

*Making* **SEX**

**BODY AND GENDER FROM THE GREEKS TO FREUD**

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## ONE

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# Of Language and the Flesh

The first thing that strikes the careless observer is that women are unlike men. They are "the opposite sex" (though why "opposite" I do not know; what is the "neighboring sex"?). But the fundamental thing is that women are more like men than anything else in the world.

DOROTHY L. SAYERS  
"THE HUMAN-NOT-QUITE-HUMAN"

An interpretive chasm separates two interpretations, fifty years apart, of the same story of death and desire told by an eighteenth-century physician obsessed with the problem of distinguishing real from apparent death.<sup>1</sup>

The story begins when a young aristocrat whose family circumstances forced him into religious orders came one day to a country inn. He found the innkeepers overwhelmed with grief at the death of their only daughter, a girl of great beauty. She was not to be buried until the next day, and the bereaved parents asked the young monk to keep watch over her body through the night. This he did, and more. Reports of her beauty had piqued his curiosity. He pulled back the shroud and, instead of finding the corpse "disfigured by the horrors of death," found its features still gracefully animated. The young man lost all restraint, forgot his vows, and took "the same liberties with the dead that the sacraments of marriage would have permitted in life." Ashamed of what he had done, the hapless necrophilic monk departed hastily in the morning without waiting for the scheduled interment.

When time for burial came, indeed just as the coffin bearing the dead girl was being lowered into the ground, someone felt movement coming from the inside. The lid was torn off; the girl began to stir and soon recovered from what proved not to have been real death at all but only a

coma. Needless to say, the parents were overjoyed to have their daughter back, although their pleasure was severely diminished by the discovery that she was pregnant and, moreover, could give no satisfactory account of how she had come to be that way. In their embarrassment, the innkeepers consigned the daughter to a convent as soon as her baby was born.

Soon business brought the young aristocrat, oblivious of the consequences of his passion but far richer and no longer in holy orders because he had come into his inheritance, back to the scene of his crime. Once again he found the innkeepers in a state of consternation and quickly understood his part in causing their new misfortune. He hastened to the convent and found the object of his necrophilic desire more beautiful alive than dead. He asked for her hand and with the sacrament of marriage legitimized their child.

The moral that Jacques-Jean Bruhier asks his readers to draw from this story is that only scientific tests can make certain that a person is really dead and that even very intimate contact with a body leaves room for mistakes. But Bruhier's contemporary, the noted surgeon Antoine Louis, came to a very different conclusion, one more germane to the subject of this book, when he analyzed the case in 1752.<sup>2</sup> Based on the evidence that Bruhier himself offered, Louis argues, no one could have doubted that the girl was not dead: she did not, as the young monk testified, look dead and moreover who knows if she did not give some "demonstrative signs" in proof of her liveliness, signs that any eighteenth-century doctor or even layperson would have expected in the circumstances.

Bruhier earlier on in his book had cited numerous instances of seemingly dead young women who were revived and saved from untimely burial by amorous embraces; sexual ecstasy, "dying" in eighteenth-century parlance, turned out for some to be the path to life. Love, that "wonderful satisfactory *Death* and . . . voluntary Separation of Soul and Body," as an English physician called it, guarded the gates of the tomb.<sup>3</sup> But in this case it would have seemed extremely unlikely to an eighteenth-century observer that the innkeepers' daughter could have conceived a child without moving and thereby betraying her death.<sup>4</sup> Any medical book or one of the scores of popular midwifery, health, or marriage manuals circulating in all the languages of Europe reported it as a commonplace that "when the seed issues in the act of generation [from both men and women] there at the same time arises an extra-ordinary titillation and delight in all members of the body."<sup>5</sup> Without orgasm, another widely

circulated text announced, "the fair sex [would] neither desire nuptial embraces, nor have pleasure in them, nor conceive by them."<sup>6</sup>

The girl *must* have shuddered, just a bit. If not her rosy cheeks then the tremors of venereal orgasm would have given her away. Bruhier's story was thus one of fraud and not of apparent death; the innkeepers' daughter and the monk simply conspired, Louis concludes, to escape culpability by feigning coma until the last possible moment before burial.

In 1836 the tale was told again, but now with a new twist. This time, the reality of the girl's deathlike comatose state was not questioned. On the contrary, her becoming pregnant under these conditions was cited by Dr. Michael Ryan as one among many other cases of intercourse with insensible women to prove that orgasm was irrelevant to conception. (In one story, for example, an ostler confesses that he came to an inn and had sex with, and made pregnant, a girl who was so dead asleep before the fire that he was long gone before she awoke.) Not only need a woman not feel pleasure to conceive; she need not even be conscious.<sup>7</sup>

Near the end of the Enlightenment, in the period between these two rehearsals of the tale of the innkeepers' daughter, medical science and those who relied on it ceased to regard the female orgasm as relevant to generation. Conception, it was held, could take place secretly, with no telltale shivers or signs of arousal; the ancient wisdom that "apart from pleasure nothing of mortal kind comes into existence" was uprooted.<sup>8</sup> Previously a sign of the generative process, deeply embedded in the bodies of men and women, a feeling whose existence was no more open to debate than was the warm, pleasurable glow that usually accompanies a good meal, orgasm was relegated to the realm of mere sensation, to the periphery of human physiology—accidental, expendable, a contingent bonus of the reproductive act.

This reorientation applied in principle to the sexual functioning of both men and women. But no one writing on such matters ever so much as entertained the idea that male passions and pleasures in general did not exist or that orgasm did not accompany ejaculation during coition. Not so for women. The newly "discovered" contingency of delight opened up the possibility of female passivity and "passionlessness."<sup>9</sup> The purported independence of generation from pleasure created the space in which women's sexual nature could be redefined, debated, denied, or qualified. And so it was of course. Endlessly.

The old valences were overturned. The commonplace of much contemporary psychology—that men want sex while women want relation-

ships—is the precise inversion of pre-Enlightenment notions that, extending back to antiquity, equated friendship with men and fleshliness with women. Women, whose desires knew no bounds in the old scheme of things, and whose reason offered so little resistance to passion, became in some accounts creatures whose whole reproductive life might be spent anesthetized to the pleasures of the flesh. When, in the late eighteenth century, it became a possibility that “the majority of women are not much troubled with sexual feelings,” the presence or absence of orgasm became a biological signpost of sexual difference.

The new conceptualization of female orgasm, however, was but one formulation of a more radical eighteenth-century reinterpretation of the female body in relation to the male. For thousands of years it had been a commonplace that women had the same genitals as men except that, as Nemesius, bishop of Emesa in the fourth century, put it: “theirs are inside the body and not outside it.”<sup>10</sup> Galen, who in the second century A.D. developed the most powerful and resilient model of the structural, though not spatial, identity of the male and female reproductive organs, demonstrated at length that women were essentially 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. Indeed, doggerel verse of the early nineteenth century still sings of these hoary homologies long after they had disappeared from learned texts:

          though they of different sexes be,  
Yet on the whole they are the same as we,  
For those that have the strictest searchers been,  
Find women are but men turned outside in.<sup>11</sup>

In this world the vagina is imagined as an interior penis, the labia as foreskin, the uterus as scrotum, and the ovaries as testicles. The learned Galen could cite the dissections of the Alexandrian anatomist Herophilus, in the third century B.C., to support his claim that a woman has testes with accompanying seminal ducts very much like the man's, one on each side of the uterus, the only difference being that the male's are contained in the scrotum and the female's are not.<sup>12</sup>

Language marks this view of sexual difference. For two millennia the ovary, an organ that by the early nineteenth century had become a synecdoche for woman, had not even a name of its own. Galen refers to it by the same word he uses for the male testes, *orcheis*, allowing context to

make clear which sex he is concerned with. Herophilus had called the ovaries *didymoi* (twins), another standard Greek word for testicles, and was so caught up in the female-as-male model that he saw the Fallopian tubes—the spermatic ducts that led from each “testicle”—as growing into the neck of the bladder as do the spermatic ducts in men.<sup>13</sup> They very clearly do not. Galen points out this error, surprised that so careful an observer could have committed it, and yet the correction had no effect on the status of the model as a whole. Nor is there any technical term in Latin or Greek, or in the European vernaculars until around 1700, for vagina as the tube or sheath into which its opposite, the penis, fits and through which the infant is born.

But then, in or about the late eighteenth, to use Virginia Woolf’s device, human sexual nature changed. On this point, at least, scholars as theoretically distant from one another as Michel Foucault, Ivan Illich, and Lawrence Stone agree.<sup>14</sup> By around 1800, writers of all sorts were determined to base what they insisted were fundamental differences between the male and female sexes, and thus between man and woman, on discoverable biological distinctions and to express these in a radically different rhetoric. In 1803, for example, Jacques-Louis Moreau, one of the founders of “moral anthropology,” argued passionately against the nonsense written by Aristotle, Galen, and their modern followers on the subject of women in relation to men. Not only are the sexes different, but they are different in every conceivable aspect of body and soul, in every physical and moral aspect. To the physician or the naturalist, the relation of woman to man is “a series of oppositions and contrasts.”<sup>15</sup> In place of what, in certain situations, strikes the modern imagination as an almost perverse insistence on understanding sexual difference as a matter of degree, gradations of one basic male type, there arose a shrill call to articulate sharp corporeal distinctions. Doctors claimed to be able to identify “the essential features that belong to her, that serve to distinguish her, that make her what she is”:

All parts of her body present the same differences: all express woman; the brow, the nose, the eyes, the mouth, the ears, the chin, the cheeks. If we shift our view to the inside, and with the help of the scalpel, lay bare the organs, the tissues, the fibers, we encounter everywhere . . . the same difference.<sup>16</sup>

Thus the old model, in which men and women were arrayed according to their degree of metaphysical perfection, their vital heat, along an axis

whose telos was male, gave way by the late eighteenth century to a new model of radical dimorphism, of biological divergence. An anatomy and physiology of incommensurability replaced a metaphysics of hierarchy in the representation of woman in relation to man.

By the late nineteenth century, so it was argued, the new difference could be demonstrated not just in visible bodies but in its microscopic building blocks. Sexual difference in kind, not degree, seemed solidly grounded in nature. Patrick Geddes, a prominent professor of biology as well as a town planner and writer on a wide range of social issues, used cellular physiology to explain the "fact" that women were "more passive, conservative, sluggish and stable" than men, while men were "more active, energetic, eager, passionate, and variable." He thought that with rare exceptions—the sea horse, the occasional species of bird—males were constituted of catabolic cells, cells that put out energy. They spent income, in one of Geddes' favorite metaphors. Female cells, on the other hand, were anabolic; they stored up and conserved energy. And though he admitted that he could not fully elaborate the connection between these biological differences and the "resulting psychological and social differentiations," he nevertheless justified the respective cultural roles of men and women with breathtaking boldness. Differences may be exaggerated or lessened, but to obliterate them "it would be necessary to have all the evolution over again on a new basis. What was decided among the pre-historic Protozoa cannot be annulled by an act of Parliament."<sup>17</sup> Microscopic organisms wallowing in the primordial ooze determined the irreducible distinctions between the sexes and the place of each in society.

These formulations suggest a third and still more general aspect of the shift in the meaning of sexual difference. The dominant, though by no means universal, view since the eighteenth century has been that there are two stable, incommensurable, opposite sexes and that the political, economic, and cultural lives of men and women, their gender roles, are somehow based on these "facts." Biology—the stable, ahistorical, sexed body—is understood to be the epistemic foundation for prescriptive claims about the social order. Beginning dramatically in the Enlightenment, there was a seemingly endless stream of books and chapters of books whose very titles belie their commitment to this new vision of nature and culture: Roussel's *Système physique et moral de la femme*, Brachet's chapter "Etudes du physique et du moral de la femme," Thompson and Geddes' starkly uncompromising *Sex*. The physical "real" world in



these accounts, and in the hundreds like them, is prior to and logically independent of the claims made in its name.

Earlier writers from the Greeks onward could obviously distinguish nature from culture, *phusis* from *nomos* (though these categories are the creation of a particular moment and had different meanings then).<sup>18</sup> But, as I gathered and worked through the material that forms this book, it became increasingly clear that it is very difficult to read ancient, medieval, and Renaissance texts about the body with the epistemological lens of the Enlightenment through which the physical world—the body—appears as “real,” while its cultural meanings are epiphenomenal. Bodies in these texts did strange, remarkable, and to modern readers impossible things. In future generations, writes Origen, “the body would become less ‘thick,’ less ‘coagulated,’ less ‘hardened,’” as the spirit warmed to God; physical bodies themselves would have been radically different before the fall, imagines Gregory of Nyssa: male and female coexisted with the image of God, and sexual differentiation came about only as the representation in the flesh of the fall from grace.<sup>19</sup> (In a nineteenth-century Urdu guide for ladies, based firmly in Galenic medicine, the prophet Mohammed is listed at the top of a list of exemplary women.<sup>20</sup> Caroline Bynum writes about women who in imitation of Christ received the stigmata or did not require food or whose flesh did not stink when putrifying.<sup>21</sup> There are numerous accounts of men who were said to lactate and pictures of the boy Jesus with breasts. Girls could turn into boys, and men who associated too extensively with women could lose the hardness and definition of their more perfect bodies and regress into effeminacy. Culture, in short, suffused and changed the body that to the modern sensibility seems so closed, autarchic, and outside the realm of meaning.

One might of course deny that such things happened or read them as entirely metaphorical or give individual, naturalistic explanations for otherwise bizarre occurrences: the girl chasing her swine who suddenly sprung an external penis and scrotum, reported by Montaigne and the sixteenth-century surgeon Ambroise Paré as an instance of sex change, was really suffering from androgen-dihydrotestosterone deficiency; she was really a boy all along who developed external male organs in puberty, though perhaps not as precipitously as these accounts would have it.<sup>22</sup> This, however, is an unconscionably external, ahistorical, and impoverished approach to a vast and complex literature about the body and culture.

I want to propose instead that in these pre-Enlightenment texts, and even some later ones, *sex*, or the body, must be understood as the epiphenomenon, while *gender*, what we would take to be a cultural category, was primary or "real." Gender—man and woman—mattered a great deal and was part of the order of things; sex was conventional, though modern terminology makes such a reordering nonsensical. At the very least, what we call sex and gender were in the "one-sex model" explicitly bound up in a circle of meanings from which escape to a supposed biological substrate—the strategy of the Enlightenment—was impossible. In the world of one sex, it was precisely when talk seemed to be most directly about the biology of two sexes that it was most embedded in the politics of gender, in culture. To be a man or a woman was to hold a social rank, a place in society, to assume a cultural role, not to *be* organically one or the other of two incommensurable sexes. Sex before the seventeenth century, in other words, was still a sociological and not an ontological category.

