapping backward during birth. Neither is Platter's and Bauhin's striking finding of a heart-shaped hole in the female sternum or xyphoid corroborated by modern anatomy, except as a variant or as the result of faulty preparation of the skeleton.[52] And even among themselves early modern anatomists were unable to agree on the frequency or significance of an extended sagittal suture: they merely noted the existence of differences.

So what else, apart from growing attention to empirical detail, could have prompted sixteenth- and seventeenth-century medical authors, across political and confessional divides, increasingly to insist on anatomical sexual difference? Clearly we are not likely to find a single decisive driving force for what appears to have been pretty much a pan-European development, and the choices of individual physicians may have followed different rationales, depending also on their respective social and cultural context. There are, however, various developments in contemporary medical theory and practice, as well as in society at large, that, I believe, go a long way in helping us to understand the dynamics of this trend toward sexual dimorphism.

A first major influence was a change in the ways by which physicians could assure themselves of a scientific reputation and a lucrative practice. In the sixteenth and seventeenth centuries, the international scientific community increasingly valued personal discovery and innovation above the elaborate learned commentary of ancient works. New anatomical findings like the clitoris and Bauhin's ileocecal valve were proudly proclaimed and helped establish their authors' reputations.[53] In this setting, the anatomists had good reasons to try to identify as many new points of sexual difference as possible, as a means

[51] Shigehisa Kuriyama, *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine* (New York: Zone, 1999); see also Shingo Shimada, *Grenzgänge—Fremdgänge: Japan und Europa im Kulturvergleich* (Frankfurt/New York: Campus, 1994), pp. 166–180, on the radical change of paradigm in favor of Western anatomy that translations of Western anatomical textbooks sparked in eighteenth-century Japan. For an analysis of reasons for the relatively slow changes in early modern Western anatomy, despite a massive increase in empirical work, see Andrea Carlino, *Books of the Body: Anatomical Ritual and Renaissance Learning* (Chicago/London: Univ. Chicago Press, 1999).

[52] The article "Sternum" for the *Encyclopédie* (Vol. 15 [1765], p. 515) reports Hunauld's skepticism in this regard: he had found such a hole only once and explained its alleged frequency by postulating unossified cartilage between the bones that was inadvertently removed in the process of preparing the skeleton, leaving a hole. The relationship between "fact" and "fiction" with regard to the Platter/Bauhin skeleton is quite complex, however. The Anatomical Museum in Basel owns a female skeleton that was, in all likelihood, prepared by Platter himself—and in this skeleton the sternum does, in fact, have an opening that could loosely be described as heart-shaped. I am very grateful to the scientific curator, Dr. Kurz, for providing me with close-up photographs.

[53] Bauhin, *Institutiones anatomicae* (cit. n. 12), preface.

to enhance and assure their professional standing and fame. The rise of "women's diseases" to a specialist field of competence in the second half of the sixteenth century can be understood in a similar context of personal and collective professional interests. The rise of "gynecology" was partially associated with a more general—though far from uniform—shift of authority in contemporary medicine from Galen to Hippocrates. Hippocrates had been profusely praised by Galen and was often perceived as more empirical and less speculative than Galen. In the early sixteenth century, humanist editions and translations of the complete Hippocratic corpus made many of these writings widely accessible for the first time. *De morbis mulierum,* in particular, provided a powerful model and incentive for the creation of a specialist "gynecology"—and it also placed new emphasis on sexual difference. After all, its author(s) had described women's diseases and bodies as fundamentally different from those of men. Not only was the uterus said to be at the root of hundreds of female diseases that did not occur in men. In some passages the female body as such, in its very material substance, was conceived as different too. It was more porous, spongier, able to absorb and retain greater amounts of fluid.[54] In other words, women's diseases were an important object of study in their own right, and their diagnosis and treatment could not simply be deduced from the diagnosis and treatment of diseases of men. Hippocratic medicine thus lent authority and legitimacy to the professional interests of early modern specialists in women's diseases and promoted their preference for female otherness rather than similarity. For the more the female body differed from the male, the more their own expert knowledge, skills, and experience were needed to treat it, and the more valuable, if not indispensable, were the "gynecological" treatises they wrote. If colleagues and patients could be convinced that diseases of women had to be diagnosed and treated in a totally different fashion from those of men, the "gynecologists'" professional and social standing would be greatly enhanced. This was all the more important in light of contemporary physicians' conviction that female patients played a key role in shaping their career prospects. Because women, as Roderigo da Castro wrote, "usually are the heralds of our praise." Physicians were thus well advised "to make sure we gain their gratitude and help them in all their ills so they think well of us." Individual biographies confirm this perception: for example, Leonhard Thurneisser did not even hold a medical degree but was appointed court physician after the electress of Brandenburg regained her health under his treatment.[55]

Clearly, then, practicing anatomists and the proponents of the new "gynecology" had a major professional stake in defining the female body as fundamentally different from the male body rather than just as inferior by degrees. A second major and pervasive factor, particularly but not only among Protestant physicians, was the biblical belief that the world was created by God and that therefore all its parts served a purpose within his divine order. Studying the Book of Nature was in many ways like reading the Bible. Both were sources of divine revelation. Anatomy, in particular, demonstrated the miraculous and purposeful nature of the divine order in its last and most noble creation, the human body. Christian belief in divine order combined well with the strong teleological strands in Galenic theory. These were expressed particularly clearly in *De usu partium,* which began to circulate

[54] See King, *Hippocrates' Woman* (cit. n. 27); on the medieval transmission of these ideas see Green, "Transmission of Ancient Theories of Female Physiology and Disease" (cit. n. 38).

[55] Castro, *De universa mulierum medicina* (cit. n. 26), Bk. 2, p. 94; and J. C. W. Moehsen, *Leben Leonhard Thurneissers zum Thurn: Ein Beitrag zur Geschichte der Alchemie wie auch der Wissenschaften und Künste in der Mark Brandenburg gegen Ende des 16. Jahrhunderts* (Berlin/Leipzig: Decker, 1783; rpt., Munich: Fritsch, 1976), pp. 82–86.

widely in the West in the fifteenth century and was frequently quoted in anatomical writings. Following the Galenic model, contemporary anatomical treatises routinely pointed out the specific use of the various parts or structures they described, even where these uses were not obvious at first sight—as in the case of the coccyx, which was said to shield the lower intestine, or the male breasts, which contributed to the beauty of the male chest.[56] The trend toward notions of sexual difference found powerful support in this mix of creationist and Galenic teleology. Though Galen described the nature of woman as inferior, he stressed that her inferior, weaker heat served a purpose: it was essential for the propagation of the species.[57] Early modern anatomists went even further. Certainly there were differences in nature, Jean Liébault explained, and some creatures excelled over others. Nevertheless, every species was perfect in itself, the little ant just as much as the big elephant. This was especially true for man, that "miracle of all miracles" who had been "created for the glory of God."[58] How could anyone thus seriously agree with the blasphemous Aristotelian belief that half of humanity was somehow less than perfect, an "error" of nature or, even worse, a monster, an idea that also had far-reaching theological implications for woman's moral responsibility and her eligibility for a life in the hereafter? Woman as such ("qua muliere") was "not less whole and perfect" than man, Liébault argued. The placement of her genitals inside the body only showed the admirable "providence of nature," which sought to ensure the propagation of the species.[59] Given woman's indispensable role in the continuation of the human species and, with it, the everlasting praise of God and his creation, it was only logical to assume that men and women were equipped with different genitals that corresponded to their respective tasks.[60] Accordingly, some authors profusely praised the flexibility and the manifold virtues of the uterus, which led men to "acknowledge, admire and proclaim the wisdom and power of our Creator." Even if a woman's body could be seen as lacking in certain respects in comparison to a man's, because she was not as well equipped with (natural) heat, that most powerful instrument of the soul, her relative coldness was necessary for her particular perfection. Accordingly, if a woman's heat were as strong as that of a man or if her genitals were shaped or located more like those of a man, she would have to be considered as less rather than more perfect.[61]

Some physicians even asserted that physical and mental powers did not truly distinguish the sexes at all. If heat alone were decisive, Varandaeus argued, goats, with their generally

[56] On the role of *De usu partium* see Carlino, *Books of the Body* (cit. n. 51), pp. 10, 194–195; on the shorter *De juvamentis membrorum* see Roger French, "*De juvamentis membrorum* and the Reception of Galenic Physiological Anatomy," *Isis,* 1979, *70:*96–109. For a discussion of the "use" of the coccyx see Spieghel, *De humani: corporis fabrica* (cit. n. 13), p. 68. More generally, on teleology, see Nancy G. Siraisi, "Vesalius and the Reading of Galen's Teleology," *Renaiss. Quart.,* 1997, *50:*1–37.

[57] Galen, *De semine* (cit. n. 2), p. 640; and Galen, *De usu partium* (cit. n. 2).

[58] Liébault, *Trois livres appartenans aux infirmitez et maladies des femmes* (cit. n. 39), p. 2; Bauhin, *Theatrum anatomicum* (1605) (cit. n. 12), dedicatory letter; and Bauhin, *Institutiones anatomicae* (cit. n. 12), "Ad lectorem."

[59] Liébault, *Trois livres appartenans aux infirmitez et maladies des femmes,* pp. 3–4; see also Mercado, *De mulierum affectionibus* (cit. n. 40), p. 1. For Aristotle's "blasphemy" see Aristotle, *Disputatio nova contra mulieres/ A New Argument against Women,* ed. Clive Hart (New York: Mellen, 1998). On the theological implications see Mercurialis, *De morbis muliebribus praelectiones* (cit. n. 39), p. 1; Liébault, *Trois livres appartenans aux infirmitez et maladies des femmes,* pp. 1–4; and Horst, *De natura humana* (cit. n. 35), p. 160.

[60] Castro, *De universa mulierum medicina* (cit. n. 26), Bk. 1, p. 3; and Mercado, *De mulierum affectionibus,* p. 4: "ad procreationem partes aliquas esse idoneas, easque inter se diversas, quibus mas a foemina differat, opus est." Very similar claims can already be found in medieval writing; see, e.g., Albertus Magnus, *De animalibus* 14.4: "De causa et dispositione membrorum genitalium in maribus et feminis."

[61] Bauhin, *Theatrum anatomicum* (1620) (cit. n. 12), p. 128 (quotation); and Mercado, *De mulierum affectionibus,* p. 6.

hotter temperament, would have to be considered superior to men. The perfect balance of the temperament, rather than heat per se, was crucial. And women, they claimed, owing to their more perfectly balanced temperament, were indeed superior to men in most respects. He—and others—also insisted that women were quite capable of waging wars and even that their intellectual capacities were not inferior to those of men.[62] In other words, Christian teleology and (among Protestants) the doctrine of the priesthood of all believers did not inevitably call for a model of complementarity or incommensurabiity rather than female inferiority, but they could lend strong support to that model.

Significantly, a parallel and roughly simultaneous shift from an assumption of inferiority to an understanding of purposeful difference and complementarity can be discerned in the interpretation of menstruation. This debate was fairly complex and can only be briefly summarized here.[63] Traditionally, the menstrual flow had been seen as a kind of purgation, cleansing the female body of the harmful, poisonous matter it accumulated every month. The weakness of her heat or of her nature prevented woman from digesting or concocting food as well and completely as man. Lack of heat (and exercise) also made her less capable of consuming the superfluities. Menstruation was, in this view, a direct expression of woman's inferior nature, associating her at the same time with negative notions of impurity, frequently expressed through the drastic description of the uterus as a "cloaca," a "sewer." By 1600, however, the dominant perception of menstruation among academic physicians had radically changed. The menstrual blood, most leading authorities now claimed, was pure and nutritious. It served to nourish the fetus during pregnancy and was turned into milk afterward. Outside of pregnancy, it was excreted at monthly intervals simply to prevent its undue accumulation within the limited space of the body and its vessels. The production of good, pure excess blood might still be seen as a consequence of woman's weaker heat; she was able to concoct more blood from food than she needed, but she was not as well equipped as man to process this blood into bodily matter or to consume and dispel it through the force of her heat.[64] But again there was a deeper purpose. Without this surplus production of good, nutritious blood, woman would have been unable to fulfill her principal task in creation, bearing children.

A third influence on the medical revaluation of sexual difference is somewhat more difficult to pin down in its effects. Dominant notions of the human body changed gradually over the course of the early modern period, in a plurisecular development that lasted far into the nineteenth century. In the process, the solid parts of the body—the fibers, the

[62] On women's superiority see Varandaeus, "An foemina sit imperfectior mare" (cit. n. 37), pp. 479–480; and Georg Pictorius, *Frauwenzimmer* (Frankfurt: Schirenbrand & Schmid, 1578), p. 1. Pietro d'Abano had already claimed that not all women were colder than all men and that some women had a stronger pulse than some men: Abano, *Conciliator controversarium* (cit. n. 25), pp. 41v–42v. On women's capacities for war and intellectual ability see Varandaeus, "An foemina sit imperfectior mare," pp. 479–480; Mercurialis, *De morbis muliebribus praelectiones* (cit. n. 39), p. 1; and Castro, *De universa mulierum medicina* (cit. n. 26), Bk. 1, p. 78.

[63] For a more exhaustive account see Michael Stolberg, "A Woman's Hell? Medical Perceptions of Menopause in Early Modern Europe," *Bulletin of the History of Medicine,* 1999, *73:*408–428; and Michael Stolberg, "Erfahrungen und Deutungen der weiblichen Monatsblutung in der Frühen Neuzeit," in *Artes und scientiae in der Frühen Neuzeit,* ed. Barbara Bauer (in press).