How did the change from what I have called a one-sex/flesh model to a two-sex/flesh model take place? Why, to take the most specific case first, did sexual arousal and its fulfillment—specifically female sexual arousal—become irrelevant to an understanding of conception? (This, it seems to me, is the initial necessary step in creating the model of the passionless female who stands in sharp biological contrast to the male.) The obvious answer would be the march of progress; science might not be able to explain sexual politics, but it could provide the basis on which to theorize. The ancients, then, were simply wrong. In the human female and in most other mammals—though not in rabbits, minks, and ferrets—ovulation is *in fact* independent of intercourse, not to speak of pleasure. Dr. Ryan was right in his interpretation of the story of the innkeepers' daughter in that unconscious women can conceive and that orgasm has nothing to do with the matter. Angus McLaren makes essentially this case when he argues that, in the late eighteenth century, "the rights of women to sexual pleasure were not enhanced, but eroded as an unexpected consequence of the elaboration of more sophisticated models of reproduction."<sup>23</sup> Esther Fischer-Homberger suggests that a new understanding of an independent female contribution to reproduction accompanied the devaluation of procreation. Its status declined as it became, so to speak, exclusively women's work. Thus, one might argue, new discoveries in reproductive biology came just in the nick of time; science seemed nicely in tune with the demands of culture.<sup>24</sup>

But in fact no such discoveries took place. Scientific advances do not entail the demotion of female orgasm. True, by the 1840s it had become clear that, at least in dogs, ovulation could occur without coition and thus presumably without orgasm. And it was immediately postulated that the human female, like the canine bitch, was a "spontaneous ovulator," producing an egg during the periodic heat that in women was known as the menses. But the available evidence for this half truth was at best slight and highly ambiguous. Ovulation, as one of the pioneer twentieth-century investigators in reproductive biology put it, "is silent and occult: neither self-observation by women nor medical study through all the centuries prior to our own era taught mankind to recognize it."<sup>25</sup> Indeed, standard medical-advice books recommended that to avoid conception women should have intercourse during the middle of their menstrual cycles, during days twelve through sixteen, now known as the period of *maximum* fertility. Until the 1930s, even the outlines of our modern understanding of the hormonal control of ovulation were unknown.

In short, positive advances in science seem to have had little to do with the shift in interpreting the story of the innkeepers' daughter. The reevaluation of pleasure occurred more than a century before reproductive physiology could come to its support with any kind of deserved authority. Thus the question remains why, before the nineteenth century, commentators interpreted conception without orgasm as the exception, an oddity that proved nothing, while later such cases were regarded as perfectly normal and illustrative of a general truth about reproduction.

Unlike the demise of orgasm in reproductive physiology, the more general shift in the interpretation of the male and female bodies cannot have been due, even in principle, to scientific progress. In the first place, "oppositions and contrasts" between the female and the male, if one wishes to construe them as such, have been clear since the beginning of time: the one gives birth and the other does not. Set against such momentous truths, the discovery that the ovarian artery is not, as Galen would have it, the female version of the vas deferens is of relatively minor significance. The same can be said about the "discoveries" of more recent research on the biochemical, neurological, or other natural determinants or insignia of sexual difference. As Anne Fausto-Sterling has documented, a vast amount of negative data that shows no regular differences between the sexes is simply not reported.<sup>26</sup> Moreover, what evidence there does exist for biological difference with a gendered behavioral result is either highly

suspect for a variety of methodological reasons, or ambiguous, or proof of Dorothy Sayers' notion that men and women are very close neighbors indeed if it is proof of anything at all.

To be sure, difference and sameness, more or less recondite, are everywhere; but which ones count and for what ends is determined outside the bounds of empirical investigation. The fact that at one time the dominant discourse construed the male and female bodies as hierarchically, vertically, ordered versions of one sex and at another time as horizontally ordered opposites, as incommensurable, must depend on something other than even a great constellation of real or supposed discoveries.

Moreover, nineteenth-century advances in developmental anatomy (germ-layer theory) pointed to the common origins of both sexes in a morphologically androgynous embryo and thus not to their intrinsic difference. Indeed, the Galenic isomorphisms of male and female organs were by the 1850s rearticulated at the embryological level as homologues: the penis and the clitoris, the labia and the scrotum, the ovary and the testes, scientists discovered, shared common origins in fetal life. There was thus scientific evidence in support of the old view should it have been culturally relevant. Or, conversely, no one was much interested in looking for evidence of two distinct sexes, at the anatomical and concrete physiological differences between men and women, until such differences became politically important. It was not, for example, until 1759 that anyone bothered to reproduce a detailed female skeleton in an anatomy book to illustrate its difference from the male. Up to this time there had been one basic structure for the human body, and that structure was male.<sup>27</sup> And when differences were discovered they were already, in the very form of their representation, deeply marked by the power politics of gender.

Instead of being the consequence of increased specific scientific knowledge, new ways of interpreting the body were the result of two broader, analytically though not historically distinct, developments: one epistemological, the other political. By the late seventeenth century, in certain specific contexts, the body was no longer regarded as a microcosm of some larger order in which each bit of nature is positioned within layer upon layer of signification. Science no longer generated the hierarchies of analogies, the resemblances that bring the whole world into every scientific endeavor but thereby create a body of knowledge that is, as Foucault argues, at once endless and poverty-stricken.<sup>28</sup> Sex as it has been

seen since the Enlightenment—as the biological foundation of what it is to be male and female—was made possible by this epistemic shift.

But epistemology alone does not produce two opposite sexes; it does so only in certain political circumstances. Politics, broadly understood as the competition for power, generates new ways of constituting the subject and the social realities within which humans dwell. Serious talk about sexuality is thus inevitably about the social order that it both represents and legitimates. “Society,” writes Maurice Godelier, “haunts the body’s sexuality.”<sup>29</sup>

Ancient accounts of reproductive biology, still persuasive in the early eighteenth century, linked the intimate, experiential qualities of sexual delight to the social and the cosmic order. More generally, biology and human sexual experience mirrored the metaphysical reality on which, it was thought, the social order rested. The new biology, with its search for fundamental differences between the sexes, of which the tortured questioning of the very existence of women’s sexual pleasure was a part, emerged at precisely the time when the foundations of the old social order were shaken once and for all.

But social and political changes are not, in themselves, explanations for the reinterpretation of bodies. The rise of evangelical religion, Enlightenment political theory, the development of new sorts of public spaces in the eighteenth century, Lockean ideas of marriage as a contract, the cataclysmic possibilities for social change wrought by the French revolution, postrevolutionary conservatism, postrevolutionary feminism, the factory system with its restructuring of the sexual division of labor, the rise of a free market economy in services or commodities, the birth of classes, singly or in combination—none of these things *caused* the making of a new sexed body. Instead, the remaking of the body is itself intrinsic to each of these developments.

This book, then, is about the making not of gender, but of sex. I have no interest in denying the reality of sex or of sexual dimorphism as an evolutionary process. But I want to show on the basis of historical evidence that almost everything one wants to *say* about sex—however sex is understood—already has in it a claim about gender. Sex, in both the one-sex and the two-sex worlds, is situational; it is explicable only within the context of battles over gender and power.

To a great extent my book and feminist scholarship in general are inextricably caught in the tensions of this formulation: between language on

the one hand and extralinguistic reality on the other; between nature and culture; between "biological sex" and the endless social and political markers of difference.<sup>30</sup> We remain poised between the body as that extraordinarily fragile, feeling, and transient mass of flesh with which we are all familiar—too familiar—and the body that is so hopelessly bound to its cultural meanings as to elude unmediated access.

The analytical distinction between sex and gender gives voice to these alternatives and has always been precarious. In addition to those who would eliminate gender by arguing that so-called cultural differences are really natural, there has been a powerful tendency among feminists to empty sex of its content by arguing, conversely, that natural differences are really cultural. Already by 1975, in Gayle Rubin's classic account of how a social sex/gender system "transforms biological sexuality into products of human activity," the presence of the body is so veiled as to be almost hidden.<sup>31</sup> Sherry Ortner and Harriet Whitehead further erode the body's priority over language with their self-conscious use of quotation marks around "givens" in the claim that "what gender is, what men and women are . . . do not simply reflect or elaborate upon biological 'givens' but are largely products of social and cultural processes."<sup>32</sup> "It is also dangerous to place the body at the center of a search for female identity," reads a French feminist manifesto.<sup>33</sup>

But if not the body, then what? Under the influence of Foucault, various versions of deconstruction, Lacanian psychoanalysis, and poststructuralism generally, it threatens to disappear entirely.<sup>34</sup> (The deconstruction of stable meaning in texts can be regarded as the general case of the deconstruction of sexual difference: "what can 'identity,' even 'sexual identity,' mean in a new theoretical and scientific space where the very notion of identity is challenged?" writes Julia Kristeva.<sup>35</sup>) These strategies have begun to have considerable impact among historians. Gender to Joan Scott, for example, is not a category that mediates between fixed biological difference on the one hand and historically contingent social relations on the other. Rather it includes both biology and society: "a constitutive element of social relationships based on *perceived differences between the sexes* . . . a primary way of *signifying* relationships of power."<sup>36</sup>

But feminists do not need French philosophy to repudiate the sex/gender distinction. For quite different reasons, Catharine MacKinnon argues explicitly that gender is the division of men and women caused "by

the social requirements of heterosexuality, which institutionalizes male sexual dominance and female sexual submission"; sex—which comes to the same thing—is social relations "organized so that men may dominate and women must submit."<sup>37</sup> "Science," Ruth Bleier argues, mistakenly views "gender attributions as *natural* categories for which biological explanations are appropriate and even necessary."<sup>38</sup> Thus some of the so-called sex differences in biological and sociological research turn out to be gender differences after all, and the distinction between nature and culture collapses as the former folds into the latter.

Finally, from a different philosophical perspective, Foucault has even further rendered problematic the nature of human sexuality in relation to the body. Sexuality is not, he argues, an inherent quality of the flesh that various societies extol or repress—not, as Freud would seem to have it, a biological drive that civilization channels in one direction or another. It is instead a way of fashioning the self "in the experience of the flesh," which itself is "constituted from and around certain forms of behavior." These forms, in turn, exist in relation to historically specifiable systems of knowledge, rules of what is or is not natural, and to what Foucault calls "a mode or relation between the individual and himself which enables him to recognize himself as a sexual subject amidst others." (More generally, these systems of knowledge determine what can be thought within them.) Sexuality as a singular and all-important human attribute with a specific object—the *opposite* sex—is the product of the late eighteenth century. There is nothing natural about it. Rather, like the whole world for Nietzsche (the great philosophical influence on Foucault), sexuality is "a sort of artwork."<sup>39</sup>

Thus, from a variety of perspectives, the comfortable notion is shaken that man is man and woman is woman and that the historian's task is to find out what they did, what they thought, and what was thought about them. That "thing," sex, about which people had beliefs seems to crumble. But the flesh, like the repressed, will not long allow itself to remain in silence. The fact that we become human in culture, Jeffrey Weeks maintains, does not give us license to ignore the body: "It is obvious that sex is something more than what society designates, or what naming makes it."<sup>40</sup> The body reappears even in the writings of those who would turn attention to language, power, and culture. (Foucault, for example, longs for a nonconstructed utopian space in the flesh from

which to undermine "bio-power": "the rallying point for the counterattack against the deployment of sexuality ought not to be sex-desire, but bodies and pleasures."<sup>41</sup>

In my own life, too, the fraught chasm between representation and reality, seeing-as and seeing, remains. I spent 1980–81 in medical school and studied what was *really* there as systematically as time and circumstances permitted. Body as cultural construct met body on the dissecting table; more or less schematic anatomical illustrations—the most accurate modern science had to offer—rather hopelessly confronted the actual tangles of the human neck. For all of my awareness of how deeply our understanding of what we saw was historically contingent—the product of institutional, political, and epistemological contingencies—the flesh in its simplicity seemed always to shine through.

I remember once spending the better part of a day watching doctors and nurses trying vainly to stem the flow of blood from the ruptured esophageal varices of a middle-aged dentist, who that morning had walked into the emergency room, and to replace it pint by pint into his veins as they pumped it out of his stomach. In the late afternoon I left to hear *Don Giovanni*—I was after all only an observer and was doing the patient no good. The next morning he was dead, a fact that seemed of an entirely different order from Mozart's play on the body or the history of representation that constitutes this book. ("I know when one is dead, and when one lives. / She's dead as earth," howled Lear.)

But my acquaintance with the medical aspect of bodies goes back farther than 1981. I grew up the son of a pathologist. Most Sunday mornings as a boy I went with my father to his laboratory to watch him prepare surgical specimens for microscopic examination; he sliced up kidneys, lungs, and other organs preparatory to their being fixed in wax, stained, and mounted on slides to be "read." As he went about this delicate carving and subsequent reading, he spoke into a dictating machine about what he saw. Bodies, or in any case body parts, seemed unimpeachably real. I remember reading his autopsy protocols, stacked on the kelim-covered divan in his study, resonant with the formulas of what to me seemed like medical epic: "The body is that of a sixty-five-year-old Caucasian male in emaciated condition. It was opened with the usual Y-shaped incision." "The body is that of a well-nourished fifty-seven-year-old female. It was opened with the usual Y-shaped incision."

Three months before my father died of cancer, and only weeks before



brain metastasis made it impossible for him to think, he helped me in interpreting the German gynecological literature cited in Chapters 5 and 6, some of which was by his own medical-school teachers. More to the point, he tutored me on what one could actually see, for example, in the cross section of an ovary with the naked eye or through the microscope. "Is it plausible," I would ask, "that, as nineteenth-century doctors claimed, one could count the number of ovulatory scars [the corpus albicans] and correlate them with the number of menstrual cycles?" My father was the expert on what was *really* there.

But he figures also in its deconstruction. As a recent medical-school graduate, he could not continue his studies in Nazi Germany. In 1935 he took a train to Amsterdam to ask his uncle, Ernst Laqueur, who was professor of pharmacology there, what he ought to do next.<sup>42</sup> Some difficulties with a German official made my father decide not to go back to Hamburg at all. Ernst Laqueur presumably secured for him the position at Leiden that he was to hold for the next year or so. I knew little of what he did there, and nothing of what he published until I went through his papers after he died. (This was well after I had completed much of the research for this book.) In his desk I found a bundle of his offprints; the earliest one, except for his "Inaugural Dissertation," is entitled "Weitere Untersuchungen über den Uterus masculinus unter dem Einfluss verschiedener Hormone" (Further Studies of the Influence of Various Hormones on the Masculine Uterus).<sup>43</sup>

I had already written about how Freud the doctor severed familiar connections between the manifest evidence of bodies and the opposition between the sexes. I had read Sarah Kofman on the power of anatomy to "confuse those who think of the sexes as opposing species."<sup>44</sup> But my father's contribution to the confusion was a complete revelation, genuinely uncanny. It was hidden and yet so much of the home—*heimlich* but also *unheimlich*—the veiled and secret made visible, an eerie, ghostly reminder that somehow this book and I go back a long way.<sup>45</sup>

There are less personal reasons as well for wanting to maintain in my writing a distinction between the body and the body as discursively constituted, between seeing and seeing-as. In some measure these reasons are ethical or political and grow out of the different obligations that arise for the observer from seeing (or touching) and from representing. It is also disingenuous to write a history of sexual difference, or difference generally, without acknowledging the shameful correspondence between par-

ticular forms of suffering and particular forms of the body, however the body is understood. The fact that pain and injustice are gendered and correspond to corporeal signs of sex is precisely what gives importance to an account of the making of sex.