[64] On the virtues of women's excess blood see Platter, "De mulierum partibus" (cit. n. 10), in *Gynaeciorum,* ed. Spachius (1597) (cit. n. 10), unpaginated; Akakia, *De morbis muliebribus* (cit. n. 40), p. 746; Du Laurens, *Historia anatomica* (cit. n. 30), pp. 602–606; Castro, *De universa mulierum medicina* (cit. n. 26), Bk. 1, pp. 47–51; and Horst, *De natura humana* (cit. n. 35), pp. 58–59. The more traditional view focusing on impurity can still be found in Nicolaus Rocheus, *De morbis mulierum curandis liber,* in *Gynaeciorum* (1586) (cit. n. 10), pp. 128–221, esp. pp. 133–135. On surplus blood due to women's weaker heat see Bottoni, *De morbis muliebribus* (cit. n. 42), p. 20r–v.

nerves, the individual organs and their functions—attracted increasing interest in medical theory and practice. The rise of practical anatomy, with its focus on specific bodily structures, was in itself an important part of and spur to this development. In its wake, diseases as well as individual physical and mental characteristics were increasingly seen to be rooted in the very substance, in the solid matter, of the body rather than in the quality and movement of the humors and spirits that constantly passed through it. And even the movement of these humors and spirits was increasingly seen to be channeled and restricted by preestablished pathways in the blood vessels and nerves. The implications of this long-term process in the context of my argument are clear. As long as the essence or nature of a body and of the embodied individual being was thought to be anchored primarily in his or her humors and his or her specific, literally "idiosyncratic," temperament, it was logical and indispensable to define the physical basis of sexual difference primarily in terms of qualities and humors as well.[65] In this sense, Bernardinus Montaña de Monserrat could still declare in 1554 that woman was "fundamentally" different from man, in so far as her heat was less powerful. On the other hand, the more the body and its workings were defined by the solids, the more the foundation of sexual difference had to be sought in the different anatomical structures or organs of the body, like the skeleton and the genitals.[66]

The three influences or developments mentioned so far originated primarily from within the relatively narrow realm of medical theory and practice, though of course they also reflected and interacted with more general trends in contemporary culture and society. In contrast, the last major factor that seems to have contributed decisively to the shift toward sexual dimorphism stemmed primarily from changes in contemporary society at large. Its influence on medical discourse is correspondingly difficult to demonstrate conclusively, and geographic and socioeconomic as well confessional differences deserve particular attention. In what follows, I will focus primarily on the well-documented situation in the German-speaking areas, though similar developments seem to have occurred elsewhere.

Contemporary upper-class notions or ideals of the status and role of women changed in the period under consideration, and so, to a certain degree, did the everyday reality of (middle- and upper-class) women. In contrast to traditional notions about the moral superiority of the celibate life, humanists as well as Protestant and Catholic reformers more generally revaluated marriage and, in the process, attributed a more important role to women. Women were praised as their husbands' true companions and as an important source of emotional support. The "Hausmutter" or "Hausfrau," to use two common German terms, was seen truly to share the responsibility for running the household, which might include a fair number of servants and employees. And as a mother, she was perceived to have a guiding influence in the upbringing of children as well. Success in these important tasks, as well as the Protestant doctrine of the priesthood of all believers, seemed to require some formal education, as limited as it might remain in most cases.[67]

[65] Along similar lines, Park and Nye criticized Laqueur for not acknowledging that from the early modern perspective notions of sexual difference based on the humors and qualities could be as "real" as the differences in anatomical structures pointed to by later generations: Park and Nye, "Destiny Is Anatomy" (cit. n. 5), p. 55.

[66] Bernardinus Montaña de Monserrat, *Libro de la anothomia del hombre* (Valladolid: Martinez, 1554), p. 41r. Schiebinger has rightly criticized Laqueur for overlooking the role of increasingly "materialist" body concepts, but the development started much earlier than the eighteenth century.

[67] The literature on the changing lives of women is vast. See, in particular, Olwen Hufton, *The Prospect before Her: A History of Women in Western Europe,* Vol. 1: *1500–1800* (London: Fontana, 1997); and Steven E. Ozment, *When Fathers Ruled: Family Life in Reformation Europe* (Cambridge, Mass.: Harvard Univ. Press, 1983). For the German-speaking countries see Barbara Becker-Cantarino, *Der lange Weg zur Mündigkeit: Frau und Literatur (1500–1800)* (Stuttgart: Metzlersche Verlagsbuchhandlung, 1987); Heide Wunder, "*Er ist die Sonn, sie ist der*

The impact of these changes and of the Protestant Reformation in particular on the situation of women was ambiguous, however. As Gisela Bock has recently put it, "Raising the status of women by raising the status of marriage was a balancing act filled with tensions." Wife beating, for example, became much less acceptable, but the "egalitarian" views that some reformers initially put forward soon disappeared in favor of more traditional patriarchal notions of the predominantly domestic and subordinate role of women. Indeed, as Lyndal Roper concluded from her study of sixteenth-century Augsburg, "the institutionalized Reformation was most successful when it most insisted on a vision of women's incorporation within the household under the leadership of their husbands."[68]

Contemporary economic and legal developments seem to have reinforced this trend toward female domesticity, though it is particularly difficult to generalize here, even for the restricted group of the urban elites. On the one hand, with the growing importance of professionals like merchants, scribes, and lawyers in the urban economy, extradomestic work gained importance among middle- and upper-class men. With their husbands often absent for days, weeks, or even months, women had to take on more responsibility for running the household and raising the children. On the other hand, and probably much more pervasively, in a long-standing process reaching back to the Middle Ages, women's options and rights outside the family home became more restricted. The revaluation of women's domestic role went hand in hand with a diminishment of female independence in the public realm. In German towns women found it increasingly difficult to establish an economic existence of their own. Guild regulations and growing competition led to a massive decline in female-led craftshops. In some areas of Central and Western Europe the increasing application of Roman law also confirmed or even strengthened men's rights and legal prerogatives, and with them male authority within the family.[69]

All in all, a somewhat more positive notion of womanhood was thus closely linked to ideas that woman's natural place was in the household, under her husband's benevolent but firm rule. Whether women's lot, generally speaking, improved under these conditions or, on the contrary, deteriorated remains a matter of historical debate.[70] In the specific context of my argument this is not really the issue, however. What matters here is the physicians' perspective—that is, the degree to which contemporary physicians, the protagonists of my story, shared the new notions of woman put forward by humanists and reformers and the ways in which they experienced women in their personal relationships with female patients as well as with their own wives, daughters, and other female relatives. The scarcity of physicians' personal documents makes it difficult to assess their views and experiences, but some provisional conclusions can be drawn from their writings as well as from the social and professional context in which they moved.

Mond": Frauen in der Frühen Neuzeit (Munich: Beck, 1992); and Elisabeth Koch, *Maior dignitas est in sexu virili: Das weibliche Geschlecht im Normensystem des 16. Jahrhunderts* (Frankfurt: Klostermann, 1991). On formal education see Becker-Cantarino, *Der lange Weg zur Mündigkeit,* pp. 149–189; and Merry E. Wiesner, *Women and Gender in Early Modern Europe* (Cambridge: Cambridge Univ. Press, 1993), pp. 122–127.

[68] Gisela Bock, *Women in European History* (Oxford/Malden, Mass.: Blackwell, 2002), p. 25; and Lyndal Roper, *The Holy Household: Women and Morals in Reformation Augsburg* (Oxford: Clarendon, 1989), p. 2.

[69] On the decline in female-led craftshops see Becker-Cantarino, *Der lange Weg zur Mündigkeit* (cit. n. 67), pp. 28–37. On increasing applications of Roman law see *ibid.,* pp. 46–51; and François Lebrun, *La vie conjugale sous l'ancien régime* (Paris: Colin, 1975).

[70] Joan Kelly, "Did Women Have a Renaissance?" in *Women, History, and Theory: The Essays of Joan Kelly* (Chicago/London: Univ. Chicago Press, 1984), pp. 19–50; Allison P. Coudert, "The Myth of the Improved Status of Protestant Women: The Case of the Witchcraze," in *The Politics of Gender in Early Modern Europe,* ed. Jean R. Brink, Coudert, and Maryanne C. Horowitz (Sixteenth Century Essays and Studies, 12) (Kirkville, Mo.: Sixteenth Century Journal Publishers, 1989), pp. 60–90; and Ozment, *When Fathers Ruled* (cit. n. 67), pp. 50–99.

Most physicians came from the urban middle and upper classes and shared their lifeworld. More specifically, the majority (though certainly not all) of the major figures in the new anatomy of sexual difference came from a Protestant background, among them Platter, Bauhin, Coiter, and Sennert.[71] Physicians, even more than lawyers and merchants, usually worked outside their homes and went to see their patients. Indeed, the more successful ones were frequently obliged to be away for days and weeks in order to attend wealthy patients, leaving the responsibility for running the household largely to their wives. And there are some hints that they shared the new notions of womanhood. To start with a particularly striking feature: in letter exchanges between physicians the wives were frequently mentioned. The physicians reported on their own wives or inquired about the health of their correspondents' wives or sent them greetings. And usually the wife was referred to in terms like "liebe" or "liebste" "Hausfraw" ("dear" or "dearest" "housewife"), indicating that her importance in daily domestic life was clearly perceived. When Leonhard Thurneisser considered marrying the daughter of the Bohemian physician Philipp Fauchel, her father tellingly prided himself on the fact that he and his wife had taught the girl to keep house and do the necessary shopping and cooking.[72]

We also find physicians expressing, at least in theory, the new notions of a more companionable marriage, with the wife as "truly our closest and best friend." Some declared their personal affection openly. In his autobiography Felix Platter, for example, vividly described his growing love for his future wife, and among his surviving documents there is a poem to her, written after years of marriage, in which he assured her of his everlasting love. More commonly, physicians expressed deep sorrow and grief when their wives fell seriously ill or died. Of course, some physicians' unions were rocky: Leonhard Thurneisser's disastrous marriage to Marina Herbrot is a notable case.[73] It may also be worth remembering that two leading female protagonists of the contemporary "querelle des femmes," Lucrezia Marinella and Nicole Liébault, were the daughters or wives of physicians and clearly not too happy with their female lot—though their ability to participate in this learned debate in the first place at least speaks well for the education they received.[74]

As professional men, at any rate, physicians sought and found their preferred clientele among the urban middle and upper classes. Their careers as well as their social and economic success hinged decisively on their ability to gain the support of a relatively small elite. They therefore also had sound professional reasons to proclaim (or at least to pretend to subscribe to) the notions of womanhood that prevailed among those classes. And be-

[71] For a local study on marriage (and sexuality) in Basel, where Platter and Bauhin lived and worked, see Susanna Burghartz, *Zeiten der Reinheit—Orte der Unzucht: Ehe und Sexualität in Basel während der Frühen Neuzeit* (Paderborn: Schöningh, 1999); see esp. pp. 138–143 on Platter's marriage to Magdalena Jeckelmann, a surgeon's daughter, whose household skills were praised by Platter's father. Burckhartz is more skeptical about the couple's emotional commitment.

[72] Staatsbibliothek Berlin, MS germ. fol. 422b, 76r–77r, letter from Fauchel, Sept. 1579.

[73] Pfizerus, *Zwey sonderbare Bücher* (cit. n. 40), p. 12 ("closest and best friend"); Universitätsbibliothek Basel MS A v 30, p. 40, rpt. in Platter, *Tagebuch,* ed. Lötscher (cit. n. 9), p. 517 (Platter also reports that his father grumbled because at first the newlywed Felix "honored" ["ehrte"] his wife by addressing her in the third person); J. Banga, *Geschiedenis van de geneeskunde en van hare beoefenaren in Nederland,* Pt. 1 (Leeuwarden: Eekhoff, 1868), p. 203 (on Pieter Paaw); and Moehsen, *Leben Leonhard Thurneissers zum Thurn* (cit. n. 55), pp. 160–175.

[74] Lucrezia Marinella, *Le nobilità et eccellenze delle donne et i difetti . . . degli huomini* (Venice, 1600); and Ilana Zinguer, *Misère et grandeur de la femme au XVIe siècle* (Geneva/Paris: Slatkine, 1982). Liébault was the daughter of the printer-physician Charles Étienne and the wife of Jean Liébault; Marinella was the daughter of Giovanni Marinello, like Liébault one of the leading "gynecologists" of the period.

cause female patients were perceived to have a particularly weighty influence on physicians' careers, an explicitly positive attitude toward women and female nature was a more promising strategy than insistence on female imperfection or open misogynism. The physicians' general discussions of sexual difference are particularly revealing in this respect. They often referred in these writings to the contemporary "querelle des femmes," which had run all through the fifteenth and sixteenth centuries in France and Italy and gained new impetus in Germany after the publication of the anonymous *Disputatio nova* in 1595. As we have seen, they expressed outrage at the idea that woman might be considered an error of God or nature. Instead, they sided with those who argued against women's alleged inferiority, and sometimes they even claimed female superiority in one respect or another. Tellingly, some of them dedicated their writings explicitly to female rulers or other particularly high-standing women.[75]

V

The physicians' new emphasis on sexual dimorphism carried a clear moral and political message. Woman's very physical constitution proved that she was born, above all, to be a mother.[76] It was for the noble but specific purpose of maternity that God or nature had provided her with genitals that differed in number, size, structure, and substance from those of man. Similarly, it was claimed, women had been provided with the means for a monthly evacuation of pure superfluous blood because they consumed less blood than men owing to their more idle, sedentary, domestic life-style. Most of the peculiar features of the female skeleton, finally, pointed in the same direction. The different size and shape of the various pelvic bones and the lumbar spine facilitated birth; the early ossification and flatter form of the ribs helped support the growing weight of the female breasts that were to nurture the infant. The best and most striking illustration of this message, however, was the perforation of the female sternum or xyphoid. Platter, Bauhin, and Crooke had claimed that this variation occurred only in some women, but they depicted it as a female "norm" in the anatomical illustrations that accompanied their writings and said that it provided a passage for the mammary vessels that carried nutritious blood to the breasts, where it was turned into milk. Moreover, the hole was described and pictured as having the shape of a heart. What could illustrate more convincingly that women were designed by God and nature to be, above all, caring, loving mothers and that their predestined place was at home, with their children and families?

Londa Schiebinger and Thomas Laqueur have rightly emphasized the potential cultural and political uses of sexual dimorphism as a means to legitimize female subordination and disempowerment as naturally given. Indeed, eighteenth-century writing already clearly pointed out the "message" of this anatomy of sexual difference: "All these facts prove that women's destiny is to have children and to nourish them," the author of the "Squelete" article for the *Encyclopédie* concluded from his assessment of the differences between the female and the male skeleton. But as we have seen, he was largely repeating the canon of skeletal differences established by Platter and Bauhin some 250 years earlier. The new anatomy of sexual difference emerged in the sixteenth century, at a time when the enlight-

[75] Sennert, *Practica medicina* (cit. n. 39), Bk. 4, dedication; and Pictorius, *Frauwenzimmer* (cit. n. 62). The "querelle des femmes" has attracted considerable attention in recent years. For useful introductions see Maclean, *Renaissance Notion of Woman* (cit. n. 29); and Bock, *Women in European History* (cit. n. 68), pp. 1–31.