Moreover, there has clearly been progress in understanding the human body in general and reproductive anatomy and physiology in particular. Modern science and modern women are much better able to predict the cyclical likelihood of pregnancy than were their ancestors; menstruation turns out to be a different physiological process from hemorrhoidal bleeding, contrary to the prevailing wisdom well into the eighteenth century, and the testes *are* histologically different from the ovaries. Any history of a science, however much it might emphasize the role of social, political, ideological, or aesthetic factors, must recognize these undeniable successes and the commitments that made them possible.<sup>46</sup>

Far from denying any of this, I want to insist upon it. My particular Archimedean point, however, is not in the real transcultural body but rather in the *space* between it and its representations. I hold up the history of progress in reproductive physiology—the discovery of distinct germ products, for example—to demonstrate that these did not cause a particular understanding of sexual difference, the shift to the two-sex model. But I also suggest that theories of sexual difference influenced the course of scientific progress and the interpretation of particular experimental results. Anatomists might have seen bodies differently—they might, for example, have regarded the vagina as other than a penis—but they did not do so for essentially cultural reasons. Similarly, empirical data were ignored—evidence for conception without orgasm, for example—because they did not fit into either a scientific or a metaphysical paradigm.

Sex, like being human, is contextual. Attempts to isolate it from its discursive, socially determined milieu are as doomed to failure as the *philosophe's* search for a truly wild child or the modern anthropologist's efforts to filter out the cultural so as to leave a residue of essential humanity. And I would go further and add that the private, enclosed, stable body that seems to lie at the basis of modern notions of sexual difference is also the product of particular, historical, cultural moments. It too, like opposite sexes, comes into and out of focus.

My general strategy in this book is to implicate biology explicitly in the interpretive dilemmas of literature and of cultural studies generally.

"Like the other sciences," writes François Jacob, winner of the 1965 Nobel Prize for medicine,

biology today has lost its illusions. It is no longer seeking for truth. It is building its own truths. Reality is seen as an ever-unstable equilibrium. In the study of living beings, history displays a pendulum movement, swinging to and fro between the continuous and the discontinuous, between structure and function, between the identity of phenomena and the diversity of being.<sup>47</sup>

The instability of difference and sameness lies at the very heart of the biological enterprise, in its dependence on prior and shifting epistemological, and one could add political, grounds. (Jacob is of course not the first to make this point. Auguste Comte, the guiding spirit of nineteenth-century positivism, confessed that "there seems no sufficient reason why the use of scientific *fictions*, so common in the hands of geometers, should not be introduced into biology."<sup>48</sup> And Emile Durkheim, one of the giants of sociology, argued that "we buoy ourselves up with a vain hope if we believe that the best means of preparing for the coming of a new science is first patiently to accumulate all the data it will use. For we cannot know what it will require unless we have already formed some conception of it."<sup>49</sup> Science does not simply investigate, but itself constitutes, the difference my book explores: that of woman from man. (But not, for reasons discussed below, man from woman.)

Literature, in a similar way, constitutes the problem of sexuality and is not just its imperfect mirror. As Barbara Johnson argues, "it is literature that inhabits the very heart of what makes sexuality problematic for us speaking animals. Literature is not only a thwarted investigator but also an incorrigible perpetrator of the problem of sexuality."<sup>50</sup> Sexual difference thus seems to be already present in how we constitute meaning; it is already part of the logic that drives writing. Through "literature," representation generally, it is given content. Not only do attitudes toward sexual difference "generate and structure literary texts"; texts generate sexual difference.<sup>51</sup>

Johnson is careful to restrict the problem of sexuality to "us speaking animals," and thus to rest content that, among dumb animals and even among humans outside the symbolic realm, male is manifestly the opposite sex from female. But clarity among the beasts bespeaks only the very

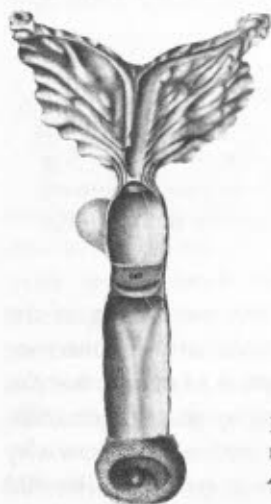


Fig. 1. Genitalia of a female elephant drawn from a fresh specimen by a nineteenth-century naturalist. From *Journal of the Academy of Natural Science*, Philadelphia, 8.4 (1881).

limited purposes for which we generally make such sexual distinctions. It matters little if the genitals of the female elephant (fig. 1) are rendered to look like a penis because the sex of elephants generally matters little to us; it is remarkable and shocking if the same trick is played on our species, as was routine in Renaissance illustrations (figs. 15–17). Moreover, as soon as animals enter some discourse outside breeding, zoo keeping, or similarly circumscribed contexts, the same sort of ambiguities arise as when we speak about humans. Then the supposedly self-evident signs of anatomy or physiology turn out to be anything but self-evident. Questions of ultimate meaning clearly go well beyond such facts. Darwin in 1861 lamented: “We do not even know in the least the final cause of sexuality; why new beings should be produced by the union of the two sexual elements, instead of by a process of parthenogenesis . . . The whole subject is as yet hidden in darkness.”<sup>52</sup> And still today the question of why egg and sperm should be borne by different, rather than the same, hermaphroditic, creature remains open.<sup>53</sup>

Darkness deepens when animals enter into the orbit of culture; their sexual transparency disappears. The hare, which figures prominently in so much myth and folklore, was long thought to be capable of routine sex change from year to year and thus inherently androgynous. Or, as the

more learned would have it, the male hare bears young on occasion. The hyena, another animal with prolific cultural meanings, was long thought to be hermaphroditic. The cassowary, a large, flightless, ostrich-like, and, to the anthropologist, epicene bird, becomes to the male Sambian tribesman a temperamental, wild, masculinized female who gives birth through the anus and whose feces have procreative powers; the bird becomes powerfully bisexual. Why, asks the ethnographer Gilbert Herdt, do people as astute as the Sambia "believe" in anal birth? Because anything one says, outside of very specific contexts, about the biology of sex, even among the brute beasts, is already informed by a theory of difference or sameness.<sup>54</sup>

Indeed, if structuralism has taught us anything it is that humans impose their sense of opposition onto a world of continuous shades of difference and similarity. No oppositional traits readily detected by an outsider explain the fact that in nearly all of North America, to use Lévi-Strauss's example, sagebrush, *Artemesia*, plays "a major part in the most diverse rituals, either by itself or associated with and at the same time, as the opposite of other plants: *Solidaga*, *Chrysothamnus*, *Gutierrezia*." It stands for the feminine in Navaho ritual whereas *Chrysothamnus* stands for the masculine. No principle of opposition could be subtler than the tiny differences in leaf serrations that come to carry such enormous symbolic weight.<sup>55</sup>

It should be clear by now that I offer no answer to the question of how bodies determine what we mean by sexual difference or sameness. My claims are of two sorts. Most are negative: I make every effort to show that no historically given set of facts about "sex" entailed how sexual difference was in fact understood and represented at the time, and I use this evidence to make the more general claim that no set of facts ever entails any particular account of difference. Some claims are positive: I point to ways in which the biology of sexual difference is embedded in other cultural programs.

Chapter 2 is about the oxymoronic one-sex body. Here the boundaries between male and female are primarily political; rhetorical rather than biological claims regarding sexual difference and sexual desire are primary. It is about a body whose fluids—blood, semen, milk, and the various excrements—are fungible in that they turn into one another and whose processes—digestion and generation, menstruation and other

bleeding—are not so easily distinguished or so easily assignable to one sex or another as they became after the eighteenth century. This “one flesh,” the construction of a single-sexed body with its different versions attributed to at least two genders, was framed in antiquity to valorize the extraordinary cultural assertion of patriarchy, of the father, in the face of the more sensorily evident claim of the mother. The question for the classical model is not what it explicitly claims—why woman?—but the more troublesome question—why man?

Chapter 3 is the first of two chapters that examine explicitly the relationship between a model of sexual difference and scientific learning. It shows how the one-flesh model was able to incorporate new anatomical knowledge and new naturalistic forms of representation. Chapter 4 concentrates on the cultural interests that various writers had in what seems to us a manifestly counterintuitive model of sexual difference. It exposes the immense pressures on the one-sex model from the existence of two genders, from the new political claims of women, and from the claims of heterosexuality generally. I suggest through readings of legal, juridical, and literary texts that it is sustained by powerful notions of how hierarchy worked and how the body expresses its cultural meanings. At stake for the men involved in this struggle was nothing less than the suppression of the basis for a genuine, other, sex.

Chapter 5 gives an account of the breakdown of the one-sex model and the establishment of two sexes. Like Chapter 3 it maintains that these constructions were not the consequence of scientific change but rather of an epistemological and a social-political revolution. Again, the negative argument—that the scientific is not natural and given—is more forcefully put than the affirmative, in part because I am reluctant to frame my story in terms of a specific set of causes for the increasing prominence of the two-sex model. My strategy instead is to suggest, example by example, the ways in which particular struggles and rhetorical situations made men and women talk as if there were now two sexes. These contexts were of course the results of new social and political developments, but I do not draw out the connections in great detail. More detailed studies are needed to create a locally nuanced account of “Politics, Culture, and Class in the Eighteenth- and Nineteenth-Century Body.”<sup>56</sup>

Chapter 6 functions much like Chapter 4 in that it engages the science of sex—two this time—with the demands of culture. I show specifically how cornerstones of corporeally based sexes were themselves deeply im-

plicated in the politics of gender. But in this chapter I also present evidence for the continued life of the one-sex model. It lived on even in the midst of the most impassioned defense of two sexes, of ineradicable "organic difference . . . proved by all sound biology, by the biology of man and of the entire animal species . . . proved by the history of civilization, and the entire course of human evolution." The specter of one sex remains: the "womanliness of woman" struggles against "the anarchic assertors of the manliness of woman."<sup>57</sup> In some of the rhetoric of evolutionary biology, in the Marquis de Sade, in much of Freud, in slasher films, indeed in any discussion of gender, the modern invention of two distinct, immutable, and incommensurable sexes turns out to be less dominant than promised.<sup>58</sup> (Here I differ from Foucault, who would see one *episteme* decisively, once and for all, replacing another.) I illustrate the openness of nineteenth-century science to either a two- or a one-sex model with a discussion first of how denunciations of prostitution and masturbation reproduced an earlier discourse of the unstable individual body, open and responsive to social evil, and then of Freud's theory of clitoral sexuality in which efforts to find evidence of incommensurable sexes founders on his fundamental insight that the body does not of itself produce two sexes.

I have not written this book as an explicit attack on the current claims of sociobiology. But I hope it is taken up by those engaged in that debate. A historian can contribute little to the already existing critical analysis of particular experiments purporting to demonstrate the biological basis of gender distinctions or to lay bare the hormones and other chemicals that are meant to serve as a sort of ontological granite for observable sexual differences.<sup>59</sup> But I can offer material for how powerful prior notions of difference or sameness determine what one sees and reports about the body. The fact that the giants of Renaissance anatomy persisted in seeing the vagina as an internal version of the penis suggests that almost any sign of difference is dependent on an underlying theory of, or context for, deciding what counts and what does not count as evidence.

More important, though, I hope this book will persuade the reader that there is no "correct" representation of women in relation to men and that the whole science of difference is thus misconceived. It is true that there is and was considerable and often overtly misogynist bias in much biological research on women; clearly science has historically worked to "rationalize and legitimize" distinctions not only of sex but also of race

and class, to the disadvantage of the powerless. But it does not follow that a more objective, richer, progressive, or even more feminist science would produce a truer picture of sexual difference in any culturally meaningful sense.<sup>60</sup> (This is why I do not attempt to offer a history of more or less correct, or more or less misogynistic, representations.) In other words, the claim that woman is what she is because of her uterus is no more, or less, true than the subsequent claim that she is what she is because of her ovaries. Further evidence will neither refute nor affirm these patently absurd pronouncements because at stake are not biological questions about the effects of organs or hormones but cultural, political questions regarding the nature of woman.

I return again and again in this book to a problematic, unstable female body that is either a version of or wholly different from a generally unproblematic, stable male body. As feminist scholars have made abundantly clear, it is *always* woman's sexuality that is being constituted; woman is the empty category. Woman alone seems to have "gender" since the category itself is defined as that aspect of social relations based on difference between sexes in which the standard has always been man. "How can one be an enemy of woman, whatever she may be?" as the Renaissance physician Paracelsus put it; this could never be said of man because, quite simply, "one" is male. It is probably not possible to write a history of man's body and its pleasures because the historical record was created in a cultural tradition where no such history was necessary.

But the modern reader must always be aware that recounting the history of interpreting woman's body is not to grant the male body the authority it implicitly claims. Quite the contrary. The record on which I have relied bears witness to the fundamental incoherence of stable, fixed categories of sexual dimorphism, of male and/or female. The notion, so powerful after the eighteenth century, that there had to be something outside, inside, and throughout the body which defines male as opposed to female and which provides the foundation for an attraction of opposites is entirely absent from classical or Renaissance medicine. In terms of the millennial traditions of western medicine, genitals came to matter as the marks of sexual opposition only last week. Indeed, much of the evidence suggests that the relationship between an organ as sign and the body that supposedly gives it currency is arbitrary, as indeed is the relationship between signs. The male body may always be the standard in the



game of signification, but it is one whose status is undermined by its unrepentant historical inconstancy.

Although some tensions inform this book, others do not. I have given relatively little attention to conflicting ideas about the nature of woman or of human sexuality. I have not even scratched the surface of a contextual history of reproductive anatomy or physiology; even for scientific problems that I explore in some detail, the institutional and professional matrix in which they are embedded is only hurriedly sketched. There is simply too much to do in the history of biology, and too much has already been done on the condition-of-woman question or the history of ideas about sex, for any one person to master.

I want to lay claim to a different historical domain, to the broad discursive fields that underlie competing ideologies, that define the terms of conflict, and that give meaning to various debates. I am not committed to demonstrating, for example, that there is a single, dominant "idea of woman" in the Renaissance and that all others are less important. I have no interest in proving conclusively that Galen is more important than Aristotle at any one time or that a given theory of menstruation was hegemonic between 1840 and 1920. Nor will I be concerned with the gains and losses in the status of women through the ages. These are issues I must ask my readers to decide for themselves, whether the impressions they derive from these pages fit what they themselves know of the vast spans of time that I cover. My goal is to show how a biology of hierarchy in which there is only one sex, a biology of incommensurability between two sexes, and the claim that there is no publicly relevant sexual difference at all, or no sex, have constrained the interpretation of bodies and the strategies of sexual politics for some two thousand years.

Finally, I confess that I am saddened by the most obvious and persistent omission in this book: a sustained account of experience in the body. Some might argue that this is as it should be, and that a man has nothing of great interest or authenticity to say about the sexual female body as it feels and loves. But more generally I have found it impossible in all but isolated forays into literature, painting, or the occasional work of theology to imagine how such different visions of the body worked in specific contexts to shape passion, friendship, attraction, love. A colleague pointed out to me that he heard Mozart's *Così fan tutte* with new ears after reading my chapters about the Renaissance. I have felt a new poi-

gnancy in the tragicomedy of eighteenth-century disguise—the last act of *Le Nozze di Figaro*, for example—with its questioning of what it is in a person that one loves. Bodies do and do not seem to matter. I watch Shakespeare's comedies of sexual inversion with new queries, and I try to think my way back into a distant world where the attraction of deep friendship was reserved for one's like.

Further than that I have not been able to go. I regard what I have written as somehow liberating, as breaking old shackles of necessity, as opening up worlds of vision, politics, and eros. I only hope that the reader will feel the same.

## T W O

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# Destiny Is Anatomy

Turn outward the woman's, turn inward, so to speak, and fold double the man's [genital organs], and you will find the same in both in every respect.

GALEN OF PERGAMUM (c. 130–200)

This chapter is about the corporeal theatrics of a world where at least two genders correspond to but one sex, where the boundaries between male and female are of degree and not of kind, and where the reproductive organs are but one sign among many of the body's place in a cosmic and cultural order that transcends biology. My purpose is to give an account, based largely on medical and philosophical literature, of how the one-sex body was imagined; to stake out a claim that the one-sex/one-flesh model dominated thinking about sexual difference from classical antiquity to the end of the seventeenth century; and to suggest why the body should have remained fixed in a field of images hoary already in Galen's time, while the gendered self lived a nuanced history through all the immense social, cultural, and religious changes that separate the world of Hippocrates from the world of Newton.

### Organs and the mole's eyes

Nothing could be more obvious, implied the most influential anatomist in the western tradition, than to imagine women as men. For the dullard who could not grasp the point immediately, Galen offers a step-by-step thought experiment:

Think first, please, of the man's [external genitalia] turned in and extending inward between the rectum and the bladder. If this should happen, the scrotum would necessarily take the place of the uterus with the testes lying outside, next to it on either side.

The penis becomes the cervix and vagina, the prepuce becomes the female pudenda, and so forth on through various ducts and blood vessels. A sort of topographical parity would also guarantee the converse, that a man could be squeezed out of a woman:

Think too, please, of . . . the uterus turned outward and projecting. Would not the testes [ovaries] then necessarily be inside it? Would it not contain them like a scrotum? Would not the neck [the cervix and vagina], hitherto concealed inside the perineum but now pendant, be made into the male member?

In fact, Galen argued, "you could not find a single male part left over that had not simply changed its position." Instead of being divided by their reproductive anatomies, the sexes are linked by a common one. Women, in other words, are inverted, and hence less perfect, men. They have exactly the same organs but in exactly the wrong places. (The wrongness of women, of course, does not follow logically from the "fact" that their organs are the same as men's, differing only in placement. The arrow of perfection *could* go either or both ways. "The silliest notion has just crossed my mind," says Mlle. de l'Espinasse in Diderot's *D'Alembert's Dream*: "Perhaps men are nothing but a freakish variety of women, or women only a freakish variety of men." Dr. Bordeu responds approvingly that the notion would have occurred to her earlier if she had known—he proceeds to give a short lecture on the subject—that "women possess all the anatomical parts that a man has.")<sup>1</sup>

The topographical relationships about which Galen writes so persuasively and with such apparent anatomical precision were not themselves to be understood as the basis of sexual hierarchy, but rather as a way of imagining or expressing it. Biology only records a higher truth. Thus although Galen, the professional anatomist, clearly cared about corporeal structures and their relation to the body's various functions, his interest in the plausibility of particular identifications or in maintaining the manifestly impossible implosion of man into woman and back out again, was largely a matter of rhetorical exigency.

On some occasions he was perfectly willing to argue *for* the genital oppositions he elsewhere denied: "since everything in the male is the opposite [of what it is in the female] the male member has been elongated to be most suitable for coitus and the excretion of semen" (*UP* 2.632). At other times Galen and the medical tradition that followed him were

prepared to ignore entirely not only the specifically female but also the specifically reproductive quality of the female reproductive organs, not to speak of their relationship to male organs. His systematic major treatment of the uterus, for example, treated it as the archetype for a group of organs "which are especially hollow and large" and thus the locus of a generic body's "retentive faculties." The uterus was singled out not because of what we moderns might take to be its unique, and uniquely female, capacity to produce a child but because it formed the embryo in leisurely fashion, more so than a comparable organ like the stomach digested food, and was therefore "capable of demonstrating the retentive faculty most plainly."<sup>2</sup>

Subsequent ways of talking about the uterus reproduced these ambiguities. Isidore of Seville, the famous encyclopedist of the seventh century, for example, argued on the one hand that only women have a womb (*uterus* or *uterum*) in which they conceive and, on the other, that various authorities and "not only poets" considered the uterus to be the belly, *venter*, common to both sexes.<sup>3</sup> (This helps to explain why *vulva* in medieval usage usually meant vagina, from *valva*, "gateway to the belly."<sup>4</sup>) Isidore, moreover, assimilates this unsexed belly to other retentive organs with respect precisely to that function in which we would think it unique: during gestation, he said, the semen is formed into a body "by heat like that of the viscera."<sup>5</sup> A great linguistic cloud thus obscured specific genital or reproductive anatomy and left only the outlines of spaces common to both men and women.<sup>6</sup>

None of these topographical or lexical ambiguities would matter, however, if instead of understanding difference and sameness as matters of anatomy, the ancients regarded organs and their placement as epiphenomena of a greater world order. Then what we would regard as specifically male and female parts would not always need to have their own names, nor would the inversions Galen imagined actually have to work. Anatomy—modern sex—could in these circumstances be construed as metaphor, another name for the "reality" of woman's lesser perfection. As in Galen's elaborate comparison between the eyes of the mole and the genital organs of women, anatomy serves more as illustration of a well-known point than as evidence for its truth. It makes vivid and more palpable a hierarchy of heat and perfection that is in itself not available to the senses. (The ancients would not have claimed that one could actually feel differences in the heat of males and females.<sup>7</sup>)

Galen's simile goes as follows. The eyes of the mole have the same structures as the eyes of other animals except that they do not allow the mole to see. They do not open, "nor do they project but are left there imperfect." So too the female genitalia "do not open" and remain an imperfect version of what they would be were they thrust out. The mole's eyes thus "remain like the eyes of other animals when these are still in the uterus" and so, to follow this logic to its conclusion, the womb, vagina, ovaries, and external pudenda remain forever as if they were still inside the womb. They cascade vertiginously back inside themselves, the vagina an eternally, precariously, unborn penis, the womb a stunted scrotum, and so forth.<sup>8</sup>

The reason for this curious state of affairs is the purported telos of perfection. "Now just as mankind is the most perfect of all animals, so within mankind the man is more perfect than the woman, and the reason for his perfection is his excess of heat, for heat is Nature's primary instrument" (*UP* 2.630). The mole is a more perfect animal than animals with no eyes at all, and women are more perfect than other creatures, but the unexpressed organs of both are signs of the absence of heat and consequently of perfection. The interiority of the female reproductive system could then be interpreted as the material correlative of a higher truth without its mattering a great deal whether any particular spatial transformation could be performed.

Aristotle, paradoxically for someone so deeply committed to the existence of two radically different and distinct sexes, offered the western tradition a still more austere version of the one-sex model than did Galen. As a philosopher he insisted upon two sexes, male and female. But he also insisted that the distinguishing characteristic of maleness was immaterial and, as a naturalist, chipped away at organic distinctions between the sexes so that what emerges is an account in which one flesh could be ranked, ordered, and distinguished as particular circumstances required. What we would take to be ideologically charged social constructions of gender—that males are active and females passive, males contribute the form and females the matter to generation—were for Aristotle indubitable facts, "natural" truths. What we would take to be the basic facts of sexual difference, on the other hand—that males have a penis and females a vagina, males have testicles and females ovaries, females have a womb and males do not, males produce one kind of germinal product, females another, that women menstruate and men do not—were for Aristotle

contingent and philosophically not very interesting observations about particular species under certain conditions.

I do not mean to suggest by this that Aristotle was unable to tell man from woman on the basis of their bodies or that he thought it an accident that men should fulfill one set of roles and women another. Even if he did not write the *Economics* he would certainly have subscribed to the view that "the nature both of man and woman has been preordained by the will of heaven to live a common life. For they are distinguished in that the powers they possess are not applicable to purposes in all cases identical, but in some respects their functions are opposed to one another." One sex is strong and the other weak so that one may be cautious and the other brave in warding off attacks, one may go out and acquire possessions and the other stay home to preserve them, and so on.<sup>9</sup> In other words, both the division of labor and the specific assignment of roles are natural.

But these views do not constitute a modern account of two sexes. In the first place, there is no effort to ground social roles in nature; social categories themselves are natural and on the same explanatory level as what we would take to be physical or biological facts. Nature is not therefore to culture what sex is to gender, as in modern discussions; the biological is not, even in principle, the foundation of particular social arrangements. (Aristotle, unlike nineteenth-century commentators, did not need facts about menstruation or metabolism to locate women in the world order.) But more important, though Aristotle certainly regarded male and female bodies as specifically adapted to their particular roles, he did not regard these adaptations as the signs of sexual opposition. The qualities of each sex entailed the comparative advantage of one or the other in minding the home or fighting, just as for Galen the lesser heat of women kept the uterus inside and therefore provided a place of moderate temperature for gestation. But these adaptations were not the basis for ontological differentiation. In the flesh, therefore, the sexes were more and less perfect versions of each other. Only insofar as sex was a cipher for the nature of causality were the sexes clear, distinct, and different in kind.

Sex, for Aristotle, existed for the purpose of generation, which he regarded as the paradigmatic case of becoming, of change "in the first category of being."<sup>10</sup> The male represented efficient cause, the female represented material cause.

the female always provides the material, the male that which fashions it, for this is the power we say they each possess, and *this is what it is for them to be male and female* . . . While the body is from the female, it is the soul that is from the male. (GA 2.4.738b20-23)

the male and female principles may be put down first and foremost as the origins of generation, the former as containing the efficient cause of generation, the latter the material of it. (GA 2.716a5-7)

This difference in the nature of cause constitutes fully what Aristotle means by sexual opposition: "by a male animal we mean that which generates in another; by a female, that which generates in itself"; or, what comes to the same thing since for Aristotle reproductive biology was essentially a model of filiation, "female is opposed to male, and mother to father."<sup>11</sup>

These were momentous distinctions, as powerful and plain as that between life and death. To Aristotle being male *meant* the capacity to supply the sensitive soul without which "it is impossible for face, hand, flesh, or any other part to exist." Without the sensitive soul the body was no better than a corpse or part of a corpse (GA 2.5.741a8-16). The dead is made quick by the spark, by the incorporeal *sperma* (seed), of the genitor. One sex was able to concoct food to its highest, life-engendering stage, into true sperma; the other was not.

Moreover, when Aristotle discusses the capacity of the respective sexes to carry out the roles that distinguish them, he seems to want to consider bodies, and genitals in particular, as themselves opposites, indeed as making possible the efficient/material chasm itself. Males have the capacity, and females do not, to reduce "the residual secretion to a pure form," the argument runs, and "every capacity has a certain corresponding organ." It follows that "the one has the uterus, the other the male organs." (These distinctions are actually more striking in translation than in the Greek. Aristotle uses *perineos* to refer to the penis and scrotum here. He uses the same word elsewhere to refer to the area "inside the thigh and buttocks" in women. More generally he uses *aidoion* to refer to the penis, but in the plural, *aidoia*, it is the standard word for the "shameful parts," the Greek equivalent for the Latin *pudenda*, which refers to the genitals of both sexes.<sup>12</sup>)

Nevertheless, despite these linguistic ambiguities, Aristotle does seem committed to the genital opposition of two sexes. An animal is not "male



or female in virtue of the whole of itself," he insists, "but only in virtue of a certain faculty and a certain part," that is, the uterus in the female, the penis and testes in the male. The womb was the part peculiar to the female, just as the penis was distinctive of the male.<sup>13</sup> No slippery inversions here as in Galen. No elisions of difference or hints of one sex. "The privy part of the female is in character opposite to that of the male. In other words, the part under the pubes is hollow, and not like the male organ, protruding" (*HA* 1.14.493b3-4). Aristotle even adduced what he took to be experimental evidence for the fact that anatomy was the foundation of the opposing male and female "principles" of activity and passivity. A castrated male, he pointed out, assumed pretty well the form of a female or "not far short of it . . . as would be the case if a first principle is changed" (*GA* 1.2.716b5-12). The excision of the "ovaries" in a sow caused them to get fat and quenched their sexual appetite, while a similar operation in camels made them more aggressive and fit for war service.<sup>14</sup>

None of this is very surprising, since the physical appearance of the genital organs was and remains the usually reliable indicator of reproductive capacity and hence of the gender to which an infant is to be assigned.<sup>15</sup> But what is surprising is the alacrity with which Aristotle the naturalist blurs the distinctions of "real" bodies in order to arrive at a notion of fatherhood—the defining capacity of males—that transcends the divisions of flesh. Like Galen's, and unlike that of the dominant post-Enlightenment tradition, Aristotle's rhetoric then becomes that of one sex.

First, Aristotle's passion for the infinite variety of natural history constantly undermines the form-follows-function precision of the texts I have cited. A large penis, which one might think would render a man more manly, capable of generating in another, in fact makes him less so: "such men are less fertile than when it [the penis] is smaller because the semen, if cold, is not generative."<sup>16</sup> (Aristotle's biology is here playing on broader cultural themes. A large penis was thought comic in ancient Greek art and drama, appropriate to satyrs, while the preferred size was small and delicate: "little prick" (*posthion*) was among Aristophanes' terms of endearment. Young athletes in Athens tied down the glans with a leather string, apparently for cosmetic reasons, to make the male genitals look small and as much like the female pudenda as possible.<sup>17</sup>) Detail after detail further undermines the penis/male connection in Aristotle's

texts: human males and stallions do indeed have proportionately large penises outside their bodies, but the male elephant's is disproportionately small—he also has no visible testes—while the dolphin has no external penis at all. (The situation is doubly confused with elephants because supposedly the female “organ opens out to a considerable extent” during intercourse (*HA* 2.1.500a33–35 and 2.1.500b6–13). Among insects, Aristotle claims, the female actually pushes her sexual organ from underneath *into* the male (*HA* 5.8.542a2ff). Indeed, the male's having a penis at all seems to depend on nothing more than the placement or indeed existence of the legs: snakes, which have no legs, and birds, whose legs are in the middle of their abdomens where the genitals ought to be, simply lack a penis entirely (*HA* 2.1.500b20–25 and *GA* 1.5.717b14–19).

As for the testes being a “first principle” in the differentiation of the sexes, little is left rhetorically of this claim when faced with specific observations and metaphors (*GA* 1.2.716b4). Aristotle demotes them in one text to the lowly task of bending certain parts of the body's piping (*HA* 3.1.510a13–b5). Like the weights women hang from the warp on their looms—a less than celebratory simile, which suffers from a curious mixing of genders—the testicles keep the spermatic ducts properly inclined (*GA* 1.4.717a8–b10). (Thread that is not properly held down results in a tangle; tangled seminal ducts that go back up into the body convey impotent generative material.)