[76] Similar notions can be found in Hippocrates, *De regimine* 1.34, in *Oeuvres complètes d'Hippocrate,* ed. Émile Littré, Vol. 6 (Paris, 1849; rpt., Amsterdam: Hakkert, 1962), p. 512.

ened ideas of liberalism, universal rights, and "republican motherhood" that would make dimorphism still—or again—so attractive to the eighteenth century were not yet on the agenda.[77] Rather, the new sixteenth- and early seventeenth-century anatomy of sexual difference, I would suggest, emerged from various developments within and outside medical theory and practice. These included a growing preference for empirical observation and discovery, the blending of Galenic teleology with pious belief in the value and purpose of every creature, the gradual shift from more humoral to more solid conceptions of the body, and the "gynecologists'" professional interest in "difference," as well as changing notions of woman within the urban upper classes among whom the physicians moved and whose support they sought.

[77] *Encyclopédie,* Vol. 15 (1765), p. 483 (cf. Schiebinger, "Skeletons in the Closet" [cit. n. 1], p. 68); and Schiebinger, *Nature's Body* (cit. n. 1), p. 39 ("republican motherhood"). The decisive contribution of eighteenth-century medicine to a "gendered" anthropology was, in my view, not the "discovery" of anatomical difference but the new physiological and pathological paradigm of nervous sensibility and nervous disease associated primarily with the female sex and used to give scientific legitimacy to female subordination, especially in education and politics. See Paul Hoffmann, *La femme dans la pensée des lumières* (Paris, 1976); Claudia Honnegger, *Die Ordnung der Geschlechter: Die Wissenschaften vom Menschen und das Weib 1750–1850* (Frankfurt/New York: Campus, 1991); and Michael Stolberg, *Homo patiens: Krankheits- und Körpererfahrung in der Frühen Neuzeit* (Cologne: Böhlau, in press), Pt. 3.

Sex in the Flesh

*By Thomas W. Laqueur**

ABSTRACT

This response to Michael Stolberg argues that the occasional piece of evidence for sexual dimorphism in Renaissance anatomy does no damage to what I had earlier called the "one-sex model." There are three reasons for this: a considerable amount of such evidence had long been available; stray observations do not discredit worldviews; and new supporting evidence for the one-sex model was also available. Moreover, illustrations in the purportedly paradigm-altering texts in fact support the old model. Since there was no radical change during the sixteenth and seventeenth centuries, the reasons offered by Stolberg for why it happened then are moot. The view that biology grounded two sexes (the two-sex model) replaced the view that it reflected imperfectly an underlying metaphysical truth (the one-sex model) as part of the epistemological revolution of the Enlightenment.

MICHAEL STOLBERG PRODUCES A NUMBER OF EXAMPLES of sixteenth- and early seventeenth-century anatomists who argued for sexual dimorphism on the basis of differences in the skeletons and the genitals of men and women. These he takes as evidence that "the new anatomy of sexual difference emerged in the sixteenth century" and that therefore what I called the "one-sex model" collapsed well before the various philosophical, political, and cultural changes of the Enlightenment to which I attribute the ascendancy of a "two-sex model." The Renaissance and Reformation—not the Age of Reason—he concludes, changed how the West understood sexual difference and introduced a regime in which gender relations were said to be grounded in biological dimorphism. In responding, I will leave the question of bones to Londa Schiebinger and concentrate on the flesh myself.

Stolberg and I do not differ about the existence of claims for sexual dimorphism before the eighteenth century or about the rejection by earlier anatomists of what I construe as anatomical evidence for the one-sex model: the Galenic isomorphisms between penis and vagina, scrotum and uterus, for example. Various scholars have already pointed to these apparent precursors, and I myself wrote at some length about Realdus Columbus's "discovery" of the clitoris, the "female yard," that, one might have thought, would have shaken the foundations of the old view as much as the other Columbus's voyages unsettled European views more generally. But this did not happen; and, similarly, the cases Stolberg offers had minimal impact. Since all his examples make essentially the same point, a

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detailed examination of one of them should give us a fair indication of just how little interpretive weight they can bear as an ensemble.

Consider the argument of Andre du Laurens, a late sixteenth-century doctor who earned a niche in the history of medicine as a pioneer in the study of scrofula and who published a much reprinted and translated anatomy textbook. Stolberg quotes him as follows: "no similarity comes in between the vagina and the male penis; none between the uterus and the scrotum; neither in the structure, form and size of the testicles the same, nor in the distribution and insertion of the spermatic vessels." "Sense and reason, which are the instruments of philosophers," Du Laurens argues, make it clear that women are not, and could not be, anatomically inverted men.[1] The penis has three cavities, the vagina only one (not exactly the most obvious argument to us post-Freudian readers); the penis has a thin smooth surface, the vagina a thick and rugged one. I might add that he also points out that men have a prostate (a discovery credited to Herophilus back in the fourth century B.C.E.), while women have none. The clitoris is not, and could not be, a version of the penis either: it is small and the penis is large; the penis has a passage for urine and semen, the clitoris has none.

Du Laurens scores the occasional rhetorical point of the "How can a body with three cavities become a body with one cavity?" sort. He proffers a healthy skepticism about the possibility of girls changing into boys by having genitals that had been inside drop out. But otherwise it is very much business as usual in the one-sex world: both sexes, he says, have testicles; women have four preparatory vessels for their semen just like men, even if these are distributed differently; they have spermatic arteries and veins; conception happens with the confluence of male and female semen—the first and second principles of generation, as Hippocrates called them; women's semen has the power to generate but is weaker than men's; women's testicles are inside because they are cooler than men's and women have excess blood because their cooler bodies do not use nutrients as efficiently; men are hotter both because of a natural temperature difference and because of "the manner of their life and conditions of their work and exercise." (The body in this case reflects social arrangements rather than, as the two-sex model would have it, grounding them in biology.) At the end of the day, Du Laurens concludes that the sexes, in fact, do not differ "essentially" at all but only "per accidens"—that is, the temperatures of their bodies and the arrangements of their parts differ to suit men and women for their respective reproductive roles.[2] No one, as far as I know, has ever denied this; it is a very modest claim and stands in sharp opposition to the eighteenth- and nineteenth-century arguments that I quote at length to the effect that the bodies of men and women differ fundamentally and that on this foundation the order of gender is secured.

The editions of Du Laurens I consulted do not have illustrations, but Helkiah Crooke's *Mikrokosmographia,* a compendium of anatomical learning gathered mostly from Du Laurens and from Caspar Bauhin, whom Stolberg also cites, has them in abundance. From it we can get a sense of just how little minor revisions of the sort Stolberg musters actually mattered for how difference was represented. Figure 1 speaks for itself; on the questions of the relationship between male and female genitalia, it is straight out of Galen via Ve-

[1] Stolberg quotes from a 1602 Frankfurt edition; we do not have this text readily available in Berkeley, and I quote from a nearly contemporary French translation: Andre du Laurens, *L'histoire anatomiqve en laqvelle tovtes les parties dv corps hvmaine sont amplement déclarées in Toutes les oeuvres, . . . Revues et traduittes en francois, par Me. Theophile Gelée* (1613; Rouen: For Raphael Du Petit Val, 1621).

[2] *Ibid.,* pp. 220–221, 223, 231, 235–236, 241.

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CHAP. XII. *Of the vaſa deferentia or Leading veſſels.*

Laurentius a Caſtro. Pinæus.