These “facts” led Aristotle still further away from specific connections between opposing genitals and sex and ever deeper into the thicket of connections that constitute the one-sex model. He, like Galen five centuries later, aligned the reproductive organs with the alimentary system, common to all flesh. Animals with straight intestines are more violent in their desire for food than animals whose intestines are convoluted, Aristotle observed, and likewise those with straight ducts, creatures without testes, are “quicker in accomplishing copulation” than creatures with crooked ducts. Conversely, creatures who “have not straight intestines” are more temperate in their longing for food, just as twisted ducts prevent “desire being too violent and hasty” in animals so blessed. Testes thus end up serving the lowly but useful function of making “the movement of the spermatic secretion steadier,” thus prolonging intercourse and concoction in the interest of hotter, finer sperma.<sup>18</sup> Aristotle makes much less of the female plumbing, but his concern to identify the ovaries as the seat

of woman's specific reproductive capacity was never very serious and the one passage where he makes the case crumbles under close scrutiny.<sup>19</sup> Natural history, in short, works to diminish the pristine purity of testes and ovaries, penis and vagina, as signifiers of sexual opposition—of efficient versus material cause—and situates them firmly in a larger economy of the one flesh.

Moreover, when Aristotle directly confronted the question of the anatomical differences between the sexes, he unleashed a vortex of metaphor every bit as dizzying and disorienting, every bit as committed to one sex, as Galen's trope of the mole's eyes. All of the male organs, he said, are similar in the female except that she has a womb, which presumably the male does not. But Aristotle promptly assimilates the womb to the male scrotum after all: "always double just as the testes are always two in the male."<sup>20</sup>

This move, however, was only part of a more general conflation of male and female parts, specifically of a tendency to regard the cervix and/or vagina as an internal penis:

The path along which the semen passes in women is of the following nature: they [women] possess a tube (*kaulos*)—like the penis of the male, but inside the body—and they breathe through this by a small duct which is placed above the place through which women urinate. This is why, when they are eager to make love, this place is not in the same state as it was before they were excited. (HA 10.5.637a23–25)

The very lack of precision in this description, and especially the use of so general a term as *kaulos* for a structure that in the two-sex model would become the mark of female emptiness or lack, suggests that Aristotle's primary commitment was not to anatomy itself, and certainly not to anatomy as the foundation for opposite sexes, as much as it was to greater truths that could be impressionistically illustrated by certain features of the body.

A brief excursus on *kaulos* will help to make this case. The word refers to a hollowish tubular structure generally: the neck of the bladder or the duct of the penis or, in Homeric usage, a spear shaft or the quill of a feather (to take four charged and richly intertwined examples). In the passage I just quoted it clearly designates some part of the female anatomy though which, significantly, is unclear: the cervix [neck] of the uterus, the endo-cervical canal, the vagina, some combination of these or

even the clitoris which like the penis would have been construed as hollow. But whatever *kaulos* means in this text, the part in question is spoken of elsewhere as if it functioned in women like an interior penis, a tube composed, as are both penis and vagina, of "much flesh and gristle" (*HA* 3.1.510b13).

By the time of Soranus, the second-century physician who would become the major source of the gynecological high tradition for the next fifteen centuries, the assimilation of vagina to penis through language had gone much further. "The inner part of the vagina (*ton gynaikeion aidion*, the feminine private part)," Soranus said, "grows around the neck of the uterus (*kaulos*, which I take here to mean cervix) like the prepuce in males around the glans."<sup>21</sup> In other words, the vagina and external structures are imagined as one giant foreskin of the female interior penis whose glans is the domelike apex of the "neck of the womb." By the second century *kaulos* had also become the standard word for penis. The "protruding part" of the *aidion* (private part) "through which flows liquid from the bladder" is called the *kaulos*, says Julius Pollux (134–192) authoritatively in his compilation of medical nomenclature.<sup>22</sup> Aristotle—or the pseudo-Aristotle who wrote book 10 of the *Generation of Animals*—must have imagined something like this when he wrote of the womb during orgasm violently emitting (*proiethai*) through the cervix into the same space as the penis, i.e., into the vagina.<sup>23</sup> If we take this figure seriously, we must come to the extraordinary conclusion that women always have one penis—the cervix or *kaulos*—penetrating the vagina from the inside and another more potent penis, the male's, penetrating from the outside during intercourse.

There is, as G. E. R. Lloyd said, "an air of shadow boxing" about Greek debates on male and female physiology, and even a certain lunatic confusion if various claims are pushed to their limits.<sup>24</sup> Matters were ordinarily much clearer to the ancients, who could undoubtedly tell penis from vagina and possessed the language with which to do so. Latin and Greek, like most other tongues, generated an excess of words about sex and sexual organs as well as a great abundance of poetry and prose praising or making fun of the male or female organs, joking or cursing on the theme of what should be stuck where. I deny none of this.

But when the experts in the field sat down to write about the basis of sexual difference, they saw no need to develop a precise vocabulary of genital anatomy because if the female body was a less hot, less perfect,

and hence less potent version of the canonical body, then distinct organic, much less genital, landmarks mattered far less than the metaphysical hierarchies they illustrated. Claims that the vagina was an internal penis or that the womb was a female scrotum should therefore be understood as images in the flesh of truths far better secured elsewhere. They are another way of saying, with Aristotle, that woman is to man as a wooden triangle is to a brazen one or that woman is to man as the imperfect eyes of the mole are to the more perfect eyes of other creatures.<sup>25</sup> Anatomy in the context of sexual difference was a representational strategy that illuminated a more stable extracorporeal reality. There existed many genders, but only one adaptable sex.

### Blood, milk, fat, sperm

In the blood, semen, milk, and other fluids of the one-sex body, there is no female and no sharp boundary between the sexes. Instead, a physiology of fungible fluids and corporeal flux represents in a different register the absence of specifically genital sex. Endless mutations, a cacophonous ringing of changes, become possible where modern physiology would see distinct and often sexually specific entities.

Ancient wisdom held, for example, that sexual intercourse could alleviate conditions—mopish, sluggish behavior—caused by too much phlegm, the moist clammy humor associated with the brain: “semen is the secretion of an excrement and in its nature resembles phlegm.”<sup>26</sup> (This already hints of the idea that conception is the male having an idea in the female body.) But more to the point here, ejaculation of one sort of fluid was thought to restore a balance caused by an excess of another sort because seminal emission, bleeding, purging, and sweating were all forms of evacuation that served to maintain the free-trade economy of fluids at a proper level. A Hippocratic account makes these physiological observations more vivid by specifying the anatomical pathways of interconversion; sperm, a foam much like the froth on the sea, was first refined out of the blood; it passed to the brain; from the brain it made its way back through the spinal marrow, the kidneys, the testicles, and into the penis.<sup>27</sup>

Menstrual blood, a plethora or leftover of nutrition, is as it were a local variant in this generic corporeal economy of fluids and organs. Pregnant women, who supposedly transformed otherwise superfluous food into

nourishment for the fetus, and new mothers, who nursed and thus needed to convert extra blood into milk, did not have a surplus and thus did not menstruate. "After birth," says the omniscient Isidore, passing on one millennium of scholarship to the next, "whatever blood has not yet been spent in the nourishing of the womb flows by natural passage to the breasts, and whitening [hence *lac*, from the Greek *leukos* (white), Isidore says] by their virtue, receives the quality of milk."<sup>28</sup> So too obese women (they transformed the normal plethora into fat), dancers (they used up the plethora in exercise), and women "engaged in singing contests" (in their bodies "the material is forced to move around and is utterly consumed") did not menstruate either and were thus generally infertile.<sup>29</sup> The case of singers, moreover, illustrates once again the extent to which what we would take to be only metaphoric connections between organs were viewed as having causal consequences in the body as being real. Here the association is one between the throat or neck through which air flows and the neck of the womb through which the menses passes; activity in one detracts from activity in the other. (In fact, metaphorical connections between the throat and the cervix/vagina or buccal cavity and pudenda are legion in antiquity and still into the nineteenth century, as fig. 2 suggests. Put differently, a claim that is made in one case as metaphor—the emissions that both a man and a woman deposit in front of the neck of the womb are drawn up "with the aid of breath, *as with* the mouth or nostrils"—has literal implications in another: singers are less likely to menstruate.<sup>30</sup>)

Although I have so far only described the economy of fungible fluids with respect to sperm and menstrual blood, seemingly gendered products, it in fact transcended sex and even species boundaries. True, because men were hotter and had less blood left over, they did not generally give milk. But, Aristotle reports, some men after puberty *did* produce a little milk and with consistent milking could be made to produce more (*HA* 3.20.522a19–22). Conversely, women menstruated because they were cooler than men and hence more likely at certain ages to have a surplus of nutriment. But, even so, menstruation in women was thought to have functional, nonreproductive, equivalents, which allowed it to be viewed as part of a physiology held in common with men. Thus, Hippocrates held, the onset of a nosebleed, but also of menstruation, was an indication that a fever was about to break, just as nosebleeding was a prognostic sign that blocked courses, amenorrhea, would soon resolve. Conversely,

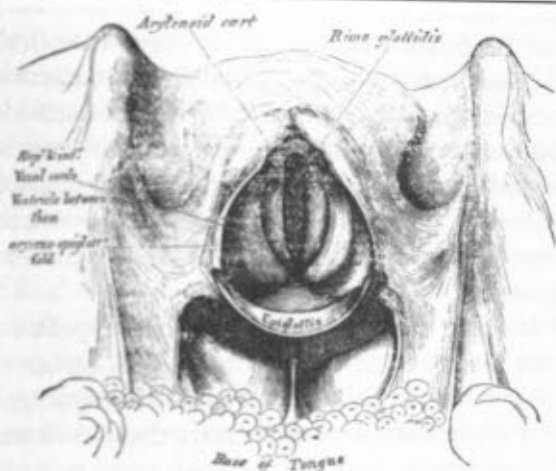


Fig. 2. Nineteenth-century illustration of a view into the aperture of the larynx which makes it look like the female external genitalia. Galen had pointed out that the uvula, which hangs down at the back of the soft palate—center view as one looks into the mouth—gives the same sort of protection to the throat that the clitoris gives to the uterus. From Max Muller, *Lectures on the Science of Language*.

a woman vomiting blood would stop if she started to menstruate.<sup>31</sup> The same sort of substitution works with sweat: women menstruate less in the summer and more in winter, said Soranus, because of the different amounts of evaporation that take place throughout the body in warm and cold weather. The more perspiration, the less menstrual bleeding.<sup>32</sup>

What matters is losing blood in relation to the fluid balance of the body, not the sex of the subject or the orifice from which it is lost. Hence, argued Aræteus the Cappadocian, if melancholy appears after “the suppression of the catamenial discharge in women,” or after “the hemorrhoidal flux in men, we must stimulate the parts to throw off their accustomed evacuation.” Women, said Aristotle, do not suffer from hemorrhoids or nosebleeds as much as men do, except when their menstrual discharges are ceasing; conversely, the menstrual discharge is slight in women with hemorrhoids or varicose veins presumably because surplus blood finds egress by these means.<sup>33</sup>

The complex network of interconvertibility implicit in the physiology of one sex is even wider than I have suggested and encompasses flesh as well as fluid. Aristotle, for example, finds confirmation for the common

residual nature of sperm and menstrual fluid in the observation that fat creatures of *both* sexes are "less spermatic" (*spermatika*) than lean ones. Since "fat also, like semen, is a residue, and is in fact concocted blood," fat men and women have less left over to be released in orgasm or as catamenia. Lean men, on the other hand, produce more semen than fat men and for the same general reason that humans produce proportionally more semen *and* more menstrual fluid than other animals: lean men do not use up nutriment for fat; humans retain, as a surplus, material that in animals goes into their horns and hair.<sup>34</sup>

This sort of analysis can be extended indefinitely. Fair-complexioned men and women ejaculate more copiously than darker ones, Aristotle says, without even bothering to make explicit the assumption that this is because the latter are generally more hirsute; those on a watery and pungent diet discharge more than they would on a dry bland diet (*HA* 7.2.583a10-14). Both men and women are tired after ejaculation, not because the quantity of material emitted is so great but because of its quality: it is made from the purest part of the blood, from the essence of life (*GA* 1.18.725b6-7).

If, as I have been arguing, the reproductive fluids in the one-sex model were but the higher stages in the concoction of food—much like the lighter-weight products in the fractional distillation of crude oil—then the male and female seed cannot be imagined as sexually specific, morphologically distinct, entities, which is how they would come to be understood after the discovery of little creatures in the semen and of what was presumed to be the mammalian egg in the late seventeenth century.<sup>35</sup> Instead, the substances ejaculated by the "two sexes" in the one-sex body were hierarchically ordered versions of one another according to their supposed power.

The difference between so-called two-seed and one-seed theories—Galen versus Aristotle—is therefore not an empirical question that could be resolved by reference to observable facts. Even in Aristotle's one-seed theory, *sperma* and *catemenia* refer to greater or lesser refinements of an ungendered blood, except when they are used as ciphers for the male and female "principles."<sup>36</sup> What one sees, or could ever see, does not really matter except insofar as the thicker, whiter, frothier quality of the male semen is a hint that it is more powerful, more likely to act as an efficient cause, than the thinner, less pristinely white, and more watery female ejaculate or the still red, even less concocted, menstrua. Like reproductive organs, reproductive fluids turn out to be versions of each other; they are



the biological articulation, in the language of a one-sex body, of the politics of two genders and ultimately of engendering.

The Hippocratic writer illustrates this point vividly and without the philosophical complexity we find in Aristotle's so-called one-seed theory. Perhaps, if we accept the views of Aline Rousselle, he even speaks for the otherwise silenced empirical wisdom of women.<sup>37</sup> Hippocrates argues for pangenesis, the view that each part of the body of each parent renders up some aspect of itself; that the representatives of the various parts form a reproductive fluid or seed; and that conception consists of a blending, in various proportions and strengths, of these germinal substances. Hippocrates abandons any effort to attribute strong or weak seed respectively to actual males or females. Although males must originate from stronger sperm, "the male being stronger than the female," both are capable of producing more or less strong seed. What each emits is the result not of any essential characteristic of male or female, but of an internal battle between each sort of seed: "what the woman emits is sometimes stronger, sometimes weaker; and this applies also to what the man emits."<sup>38</sup> Hippocrates insists on this point by repeating the claim and generalizing it to animals: "The same man does not invariably emit the strong variety of sperm, nor the weak invariably, but sometimes the one and sometimes the other; the same is true in the woman's case." This explains why any given couple produces both male and female offspring as well as stronger and weaker versions of each; likewise for the beasts.<sup>39</sup>

If both partners produce strong sperm, a male results; if both produce weak sperm, a female is born; and if in one partner the battle has gone to the weak and in the other to the strong, then the sex of the offspring is determined by the quantity of the sperm produced. A greater quantity of weak sperm, whether produced by the male or the female, can overwhelm a lesser quantity of strong sperm, of whatever origin, in the second round when the two meet in front of the uterus for renewed combat. Hippocrates is at pains to emphasize the fluidity of the situation and the interpenetration of male and female. The contest for supremacy between the sperm is,

just as though one were to mix together beeswax and suet, using a larger quantity of the suet than of the beeswax, and melt them together over a fire. While the mixture is still fluid, the prevailing character of the mixture is not apparent: only after it solidifies can it be seen that the suet prevails quantitatively over the wax. And it is just the same with the male and female forms of the sperm.<sup>40</sup>

Male and female "forms" of sperm thus correspond neither to the genital configuration of their source nor to that of the new life they will create, but rather to gradations on a continuum of strong to weak.<sup>41</sup>

I think that, if pushed on the point, the Hippocratic writer would have to admit that there was something uniquely powerful about male seed, the fluid that comes from an actual male, because otherwise he would have no answer to the question with which two-seed theorists were plagued for millennia: if the female has such powerful seed, then why can she not engender within herself alone; who needs men? The Hippocratic texts, however, resolutely resist correlating the gender of the seed, its strength or weakness, with the sex of the creature that produced it. Instead, in their version of the one-sex economy of fluids, the more potent seed is by definition the more male, wherever it originated.

For Galen too each parent contributes something that shapes and vivifies matter, but he insists that the female parent's seed is less powerful, less "informing," than the male parent's because of the very nature of the female. To be female *means* to have weaker seed, seed incapable of engendering, not as an empirical but as a logical matter. "Forthwith, *of course*, the female *must* have smaller, less perfect testes, and the semen generated in them must be scantier, colder, and wetter (for these things too follow *of necessity* from the deficient heat)" (UP 2.631). Thus, in contrast to Hippocrates, Galen holds that the quality of the respective seeds themselves follows from the hierarchy of the sexes. Man's seed is always thicker and hotter than a woman's for the same reason that the penis is extruded and not, like the uterus and the mole's eyes, left undeveloped inside the body: humans are the most perfect animal, and man is more perfect than woman because of an "excess of heat." In opposition, however, to what he took to be Aristotle's view, Galen insisted that women did produce semen, a true generative seed. If this were not the case, he asks rhetorically, why would they have testicles, which they manifestly do? And if they had no testicles (*orcheis*) they would not have the desire for intercourse, which they manifestly have.<sup>42</sup> In other words, the female seed, like woman herself, "is not very far short of being perfectly warm" (UP 2.630).

Male and female semen, more and less refined fluids, thus stand in the same relationship to blood that penis and vagina stand to genital anatomy, extruded and still-inside organs. As the medieval Arabic physician Avicenna (ibn-Sina, 980–1037) puts it in his discussion of these Galenic

texts, "the female seed is a kind of menstrual blood, incompletely digested and little converted, and it is not as far away from the nature of blood (*a virtute sanguinea*) as is the male seed."<sup>43</sup> He assimilates digestion and reproduction, food, blood, and seed into a single general economy of fluids driven by heat. The female in the one-sex model lacks the capacity, the vital heat, to convert food to the very highest level: sperm. But she comes close.

Aristotle and the Aristotelian "one-seed" tradition, with its radical distinction between the male and female generative materials (*gonimos*), would seem to make the Galenic intermediate position impossible and would thus also seem to provide a basis in the body for two biologically distinct and incommensurable sexes, much in the way that egg and sperm would come to function in theories like Geddes' in the nineteenth century. Males, in Aristotle's account, produce *sperma*, which is the efficient cause in generation, and females do not. Females provide instead the *catamenia*, which is the material cause and thus of an entirely different nature. But this *a priori* formal distinction entirely exhausts what Aristotle means by *sperma* and *catamenia*. Just as the bodies of males and females fail to provide fixed anatomical correlatives for his theory of generative causality, so too the reproductive fluids "in the world" do not sustain a radical two-sex account of sexual difference. Nor would Aristotle want them to.

Obviously Aristotle and his contemporaries could tell semen from menstrual blood. Men and sanguineous male animals, they knew, generally emitted a visible, palpable substance that was white because it was foam composed of invisible bubbles and thick because it was a compound of water mixed with breath (*pneuma*), the tool through which the male principle worked. Although Aristotle usually referred to this stuff as *sperma*, its distinguishing characteristics were not in principle aspects of the seed itself.<sup>44</sup> The ejaculate, he makes absolutely explicit, was but the vehicle for the efficient cause, for the *sperma*, which worked its magic like an invisible streak of lightning. As experience proved, it ran out of or evaporated from the vagina; it no more entered into the *catamenia*, into what would become the body of the embryo, than any active agent enters into passive matter when one thing is made from two. After all, no part of the carpenter merges with the bed he crafts, nor does the swordsmith's art enter the sword he is fashioning, nor does rennet or fig juice become part of the milk they curdle into cheese. Indeed the efficient cause, the

artisanal, informing principle, can apparently be carried on the breeze alone, as with the Cretan mares who are "wind impregnated."<sup>45</sup>

All of Aristotle's metaphors discount a physically present ejaculate; sperma as artisan works in a flash, more like a genie than like a shoemaker who sticks to his last. His images bring us back to the constellation of phlegm/brain/sperm: conception is for the male to have an idea, an artistic or artisanal conception, in the brain-uterus of the female.<sup>46</sup>

But the female, the material, contribution to generation is only slightly more material and thus recognizable by the physical properties of menstrual blood. Aristotle is at pains to point out that catamenia, the menstrual residue itself, is not to be equated with the actual blood that one sees: "the greater part of the menstrual flow is useless, being fluid" (*GA* 2.4.739a9). But he leaves the relationship between the catamenia, wherein the sperma works its magic, and anything visible—the "useless" menstrual discharge or the fluid that moistens the vagina during intercourse—unexplored largely because it does not matter in a world in which claims about the body serve primarily as illustrations of a variety of higher truths.<sup>47</sup> His dominant image is of a hierarchy of blood: "The secretion of the male and the menses of the female are of a sanguinous nature."<sup>48</sup> Semen from men who have coitus too often reverts to its earlier bloody state; semen in boys and often in older men is, like the catamenia, unable to impart movement to matter.<sup>49</sup> For Aristotle, therefore, and for the long tradition founded in his thought, the generative substances are interconvertible elements in the economy of a single-sex body whose higher form is male. As physiological fluids they are not distinctive and different in kind, but the lighter shades of biological chiaroscuro drawn in blood.<sup>50</sup>

All of this evidence suggests that in the construction of the one-sex body the borders between blood, semen, other residues and food, between the organs of reproduction and other organs, between the heat of passion and the heat of life, were indistinct and, to the modern person, almost unimaginably—indeed terrifyingly—porous. "Anyone who has intercourse around midnight," warns a text attributed to Constantinius Africanus, "makes a mistake." Digest (concoct) food first before straining the body to give the final concoction to the seed.<sup>51</sup> Fifteen hundred years after Aristotle and a thousand after Galen, Dante in the *Purgatorio* still plays on the fungibility of the body's fluids and the affinities of its heats. "Undrunk" blood, perfect like a dish (*alimento*) that is sent from the table, is redistilled by the heat of the heart, sent down to the genitals, from

which "it sprays in nature's vessel, on another's blood."<sup>52</sup> *The Secrets of Women*, compiled from ancient lore during the later Middle Ages and still popular in the eighteenth century, speaks of the appetite for intercourse as a direct result of the buildup of residue from daily food. Menstrua refined from the blood heats up a woman's vulva through an "abundance of matter" and causes her greatly to desire coition.<sup>53</sup>

The fluid economy of the one-sex body thus engenders the desires and the heat through which it will be perpetuated. But more generally I hope it is becoming clear that the physiology and even the anatomy of generation are but local instances of a way of talking about the body very different from our own. Visible flesh and blood cannot be regarded as the stable "real" foundation for cultural claims about it. Indeed, the interpretive problem is understanding the purchase of "real" and the degree to which biology is only the expression of other and more pervasive truths.

### Orgasm and desire

"I must now tell why a great pleasure is coupled with the exercise of the generative parts and a raging desire precedes their use," Galen wrote (*UP* 2.640). However else orgasm might be tempered to fit the cultural needs of the private and the public body, it signaled the unsocialized body's capacity to generate. A basically matter-of-fact, specifically genital urge led to a grander, systemic heating of the body until it was hot enough to concoct the seeds of new life. Serous residues, exquisitely sensitive skin, and friction were the proximal causes of sexual delight and desire; "that the race may continue incorruptible forever" was their ultimate purpose. The process of generation might differ in its nuances as the vital heats, the seeds, and the physical qualities of the substances being ejaculated differed between the sexes—but libido, as we might call it, had no sex.

There was, of course, the age-old issue of whether men or women enjoyed the pleasures of Venus more, a question posed most famously in Ovid, who offers an ambiguous answer. (Ovid's account would become a regular anecdote in the professorial repertory, told to generations of medieval and Renaissance students to spice up medical lectures.) True, Tiresias, who had experienced love as both a man and a woman, was blinded by Juno for agreeing with Jupiter that women enjoyed sex more. But his qualifications for judging already suggest the slipperiness of the question: he knew either one or the other, or both, aspects of the femi-

nine *Venus* rather than of the masculine *amor*. And the story of his "mirror" metamorphosis from man to woman, the result of his striking two copulating serpents, and back to man by striking them again eight years later, further undermines his authority on the sexual differentiation of pleasure. Snakes famously give no outward sign of their sex; they curl around one another in coition and reflect back and forth the most ambiguous and ungendered of images. Though differing perhaps in nuance, orgasm is orgasm in the one-flesh body, Ovid's story seems to say.<sup>54</sup>

A common neurology of pleasure in a common anatomy, it was thought, bore witness to this fact. Galen, for example, notes that "the male penis . . . as well as the neck of the uterus and the other parts of the pudendum" are richly endowed with nerves because they need sensation during sexual intercourse and that the testes, scrotum, *and* uterus are poorly endowed because they do not. Animal dissections prove, he says, that the "genital areas," in common with the liver, spleen, and kidneys, have only small nerves while the pudenda have "more considerable ones." Even the skin of the relevant organs is more irritated by the "itch" of the flesh than would be the skin of the body's other parts. Given all these adaptations, "it is no longer to be wondered at that the pleasure inherent in the parts there and the desire that precedes it are more vehement."<sup>55</sup>

Aristotle too is at pains to point out that "the same part which serves for the evacuation of the fluid residue is also made by nature to serve in sexual congress, and this alike in male and female."<sup>56</sup> Both sperma and catamenia generate heat in the genital regions, both put pressure on the sexual organs that are prepared to respond to their stimuli, though in the case of women's parts the heat seems to serve primarily to draw in semen, like a cupping vessel, and not to spur coition (GA 2.4.739b10).

"Semen" in this economy of pleasure is not only a generative substance but also, through its specific action on the genitals, one of the causes of libido. It is a serous, irritating humor that produces a most demanding itch in precisely that part of the body contrived by Nature to be hypersensitive to it.<sup>57</sup> (Or in parts not contrived for it. The only ancient text to discuss the physical causes of passive homosexuality—the unnatural desire of the male to play the socially inferior role of woman by offering his anus for penetration—attributes it both to an excess of semen and to a congenital defect that shunts this excess to an inappropriate orifice, the anus, instead of allowing it to simply build up in the proper male organ.<sup>58</sup>) Needless to say, great pleasure is to be had from scratching.

Orgasm thus dovetails nicely with the economy of fluids discussed in the previous section. One of Galen's arguments for the existence of a true female seed, for example, was its link to desire: it offered "no small usefulness in inciting the female to the sexual act and in opening wide the neck of the womb during coitus" (*UP* 2.643). He might actually have meant that it works like a penis. The part in question, extending out to the "pudenda" (the cervix?, the vagina?) is, he says, sinewy and becomes straight during intercourse. He does not actually claim that the womb or vagina has an erection, but he describes the penis also as a sinewy, hollow body that becomes erect when it is filled with *pneuma*, with breath. And elsewhere still he develops the labia/foreskin association.<sup>59</sup> The medieval commentator Albertus Magnus, writing still very much in this tradition almost a millennium later, makes the link explicit: a *ventositas*, a gaseous, perhaps also liquid modification of vital heat, engorges the genital organs of both sexes.<sup>60</sup> Organs and orgasms thus reflect one another in a common mirror.

Meanwhile Avicenna, the influential Arabic physician, broadens the discussion of the semen/pleasure nexus by explicitly connecting the anatomy and physiology of sexual pleasure in the one-sex body. An irritation of a common human flesh, caused by the acute quality or sheer quantity of sperm—again common to both sexes—engenders a specifically genital itch (*pruritus*) in the male's spermatic vessels and in the mouth of the womb (*in ore matricis*), which is relieved only by the chafing of intercourse or its equivalent. In this process the vagina, or in any case the cervix, becomes erect like the penis and is "thrust forward up against its mouth as though moving forward through the desire of attracting sperm."<sup>61</sup> In the telling absence of a precise technical vocabulary, it is difficult to be sure exactly what part of a woman's genital organ is moving where; but the critical general claim, that irritation by a serous fluid loosely called sperm or semen causes women like men to experience desire and erection, is made unambiguously.

Intercourse in the one-sex body, however, is not construed primarily as a genital occasion. (Nor, of course, is desire purely the product of physical forces independent of the imagination.) The genitals, to be sure, are the most sensitive gauge of the presence of residues, the point of their release, and the immediate locus of pleasure, but coitus is a generalized friction culminating in a corporeal blaze. Intercourse and orgasm are the last stage, the whole body's final exaggerated huffing and puffing, violent,

stormlike agitation in the throes of producing the seeds of life. The rubbing together of organs, or even their imagined chafing in an erotic dream, causes warmth to diffuse via the blood vessels to the rest of the body. "Friction of the penis and the movement of the whole man cause the fluid in the body to grow warm," the Hippocratic writer reports; "an irritation is set up in the womb which produces pleasure and heat in the rest of the body."<sup>62</sup> Then, as warmth and pleasure build up and spread, the increasingly violent movement of the body causes its finest part to be concocted into semen—a kind of foam—which bursts out with the uncontrolled power of an epileptic seizure, to use the analogy Galen borrowed from Democritus.<sup>63</sup> Sexual heat is an instance of the heat that makes matter live and orgasm, which signals the explosive release of the seed and the heated *pneuma*, mimics the creative work of Nature itself.

Although specific interpretations of the male and female orgasm might differ, certain facts were generally not in dispute: both sexes experienced a violent pleasure during intercourse that was intimately connected with successful generation; both generally emitted something; pleasure was due both to the qualities of the substance emitted and to its rapid propulsion by "air"; the womb performed double duty in both emitting something and then drawing up and retaining a mixture of the two emissions. Of what deeper truths these facts spoke was much debated.

In the first place, the way orgasm felt was adduced as evidence for particular embryological theories. Pangenesisists could argue as follows: "the intensity of pleasure of coition" proves that seed comes from every part of both partners because pleasure is greater if multiplied and that of orgasm is so great that it must result from something happening everywhere rather than just in a few places or in one sex only. But even if this reasoning was not universally accepted, most writers nevertheless regarded orgasm as a most weighty sign.