THE veſſell which leadeth the ſeede is on either ſide one [Tab.6.mm. Tab.7. fig.1.*. fig.2.ss. fig.3.ss] which *Laurentius* and *à Caſtro* woulde haue to ariſe from the preparing veſſels, *Pinæus* from the Teſticles. It is ſaide to be ſuſtained by the Ligament of the wombe, as it were with a prop. Neruous it is & white, about the teſticle broad and large, [Tab.6.mm. Tab.7.fig.1,*.fig.2.ss] (ſaith *Galen* in the 9. chapter of his Booke *De diſſectione uteri*,) membranous alſo, and a little complicated or folded like a little ſeminary bladder beeing rugous, ſuch as in men is at

Their ſubſtãce *Galen.*

The firſt Figure ſheweth the wombe cut from the body, with the veſſels which grow vnto it, the Teſticles, the Bladder, and the Membranes: the necke of it is turned vpward, that the orifice of the bottome of the wombe may the better be perceiued; the bladder alſo is opened, that his cauity, and the inſertion of the Vreters may better appeare.

The ſecond Figure ſheweth the wombe, with his veſſelles parted from the Membranes and the bladder.

The third Figure ſheweth the womb freed from all the veſſels excepting the ſpermaticall veſſels, where alſo the forme of the Trumpet is omitted.

The fourth Figure ſheweth the wombe cut out of the bodye, and thickneſſe of his coates in a woman with childe, and the cleft of the lap or priuity dilated or laide open.

A. The bottome of the wombe laide open without any Membrane.
B B. The necke of the wombe turned vpward.
C D. A part of the bottome of the wombe like the nut of the yard, ſwelling into the vpper part of the necke of the wombe, in the middle whereof the orifice appeareth.
E E. A Membrane knitting the wombe to the *Peritonæum*, and holding together the veſſels thereof.
F. The left teſticle.
G. The ſpermaticall Veine and Artery.
H. A part of the ſpermaticall veſſelles reaching vnto the bottome of the wombe.
I. One part of the veſſels comming to the Teſticle.
* A veſſell leading the ſeede vnto the wombe.
K. The coate of the teſticle with the implication of the veſſels.
L. The cauity of the bladder opened.
M. The inſertion of the Vreters into the bladder.
N. The Vreters cut from the Kidneyes.
O. The inſertion of the neck of the bladder into the lap or priuity.

TABVLA. VII.

FIG. I.

The ſecond Figure.

a a. The ſpermaticall Veine and Artery.
b b. Branches diſtributed to the *Peritonæum* from the ſpermaticall veſſels.
c The bottome of the wombe.
d The necke of the wombe.
e Certaine veſſels running through the inſide of the wombe, and the necke thereof.
ff. Veſſels reaching to the bottome of the wombe produced from the ſpermaticall veſſell.
g g The Leading veſſel of ſeed called *Tuba* the trumpet.
h h A branch of the ſpermaticall veſſell compaſſing the trumpet. *i i*, The Teſticles.
k k The lower Ligaments of the wombe, which ſome call the Cremaſteres or hanging Muſcles of the wombe.
l the lap or priuity into which the cremaſteres do end
m A portion of the necke of the bladder.

The third Figure.

a a. The ſpermaticall veſſels.
b b. A branch from theſe ſpermaticall veſſels to the bottome of the wombe.
c c The bodie or bottome of the wombe.
d The necke of the ſame.
e The necke of the bladder ending into the necke of the wombe. *f f.* The teſticles.
g g The leading veſſels, commonly though not ſo well called the ejaculatory veſſels.
h h The diuiſion of theſe veſſelles, one of them determining into the hornes at double *k k*.
i i The other branch ending in the necke, by which women with childe auoide their ſeede.
k k The hornes of the wombe.

The fourth Figure.

A B. The boſome of the bottome of the wombe at whoſe ſides are the hornes.
C D. A line like a ſuture or ſeame, a little diſtinguiſhing that boſome.
E E. The ſubſtance of the bottome of the wombe, or the thickneſſe of his inward coate.
F. A protuberation or ſwelling of the wombe in the middle of the boſome. G. The Orifice of the bottome of the wombe. H H. The coate or ſecond couer of the bottome of the wombe, comming from the *Peritonæum*. IIII. A portion of the Membranes which tye the womb. K K. the beginning of the necke of the womb. L The necke of the Bladder inſerted into the necke of the wombe. *m* the *Clitoris* in the toppe of the priuite. *n* The inequality of the priuity where the *Hymen* is placed *o* the hole or paſſage of the priuity in the cleft. *p* The skinny caruncle of the priuity.

the

Figure 1. *The female genitals and reproductive organs as depicted in Helkiah Crooke's* Mikrokosmographia, *a much-reprinted work based primarily on the writings of Du Laurens and Bauhin. It shows how little their specific claims about anatomical dimorphism affected how a learned contemporary chose to represent the female genitourinary anatomy. (Photograph courtesy of the Bancroft Library, University of California, Berkeley.)*

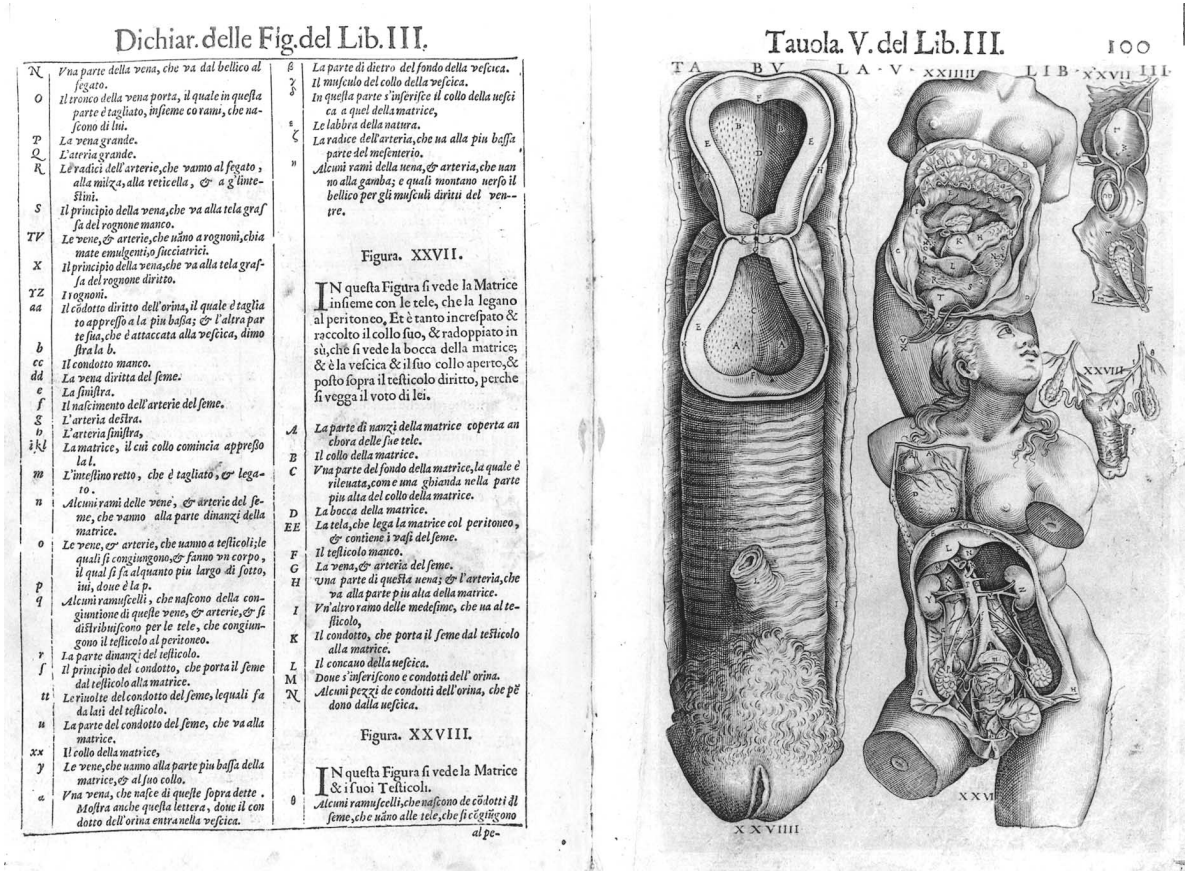
salius. Even if Du Laurens and Bauhin had wanted to undermine the one-sex model with their anatomical observations—which in my view they did not—one of their best-informed popularizers missed the point completely. Crooke is also happy to continue to draw his metaphors from the one-sex model on his own account. To be sure, he agrees, the vagina is not like the penis in all the respects Du Laurens points to. But that said, "the neck [of the womb] is turned out and it hangeth forth of the privities like a yard betwixt the thights." Note also that neither he nor Du Laurens uses specific technical terms to distinguish what we call the "vagina," "the neck of the womb," from what we call the "cervix," the "bottom of the womb"—which, incidentally, also on occasion "falleth into the lappe." Crooke repeats Du Laurens's points about the clitoris being different from the penis but adds that through it "the imagination is carried to the spermatical vessel by [its] motion and attrition," which is necessary because the testicles of the woman are so far from the yard of the man during intercourse. The lower ligaments of this, "the seat of delight" in women, also help in transmission to the female testicles. This is not exactly a physiology of "sexual dimorphism" *avant la lettre.* (I might also add that the illustrations [see Figure 2] in the anatomy of Juan de Valverde, whose views on bones supposedly undermine Schiebinger's views, are also resolutely Galenic, paradigmatic versions of the genital and, more broadly, reproductive anatomy as imagined in the "one-sex model."[3])