Why, asked an ancient text, did someone having sexual intercourse, and also a dying person, cast his or her eyes upward? Because the heat going out in an upward direction makes the eyes turn in the direction in which it itself is traveling.<sup>64</sup> Conversely, sexual heat is the most intense form of the heat of life and so is the sign of successful generation. The early Christian writer Tertullian, for example, grounded his heterodox theory of the soul—its material origin, its entry into the body at the moment of conception, its departure at death—on the phenomenology of orgasm:



In a single impact of both parties, the whole human frame is shaken and foams with semen, in which the damp humor of the body is joined to the hot substance of the soul . . . I cannot help asking, whether we do not, in that very heat of extreme gratification when the generative fluid is ejected, feel that somewhat of our soul has gone out from us? And do we not experience a faintness and prostration along with a dimness of sight? This, then, must be the soul producing seed, which arises from the outdrip of the soul, just as that fluid is the body-producing seed which proceeds from the drainage of the flesh.<sup>65</sup>

This "heat of extreme gratification," however, is open to quite different secular interpretations. Lucretius regarded it as the blaze of battle in the war of sexual passion and conception. Young men are wounded by Cupid's arrow and fall in the direction of their injuries: "blood spurts out in the direction of their wound." (In context this can only be semen, pure blood and not the blood of virginity.) Then both bodies are liquefied in rapture, and their ejaculates engage in a synecdochic version of the two bodies' combat. Offspring resemble both parents, for example, because "at their making the seeds that course through the limbs under the impulse of Venus were dashed together by the collusion of mutual passion in which neither party was master or mastered."<sup>66</sup>

In contrast to these positions, Aristotle wants to isolate orgasm from generation so as to protect the difference between efficient and material cause from an untidy world in which both sexes have orgasms that feel as if the same process had gone on in each of them. (As it turns out, Aristotle was right but not for the reasons he gave.) Thus for him it *has* to be "impossible to conceive without the emission of the male"; whether he feels pleasure during ejaculation is irrelevant. On the other hand women *must* be able to conceive "without experiencing the pleasure usual in such intercourse" because, by definition, conception is the work of the male emission on material in, or produced by, the body of the female. (Females usually do emit something but need not do so; there can be just enough catamenial residue resting in the womb for conception to take place but no extra that needs to be expelled.) Aristotle's argument is asymmetrical here—males must emit, women need not feel—because he wants to stick to the essentials. It makes no difference how one interprets male pleasure; he must insist, however, that female pleasure—he discusses only humans in this regard—has no implication for his theory of the separation of

causes. His real interest is not in interpreting orgasm, but in *not* interpreting it.<sup>67</sup>

It follows from this position that Aristotle would make no effort to ground two sexes in radically different passions and pleasures. Though women clearly could, in his view, conceive without feeling anything, he regarded this as a freak occurrence that resulted when "the part chance to be in heat and the uterus to have descended," that is, when the womb and vagina were warmed by something other than the friction of intercourse and experienced their internal erection without concomitant sexual excitement. "Generally speaking," he said, "the opposite is the case"; discharge by women is accompanied by pleasure just as it is in men, and "when this is so there is a readier way for the semen of the male to be drawn into the uterus."<sup>68</sup>

Aristotle's many allusions to sexual pleasure are clearly not directed at distinguishing the orgasms of men and women but in keeping their similarities from being relevant. What he takes to be contingent sensations must not be construed as evidence for what he regards as metaphysical truths about generation. He denies that orgasm signals the production of generative substances even for the male; "the vehemence of pleasure in sexual intercourse," he maintains, is not at all due to the production of semen but is the result instead of "a strong friction wherefore if this intercourse is often repeated the pleasure is diminished in the persons concerned."<sup>69</sup> The rhetorical force of this convoluted sentence is to stress the fading of feeling that comes from repetition. Elsewhere he says that pleasure arises not just from the emission of semen but from the *pneuma*, the breath, with which the generative substances explode. The point is simply that the phenomenological correlative of the generative act signifies nothing about its essence: there need be no seed, no efficient cause itself, for there to be an orgasm—as in young boys and old men who are not potent but nevertheless enjoy emission.<sup>70</sup> Conversely, both men and women can emit their respective generative products and feel nothing, as in nocturnal wet dreams.<sup>71</sup>

Whatever else orgasm might be or not be, mean or not mean, in various philosophical or theological contexts, it was at the very least understood as the *summa voluptas* that normally accompanied the final blast of a body heated so hot that it expelled its generative essences or, in any case, was in a state to conceive. As such, it dwelled at the intersection of nature and civilization. On the one hand, orgasm was associated with

unrestrained passion, warmth, melting, rendering, rubbing, exploding, as qualities of the individual body; aspects of the process of individual generation. On the other hand, orgasm also bore witness to the power of mortal flesh to reproduce its kind and thus assure the continuity of the body social. It and sexual pleasure generally were therefore cultural facts as well: the biology of conception was at the same time a model of filiation; the effective elimination of the distinct ontological category woman in the one-sex model and the doctrine that "like seeks like" made it difficult to explain heterosexuality upon which generation depended; the unruly body spoke of the unruly heart, of the fall from grace and weakness of the will; microcosmic creation mirrored the macrocosmic. Though the social and the corporeal cannot be disentangled, for purposes of exposition I will discuss orgasm first as the physicians confronted it—as a clinical problem of fertility or infertility—and then briefly turn in the next section to its relation to the demands of culture.

Physicians and midwives needed to know how to make men and women fertile—or more covertly, how to make them infertile—and how to tell if their therapeutic interventions were on the right track. If, as was commonplace, one believed that the body gave signs through its pleasures of the capacity to generate, then these could be read and the underlying processes manipulated to ensure or prevent conception. So, for example, Aetios of Amida, physician to Justinian who summarized for the emperor much ancient medical learning, interpreted a woman's orgasmic shudder as a prognostic sign of conception. If "in the very coitional act itself, she notes a certain tremor . . . she is pregnant." (Aetios also transmitted to the Christian world the old saw that women who are forced to have intercourse against their will are sterile while those "in love conceive very often.") A woman's shiver would not have been understood simply as a sign of her "semination"; it would register also the closing off of her womb at the appropriate time, after it had drawn up her seed mixed with that of the male.<sup>72</sup>

Because the womb was thought to close after its orgasmic ejaculation, correct coital rhythm between partners during intercourse was thought critical for conception. If the woman is too excited before intercourse begins, the Hippocratic writer points out, she will ejaculate prematurely; then not only will her further pleasure diminish—a conclusion clearly based on men observing themselves—but also her womb will close and

she will not become pregnant. In exemplary reproductive heterosexual intercourse, then, both partners reached orgasm at the same time. Like a flame that flares when wine is sprinkled on it, the woman's heat blazes most brilliantly when the male sperm is sprayed on it, Hippocrates rhapsodized. She shivers. The womb seals itself. And the combined elements for a new life are safely contained within.<sup>73</sup>

Orgasm in this account is thus common to both sexes but, like anatomy and the seeds themselves, it is hierarchically ordered. The man determines the nature of woman's pleasure, which is more sustained but also, because of her lesser heat, less intense; the man feels a greater pang at the secretion of bodily fluids because a greater violence accompanies their being wrenched from his blood and flesh. Feelings mirror the cosmic order and at the same time suggest the sparkling of a candle in a mist of resinated wine.

Clinically, therefore, the problem is how to manipulate the pace of passion and the heat of the body so as to produce the desired results, conception or nonconception. Aristotle (or the pseudo-Aristotelian author of book 10) gives elaborate directions for determining in cases of barrenness which partner's coital rhythms or corporeal environment was at fault. During intercourse the woman's womb should become moist but "not often or excessively too moist," lubricated as the mouth is with saliva when we are about to eat (once again a neck-of-the-womb/throat connection).<sup>74</sup> More natural history: if a man ejaculates quickly and "a woman with difficulty as is often the case," this prevents conception since women do contribute "something to the semen and to generation." The observation that women and men who are barren with each other are "fertile when they meet with partners who keep pace with them during intercourse" provides this further evidence for the importance of suitable coital rhythms.<sup>75</sup> Fifteen hundred years later, and in the very different context of prescriptions for birth control and abortion, the tenth-century Arabic writer Rhazes suggested that "if the man discharges sooner than the woman [discharges] she will not become pregnant."<sup>76</sup>

Anything that might diminish coital heat could also cause infertility. Insufficient friction during intercourse, for example, could keep either partner from "seminating." Thus Avicenna argues—again this is a commonplace notion—that the smallness of a man's penis might cause a woman not to be "pleased by it . . . whereupon she does not emit sperm (*sperma*), and when she does not emit sperm a child is not made." As if to

raise male anxiety still further, he warns that unsatisfied women will remain in the thrall of desire and "have recourse to rubbing, with other women (*ad fricationem cum mulieribus*), in order to achieve amongst themselves the fullness of their pleasures" and to rid themselves of the pressures of seminal residue.<sup>77</sup>

But even if the actual pang of a woman's orgasm was regarded as a sign without the specific physiological referent of semination, sexual pleasure or at the very least desire was still regarded as part of the general care of the body that made reproduction, and hence the immortal body of the race, possible. Control of the sexual body was, as Foucault points out in his *History of Sexuality*, an aspect of more general dietary and other corporeal disciplines. Nowhere is this aspect of the domestication of sexual heat clearer than in Soranus' *Gynecology*, which was written in the second century but which in various fragments and translations was one of the most widely cited texts until the late seventeenth century.

Soranus was not much interested in female ejaculation because he remained in doubt as to whether women actually contributed an active principle, a true seed. "It seems not to be drawn upon in generation since it is excreted externally," he concluded cautiously. He nowhere denied the everyday existence of the sharp crisis of orgasm in women, but it was not of primary clinical concern. What mattered in women as in men, Soranus thought, was "the urge and appetite for intercourse." Making the body ready for generation was like making it ready to put food to best use. The physiological affinity between generation and nutrition, eating and procreation, and in later Christian formulations between gluttony and lust, are nowhere clearer: "as it is impossible for the seed to be discharged by the male, in the same manner, without appetite it can not be conceived by the female." A woman ingesting and a woman conceiving are engaged in analogous functions; food eaten when one has no appetite is not properly digested, and seed received by a woman when she has no sexual urge is not retained.<sup>78</sup>

But appetite alone is clearly not enough, since lecherous women feel desire all the time but are not always fertile. The body—Soranus is writing for midwives who ministered to ladies of the Roman governing class—must be properly cultivated to prepare for the civic task of procreation. They ought to be well rested, appropriately nourished, relaxed, in good order, and hot. Just as a Roman magistrate should eat only such foods as would maintain his sound judgment, so a woman should eat

appropriately before sex "to give the inner turbulence an impetus toward coition" and to be sure that her sexual urges were not diverted by hunger. She should be sober. A rubdown before intercourse would be indicated, since it "naturally aids the distribution of food, [and] also helps in the reception and retention of the seed."<sup>79</sup> The fungibility of fluids, the equivalences of heat, are here registered in the social discipline of the body for procreation.

### The demands of culture

The one-sex body would seem to have no boundaries that could serve to define social status. There are hirsute, viral women—the virago—who are too hot to procreate and are as bold as men; and there are weak, effeminate men, too cold to procreate and perhaps even womanly in wanting to be penetrated. "You may obtain physiognomic indications of masculinity and femininity," writes an ancient authority on interpreting the face and body, "from your subject's glance, movement, and voice, and then, from among these signs, compare with one another until you determine to your satisfaction which of the two sexes prevails."<sup>80</sup> "Two sexes" here refers not to the clear and distinct kinds of being we might mean when we speak of opposite sexes, but rather to delicate, difficult-to-read shadings of one sex. There is, for example, no inherent gendering of desire and hence of coupling. It was in no way thought unnatural for mature men to be sexually attracted to boys. The male body, indeed, seemed equally capable of responding erotically to the sight of women as to attractive young men, which is why physicians forbade sufferers of satyriasis (abnormal sexual craving characterized by unceasing erection and genital itch) to consort with either, regardless of their respective genital formations.<sup>81</sup> Insofar as sexual attraction had a biological basis—as opposed to a basis in the naturalness of the social order and the imperative to keep it going—it seemed more genealogical than genital. In Aristophanes' story of the origins of men and women from two aboriginal, globular creatures who had either two male organs, two female organs, or one of each, only those who descended from the hermaphroditic form would "naturally" seek the "opposite" sex in order to achieve union. Otherwise, as Aristotle pointed out in the context of "what is natural is pleasant": like loves like, jackdaw loves jackdaw. In fact, reproductive heterosexual intercourse seems an afterthought. The original globular creatures had

their genitals on the outside and "cast their seed and made children, not in one another but on the ground, like cicadas." In the new cut-up state they did nothing but longingly embrace their missing halves and thus died from hunger and idleness. Zeus hit upon the idea of relocating the genitals of one half of the new creatures, "and in doing so he invented interior reproduction, *by men in women*." This had the great advantage that when the new male embraced the new female, he could cast his seed into her and produce children and that when male embraced male, "they would at least have the satisfaction of intercourse, after which they could stop embracing, return to their jobs, and look after their other needs in life." Genitals are very hard to picture in the first part of this account and subsist only to make the best of a bad situation. "Love is born into every human being," the story concludes; "it tries to make one out of two and heal the wound in human nature." But what we would call the sex of that human being seems of only secondary importance.<sup>82</sup>

But where honor and status are at stake, desire for the same sex is regarded as perverse, diseased, and wholly disgusting. A great deal more was written about same-sex love between men than between women because the immediate social and political consequences of sex between men was potentially so much greater. Relatively little was directly at stake in sex between women. Yet whether between men or between women, the issue is not the identity of sex but the difference in status between partners and precisely what was done to whom. The active male, the one who penetrates in anal intercourse, or the passive female, the one who is rubbed against, did not threaten the social order. It was the weak, womanly male partner who was deeply flawed, medically and morally. His very countenance proclaimed his nature: *pathicus*, the one being penetrated; *cinaedus*, the one who engages in unnatural lust; *mollis*, the passive, effeminate one.<sup>83</sup> Conversely it was the *tribade*, the woman playing the role of the man, who was condemned and who, like the *mollis*, was said to be the victim of a wicked imagination as well as an excess and misdirection of semen.<sup>84</sup> The actions of the *mollis* and the *tribade* were thus unnatural not because they violated natural heterosexuality but because they played out—literally embodied—radical, culturally unacceptable reversals of power and prestige.

Similarly, when power did not matter or when a utopian sharing of political responsibility between men and women is being imagined, their respective sexual and reproductive behavior is stripped of meaning as

well. Aristotle, who was immensely concerned about the sex of free men and women, recognized no sex among slaves. "A 'woman,'" as Vicky Spellman puts it, "is a female who is free; a 'man' is a male who is a citizen; a slave is a person whose sexual identity does not matter."<sup>85</sup> For Aristotle, in other words, slaves are without sex because their gender does not matter politically.

Plato, on at least one occasion, also dismissed a distinction between the sexes which in other circumstances is critical. When in the *Republic* he wished to make a case for the absence of essential public differences between men and women, for equal participation in governance, gymnastic exercises, and even war, he supported his claim by downplaying the difference in their reproductive capacities. If something characteristic of men or women can be found which fits one or the other for particular arts and crafts, by all means assign them accordingly. But no such distinction exists, he maintains, and what Aristotle would take to be the critical difference between bearing and begetting counts for nothing.

But if it appears that they differ only in this respect that the female bears and the male begets, we shall say that no proof has yet been produced that the woman differs from the man for our purposes, but we shall continue to think that our guardians and their wives ought to follow the same pursuits.<sup>86</sup>

Begetting and bearing are not radically opposed, or even hierarchically ordered. Plato uses a decidedly unphilosophical verb for begetting, the verb *ochenein*, to mount; Aristotle uses the same verb when he says that the victor among bulls "mounts" the cow and then, "exhausted by his amorous efforts," is subsequently beaten by his opponent (*HA* 6.21.575a22). Nothing more is at stake, Plato implies, than the brutish practice of man mounting woman. The macrocosmic order is not made imminent through the sexual act; the respective roles of man and woman in generation, though different, do not constitute a decisive difference.