The problem is not, as Stolberg supposes, to account for a sixteenth- and early seventeenth-century shift in how sexual difference was understood and how this understanding was mobilized for political and cultural purposes but quite the opposite: Why did the sorts of observations he adduces have almost no impact? (Good thing, too; because the explanations he gives for their supposed transformative power would not work.) There are at least four reasons. In the first place, even at their most minimal, Du Laurens's claims ran against common medical opinion. He was not being self-aggrandizing, I think, when he said that "the opinion of the ancients, confirmed by the authority of learned men and the writings of almost all anatomists," was that the "parts of generation in women differ from those of men only with respect to their position due to differences in temperature."[4] In other words, the Galenic isomorphisms were the common currency, and a serious attack on them would have meant more than making a few debating points about how three hollows could not be transformed into one.

But Du Laurens was not seriously interested in attacking the old model; he was engaged in skirmishes at its metaphysical periphery. Specifically, his argument was mounted against Aristotle's claim that the female body is a less perfect version of the male body, a failure of nature. Du Laurens is at pains to make clear that men and women differ only *per accidens* and not essentially—that is, not in their quiddity, in what defines them in the most fundamental way. Women, he wants to maintain, are not imperfect in kind; they are not nature's errors; they are simply adapted to their reproductive roles. Fine. But this relatively arcane philosophical question could be, and was, resolved philosophically without recourse to anatomy. As Crooke points out, Galen and many others besides held that woman was "perfect also in mankinde for Nature's imperfections are not so ordinary." Women were not failed men but perfect versions of what they needed to be to make nature

[3] Helkiah Crooke, *Mikrokosmographia: A Description of the Body of Man, Together with the Controversies and Figures Thereto Belonging, Collected and Translated Out of the Best Authors of Anatomy, Especially Out of Gasper Bauhinus and Andreas Laurentius* (London: Jaggard, 1618), pp. 216–250, on pp. 225, 238; and Juan de Valverde, *La anatomia del corpo umano . . . nuovamente ristampata: E con l'aggiunta di alcune tavole ampliata* (Venice: Giunti, 1586).

[4] Du Laurens, *Toutes les oeuvres* (cit. n. 1), p. 224.



Dichiar. delle Fig. del Lib. III.

N. V'na parte della vena, che va dal bellico al fegato.
O. Il tronco della vena porta, il quale in questa parte è tagliato, insieme co rami, che nascono di lui.
P. La vena grande.
Q. L'aterria grande.
R. L'radici dell'arterie, che vanno al fegato, alla milza, alla reticella, & a g'intestini.
S. Il principio della vena, che va alla tela grassa del rognone manco.
TV. Le vene, & arterie, che uăno a rognoni, chiamate emulgenti, o succiatrici.
X. Il principio della vena, che va alla tela grassa del rognone diritto.
YZ. I rognoni.
aa. Il cõdotto diritto dell'orina, il quale è tagliato appresso a la pin bassa; & l'altra parte sua, che è attaccata alla vescica, dimostra la b.
b. Il condotto manco.
cc. La vena diritta del seme.
dd. La sinistra.
e. Il nascimento dell'arterie del seme.
f. L'arteria destra.
g. L'arteria sinistra,
h i k l. La matrice, il cui collo comincia appresso la l.
m. L'intestino retto, che è tagliato, & legato.
n. Alcuni rami delle vene, & arterie del seme, che vanno alla parte dinanzi della matrice.
o. Le vene, & arterie, che uanno a testicoli; le quali si congiungono, & fanno vn corpo, il qual si fa alquanto piu largo di sotto, iui, doue è la p.
p. Alcuni ramuscelli, che nascono della congiuntione di queste vene, & arterie, & si distribuiscono per le tele, che congiungono il testicolo al peritoneo.
q. La parte dinanzi del testicolo.
r. Il principio del condotto, che porta il seme dal testicolo alla matrice.
s. Le rivolte del condotto del seme, lequali fa da lati del testicolo.
t t. La parte del condotto del seme, che va alla matrice.
u. Il collo della matrice,
x x. Le vene, che uanno alla parte piu bassa della matrice, & al suo collo.
y. V'na vena, che nasce di queste sopra dette. Mostra anche questa lettera, dove il condotto dell'orina entra nella vescica.
a. La parte di dietro del fondo della vescica.
β. Il musculo del collo della vescica.
γ δ. In questa parte s'inserisce il collo della vescica a quel della matrice,
ε. Le labbra della natura.
ζ. La radice dell'arteria, che va alla piu bassa parte del mesenterio.
". Alcuni rami della vena, & arteria, che vanno alla gamba; e quali montano verso il bellico per gli musculi diritti del ventre.

Figura. XXVII.

IN questa Figura si vede la Matrice insieme con le tele, che la legano al peritoneo, Et è tanto increspato & raccolto il collo suo, & radoppiato in sù, chè si vede la bocca della matrice; & è la vescica & il suo collo aperto, & posto sopra il testicolo diritto, perche si vegga il voto di lei.

A. La parte di nanzi della matrice coperta anchora delle sue tele.
B. Il collo della matrice.
C. V'na parte del fondo della matrice, la quale è rilevata, come una ghianda nella parte piu alta del collo della matrice.
D. La bocca della matrice.
EE. La tela, che lega la matrice col peritoneo, & contiene i vasi del seme.
F. Il testicolo manco.
G. La vena, & arteria del seme.
H. V'na parte di questa vena; & l'arteria, che va alla parte piu alta della matrice.
I. V'n'altro ramo delle medesime, che va al testicolo,
K. Il condotto, che porta il seme dal testicolo alla matrice.
L. Il concauo della vescica.
M. Done s'inseriscono e condotti dell'orina.
N. Alcuni pezzi de condotti dell'orina, che pẽdono dalla vescica.

Figura. XXVIII.

IN questa Figura si vede la Matrice & i suoi Testicoli.

θ. Alcuni ramuscelli, che nascono de cõdotti del seme, che uãno alle tele, che si cõgiũgono al pe-

Tauola. V. del Lib. III. 100

TABV LA V XXIIII LIB XXVII III

XXVIII

XXVI

XXVIIII

Figure 2. *Whatever Juan de Valverde may have said about this or that part of female osteology, his representation of the vagina, uterus, and ovaries and their various vessels is straight out of Vesalius—who, in this case, follows Galen in emphasizing the isomorphism between the male and female reproductive systems. (Photograph courtesy of the Bancroft Library, University of California, Berkeley.)*

work. As for the isomorphism between the male and the female body, it is reasonable, he says, that the shape of the parts of men and women should be alike, as is their substance, because "they come from one and the same set of causes." All that Du Laurens wants in the text Stolberg cites is to win an argument about perfection; on the anatomical and physiological particulars—the parallel parts; the male and female semen, one more generative than the other; the necessity of orgasm and ejaculation in both sexes; the greater coolness of women; the surplus of blood in their bodies—he is squarely in the one-sex world. (The one big difference he has with most others is his skepticism about organs popping out of girls to make them boys, a minor sideline of the question of difference.[5])

Third, much more than anatomy is at stake—and neither Du Laurens nor Renaissance medicine generally had any interest in unseating the physiology of the one-sex model. They continued to understand the body as constituted of more or less fungible fluids, as far more open, far less organically constrained than we have imagined it to be since the eighteenth century. Some academic doctors around 1600 did, as Stolberg says, come to see menstrual blood as good and healthy instead of harmful and poisonous. But this purported, and by no means general, change was not a blow for purposeful difference, complementarity, and adaptation of the body to its function. Whether good or corrupt, no one ever denied that having a surplus of blood was a sign of woman's role in childbearing, of available nutriments for the child in her womb.

What matters is that menstruation was not regarded, as it would be by the late eighteenth century, as an organically grounded physiological function unique to women, one that could be used as the reason behind this or that discrimination based on sex. It was something that bodies in general did, not something peculiarly linked to the female anatomy. Thus, for example, Juan de Quinones, a doctor in the court of Philip IV of Spain, argued in 1632 that Jewish men menstruated every month just like Jewish women—and for the same reason: to rid themselves of the impure, polluting blood that characterized Jews generally. Gerónimo de la Huarta, his contemporary, argued that menstruation was indeed the permanent condition of Jews, that their corrupt blood flowed regularly from the nether regions. In other words, these doctors appropriated a medieval tradition in which menstrual blood was dangerously impure and imported it into a new context. We might argue that this is the beginning of a biologically based anti-Semitism, something that distinguished pure Spaniards from impure Jews, but it is not part of the story of two sexes.[6] Quite the contrary.

But more generally the question of impurity is a sideshow. Male hemorrhoidal flux or bleeding of perfectly good blood from other orifices was also understood as a form of menstruation. "Our notion of menstruation as a specifically female trait," concludes Gianna Pomata, "stands in stark contrast" to the many "descriptions of menstruating men" she has found in the literature of the Renaissance. She uses this impressive body of evidence to argue against my view that the male body was always "the Gestalt, the paradigm that guided the perception of the female body." Her point is well taken. Just as the ovaries were conceived as female testicles, so, she continues, "could hemorrohoidal bleeding be perceived as a menstrual flow." In other words, the female could be understood as the paradigm and the male as the instance. But the point remains that difference was understood analogically and not grounded in radically different sexual bodies. Barbara Duden

[5] *Ibid.,* p. 231; and Crooke, *Mikrokosmographia* (cit. n. 3), p. 216.

[6] See John L. Beusterien, "Jewish Male Menstruation in Seventeenth-Century Spain," *Bulletin of the History of Medicine,* 1999, *73:*447–456.

makes the same point on the basis of late seventeenth- and early eighteenth-century material: "the hemorrhoids and the menses were both seen as spontaneous evacuations of the body; they resembled each other and were interchangeable." The sort of anatomical revisions Stolberg cites gained little traction in the face of this worldview. Far from contributing to the creation of a new model of sexual difference, the history of menstruation in the sixteenth and seventeenth centuries fits neatly into a one-sex model.[7]

Finally, I need not remind readers of this journal that scientific theories, much less worldviews, do not change because of a few facts that do not seem to fit. In the case of the one-sex model, anatomical discoveries for a time actually seemed to lend support. For example, the neck of the uterus—that is, the vagina—looks more—not less—like a penis without the nonexistent horns than with them. And major theoretical realignments do not occur simply because they favor a particular political or cultural view. Leaving aside the fact that we do not know how most anatomists felt about their wives, about the virtues of the incorporation of women into the household, about cheerier views of domesticity, and the like, no particular scientific view of difference necessarily favors one view of the place of women over another. Stolberg thinks that Schiebinger and I are right to emphasize "the potential cultural and political uses of sexual dimorphism as a means to legitimize female subordination and disempowerment as naturally given," but also that a more beneficent view of female empowerment in the sixteenth and seventeenth centuries helps account for the triumph of the two-sex model in the first place. He cannot have it both ways although I can; I do not think that views about sexual difference neatly track ideology.

The anatomical observations of Du Laurens and the other anatomists Stolberg quotes did not fundamentally change the one-sex model because it was so well entrenched and so multiply supported and because they had no interest in unseating a whole worldview. Facts about difference did not, and do not, entail a one- or a two-sex model. What changed in the Enlightenment to produce the two-sex model was epistemology: biology as opposed to metaphysics became foundational. As cultural and political pressures on the gender systems mounted, a passionate and sustained interest in the anatomical and physiological dimorphism of the sexes was a response to the collapse of religion and metaphysics as the final authority for social arrangements. My quarrel with Michael Stolberg is not primarily about whether what I call the one-sex model collapsed 150 years earlier than I claim it did. Over the millennia, what is a century or two? I think I am right about the dating; we would have a great deal of evidence, literary and medical, that would be hard to accommodate if we went with his chronology. But it would not matter so much were it not for a larger question: whether the Renaissance and Reformation or the Age of Reason witnessed the triumph of a new reductionism, a new epistemology grounded in the natural world that produced a view of sexual difference in which the body was the final arbiter and not an imperfect sign, in which biology was said to entail gender roles rather than merely reflect them.

[7] Gianna Pomata, "Menstruating Men: Similarity and Difference of the Sexes in Early Modern Medicine," in *Generation and Degeneration: Tropes of Reproduction in Literature and History from Antiquity through Early Modern Europe,* ed. Valeria Finucci and Kevin Brownlee (Durham, N.C./London: Duke Univ. Press, 2001), pp. 109–152, esp. pp. 112–113; and Barbara Duden, *The Woman Beneath the Skin: A Doctor's Patients in Seventeenth-Century Germany,* trans. Thomas Dunlap (Cambridge, Mass.: Harvard Univ. Press, 1991), p. 116.