But within the same tradition of the one sex, and in widely varying contexts, such differences could matter a great deal and were duly registered. Sperma, for Aristotle, makes the man *and* serves as synecdoche for citizen. In a society where physical labor was the sign of inferiority, sperma eschews physical contact with the catemenia and does its work by intellection. The *kurios*, the strength of the sperma in generating new life, is the microcosmic corporeal aspect of the citizen's deliberative strength,



of his superior rational power, and of his right to govern. Sperma, in other words, is like the essence of citizen. Conversely, Aristotle used the adjective *akuros* to describe both a lack of political authority, or legitimacy, and a lack of a biological capacity, an incapacity that for him defined woman. She is politically, just as she is biologically, like a boy, an impotent version of the man, an *arren agonos*. Even grander differences are inscribed on the body; the insensible differences between the sexual heat of men and women turns out to represent no less a difference than between heaven and earth. The very last stage in the heating sperma comes from the friction of the penis during intercourse (*GA* 1.5.717b24). But this is not like the heat of a blacksmith's fire, which one might feel, nor is the pneuma produced like ordinary breath.<sup>87</sup> It is a heat "analogous to the elements of the stars," which are "carried on a moving sphere" and are themselves not fired but create warmth in things below them.<sup>88</sup> Suddenly the male organ in coition is a terrestrial instance of heavenly movement, and the sexed body, whose fluids, organs, and pleasures are nuanced versions of one another, comes to illustrate the major political and cosmic ruptures of a civilization.<sup>89</sup>

The most culturally pervasive of these ruptures is that between father and mother, which in turn contains a host of historically specific distinctions. I want to illustrate the extent to which biology in the one-sex model was understood to be an idiom for claims about fatherhood by examining three different accounts of the nature of seed put forward by Isidore of Seville, who in the sixth and seventh centuries produced the first major medieval summary of ancient scientific learning. Although the social context of a Christian encyclopedist was of course very different from that of an Athenian philosopher or an imperial Roman doctor, the structure of Isidore's arguments is paradigmatic for what is a very long-lived tradition of understanding sexual difference.

Isidore simultaneously holds three propositions to be true: that only men have sperma, that only women have sperma, and that both have sperma. It takes no great genius to see that these would be mutually contradictory claims if they are understood as literal truths about the body. But they would be perfectly compatible if they are seen as corporeal illustrations of cultural truths purer and more fundamental than biological fact. Indeed, Isidore's entire work is predicated on the belief that the origin of words informs one about the pristine, uncorrupted, essential nature of their referants, about a reality beyond the corrupt senses.<sup>90</sup>

In making the first case—that only man has seed—Isidore was explaining consanguinity and, as one would expect in a society where inheritance and legitimacy passes through the father, he was at pains to emphasize the exclusive origins of the seed in the father's blood.

Consanguinity is so called by that which from one blood, that is from the same semen of the father, is begotten. For the semen of the male is the foam of blood according to the manner of water which, when beaten against rocks, makes white foam, or just as dark wine, which poured into a cup, renders the foam white.

For a child to have a father *means* that it is “from one blood, that is from the same semen as the father”; to be a father is to produce the substance, semen, through which blood is passed on to one's successors. Generation seems to happen without women at all, and there is no hint that blood—“that by which man is animated, and is sustained, and lives,” as Isidore tells us elsewhere—could in any fashion be transmitted other than through the male.<sup>91</sup>

But illegitimate descent presents a quite different biology. In his entry on the female genitalia, Isidore argued:

Contrary to this child [one born from a noble father and a plebian mother] is the illegitimate (*spurius*) child who is born from a noble mother but a plebian father. Likewise illegitimate is the child born from an unknown father, a spouseless mother, just the son of spurious parents.

The reason Isidore gives for why such illegitimate children, those who do not “take the name of the father” and are called *spurius*, is that they spring from the mother alone. “The ancients,” he explains, “called the female genitalia the *spurium*; just as *apo tou sporou* (from the seed); this *spurium* is from the seed.” (Plutarch reported that the adjective *spurius* derived from a Sabine word for the female genitalia and was applied to illegitimate children as a term of abuse.) So, while the legitimate child is from the froth of the father, the illegitimate child is from the seed of the mother's genitals, as if the father did not exist.<sup>92</sup>

Finally, when Isidore is explaining why children resemble their progenitors, he is vague on the vexed question of female sperm. “Whichever of the two parents bestows the form,” he says cavalierly, “the newborn are conceived after equally being mixed in the maternal and paternal seed.” “Newborns resemble fathers, if the semen of the fathers is potent, and resemble mothers if the mothers' semen is potent.”<sup>93</sup> (Both parents then

have seeds that engage in repeated combat for domination every time, and in each generation a child is conceived.)

These three distinct arguments about what we might take to be the same biological material are a dramatic illustration that much of the debate about the nature of the seed and of the bodies that produce it—about the boundaries of sex in the one-sex model—are in fact not about bodies at all. They are about power, legitimacy, and fatherhood, in principle not resolvable by recourse to the senses.

Freud suggests why this should be so. Until the mid-nineteenth century, when it was discovered that the union of two different germ cells, egg and sperm, constituted conception, it was perfectly possible to hold that fathers mattered very little at all. Paternity, as in Roman law, could remain a matter of opinion and of will. Spermatozoa could be construed as parasitic stirring rods whose function, in a laboratory dish, might be fulfilled by a glass rod.<sup>94</sup> And while the role of fathers generally in conception was settled more than a century ago, until very recently it was impossible to prove that any particular man was father to any particular child. In these circumstances, believing in fathers is like, to use Freud's analogy, believing in the Hebrew God.

The Judaic insistence that God cannot be seen—the graven-image proscription—“means that a sensory perception was given second place to what may be called an abstract idea.” This God represents “a triumph of intellectuality over sensuality (*Triumph der Geistigkeit über die Sinnlichkeit*), or strictly speaking, an instinctual renunciation.” Freud briefs precisely the same case for fathers as for God in the analysis of Aeschylus' *Oresteia* that immediately follows his discussion of the second commandment. Orestes denies that he has killed his mother by questioning whether he is related to her at all. “Am I then involved with my mother by blood-bond?” he asks. “Murderer, yes,” replies the chorus, pointing out quite rightly that she bore and nursed him. But Apollo saves the day for the defense by pointing out that, appearances notwithstanding, “the mother is no parent of that which is called her child, but only nurse of the new-planted seed that grows,” “a stranger.” The only true parent is “he who mounts.”<sup>95</sup>

Here in the *Oresteia* is the founding myth of the Father. “Fatherdom (*Vaterschaft*), Freud concludes, “is a supposition” and like belief in the Jewish God is “based on an inference, a premiss.” Motherhood (*Mutterschaft*), like the old gods, is evident from the lowly senses alone. Father-

dom too has "proved to be a momentous step"; it also—Freud repeats the phrase but with a more decisive military emphasis—is "a conquest (*einen Sieg*) of intellectuality over sensuality." It represents a victory of the more elevated, the more refined over the less refined, the sensory, the material. It is a world-historical *Kulturfortschritt*, a cultural stride forward.<sup>96</sup>

The one-sex model can be read, I want to suggest, as an exercise in preserving the Father, he who stands not only for order but for the very existence of civilization itself. Ancient authorities make both philosophical and empirical arguments for the self-evident greater potency of the male over the female, for the absolute necessity of the genitor. If the female's seed were as potent as the male's, "there would be two principles of motion in conflict with one another," argued Galen. If woman had as much as possible of the "principle of motion," her seed would then essentially be the male's and act as one with it when mixed. Women would be men, and nature would be unnecessarily mixing two seeds. Or, if a female seed as strong as the male's need not be mixed to cause conception, then there would be no need for men at all (*UP* 2.pp632–33). (A late medieval alternative argument holds that if woman's semen were as strong as men's, then either parthenogenesis is possible—which it is not—or woman's contribution to generation would be greater than man's because she would be providing not only an active agent but also the place for conception. This, in a hierarchical world, is *ex hypothesis* impossible.<sup>97</sup>) If women had seed as potent as males, they could inseminate themselves and "dispense with men," Aristotle argued. A manifest absurdity (*GA* 1.18.722b14–15).

It is empirically true, and known to be so by almost all cultures, that the male is necessary for conception. It does not of course follow that the male contribution is thereby the more powerful one, and an immense amount of effort and anxiety had to go into "proving" that this was the case. Evidence based on observation of "wind eggs" (*hupenemia*)—eggs that are seemingly produced without the power of the male but that are consequently not fertile—and of *mola*—monstrous products of the womb attributed to self-insemination—seemed to bear testimony to the hierarchical ordering of the one sex. Her sperma could not ensoul matter; his could. Perhaps the confident assertions that "there needs to be a female," that the creator would not "make half the human race imperfect and, as it were, mutilated, unless there was to be some great advantage in

such a mutilation," hides the more pressing but unaskable question of whether there needs to be a male. After all, the work of generation available to the senses is wholly the work of the female.<sup>98</sup>

But being male and being a father, having what it takes to produce the more powerful seed, is the ascendancy of mind over the senses, of order over disorder, legitimacy over illegitimacy. Thus the inability of women to conceive within themselves becomes an instance—among many other things—of the relative weakness of her mind. Since normal conception is, in a sense, the male having an idea in the woman's body, then abnormal conception, the *mola*, is a conceit for her having an ill-gotten and inadequate idea of her own. Seeds of life and seeds of wisdom might well come to the same thing. Plutarch cautioned that

great care must be taken that this sort of thing does not take place in women's minds. For if they do not receive the seed[s] (*spermata*) of good doctrines and share with their husbands in intellectual advances, they, left to themselves, conceive many untoward ideas and low designs and emotions.

Her mind and her uterus are construed as equivalent arenas for the male active principle; her person is under the rational governance and instruction of her husband for the same reason that her womb is under the sway of his sperm. Similarly, he should be able to control his own passions and manage hers while being able at the same time to "delight and gratify" her sufficiently to produce children. A man who is "going to harmonize State, Forum, and Friends" should be able to have his "household well harmonized."<sup>99</sup>

Christianity made the possibility of such harmony between good social order and good sexual order far more problematic than it had been in Roman antiquity. It radically restructured the meanings of sexual heat; in its campaigns against infanticide, it diminished the power of fathers; in its reorganization of religious life, it altered dramatically what it was to be male and female; in its advocacy of virginity, it proclaimed the possibility of a relationship to society and the body that most ancient doctors—Soranus was the exception—would have found injurious to the health.<sup>100</sup>

It is also true that Augustine, as Peter Brown has argued, discovered "the equivalent of a universal law of sexuality," which represents a shift in the whole relation of human beings to society. It might stand as a metaphor for the end of the classical age and for the remaking of community

associated with the rise of Christianity.<sup>101</sup> One's intimate experiences of sex, in this new dispensation, were the result not of an ineluctable heating of the body but of the fall and of the estrangement of will that the fall brought. Impotence, far from being paradigmatically innocent, could be construed, even more than erection, as *the* sign of the soul's alienation from God.<sup>102</sup> Augustine could image intercourse in paradise in which the violence, the falling on wounds, the blood gushing, the crashing of bodies that informs an account like Lucretius', would be replaced by the image of intercourse as a gentle falling asleep in the partner's arms. Uncontrolled passion would be replaced by actions no more uncontrollable than the lifting of an arm. Indeed, everything about postlapsarian sex could thus be felt as continual reminders in the flesh of the tensions of the fundamentally flawed human condition. All of this was new with the coming of Christianity.

But Augustine's images for how "impregnation and conception" might be "an act of will, instead of by lustful cravings," were very much still of the old one-sex body found in the classical doctors. Such control of the body is conceivable, he suggested, and offered as an example people who "produce at will such musical sounds from their behind (without any stink) that they seem to be singing from that region." But the more telling case is that of a presbyter named Restitutus in the diocese Calama who, "whenever he pleased (and he was often asked to perform the feat by people who desired first-hand experience of so remarkable a phenomenon) he would withdraw himself from all sensations." He would, after some initial lamentations, lie unresponsive like a corpse. But one feature of this presbyter's trance makes it a particularly apt model for the phenomenology of intercourse in paradise. When he was burned "by the application of fire he was quite insensible to pain," until of course he emerged from his state and the normally occurring wound occasioned the usual pain.<sup>103</sup>

Here is a model for having the *calor genitalis* without concupiscence. But it is also a lesson in the physiology of the old Adam. Bodies, when exposed to fire, burn and except in rare circumstances, feel pain. Similarly with reproduction. Augustine did not envisage the modern body in which ovulation, conception, and even male ejaculation are known to be independent of whatever subjective feelings might accompany them. Heat and pleasure remained an ineradicable part of generation. It would be a miracle, said a fifteenth-century writer of confessionals, "to stand in

the flame and not feel the heat." Intercourse, argued Pope Innocent III in a diatribe against the body, is never performed without "the itch of the flesh, the heat of passion, the stench of the flesh."<sup>104</sup>

Thus, after Augustine as before, the body was thought to work much as pagan medical writers had described it. Augustine's new understanding of sexuality as an inner, and ever present, sign of the will's estrangement by the fall did create an alternative arena for the generative body. As Brown says, it "opened the Christian bedchamber to the priest."<sup>105</sup> At the same time, it kept the door open for the doctor, the midwife, and other technicians of the old flesh.

Christian and pagan notions of the body coexisted, as did the various incompatible doctrines of the seed, of generation, and of corporeal homologies, because different communities asked different things of the flesh. Monks and knights, laity and clergy, infertile couples and prostitutes seeking abortion, confessors and theologians in myriad contexts, could continue to interpret the one-sex body as they needed to understand and manipulate it, as the facts of gender changed. It is a sign of modernity to ask for a single, consistent biology as the source and foundation of masculinity and femininity.

My purpose in this chapter has been to explain what I mean by the world of one sex: mind and body are so intimately bound that conception can be understood as having an idea, and the body is like an actor on stage, ready to take on the roles assigned it by culture. In my account sex too, and not only gender, is understood to be staged.

Since I have been unwilling to tie the one-sex model to any particular level of scientific understanding of the body, and since it seems to have persisted over millennia during which social, political, and cultural life changed dramatically, the question I raised at the beginning of this chapter should perhaps be rephrased: why did the attractions of this model fade at all? I suggested two strong explanations for its longevity. The first concerns how the body was understood in relation to culture. It was not the biological bedrock upon which a host of other characteristics were supposedly based. Indeed, the paradox of the one-sex model is that pairs of ordered contrarities played off a single flesh in which they did not themselves inhere. Fatherhood/motherhood, male/female, man/woman, culture/nature, masculine/feminine, honorable/dishonorable, legitimate/illegitimate, hot/cold, right/left, and many other such pairs were read into

a body that did not itself mark these distinctions clearly.<sup>106</sup> Order and hierarchy were imposed upon it from the outside. The one-sex body, because it was construed as illustrative rather than determinant, could therefore register and absorb any number of shifts in the axes and valuations of difference. Historically, differentiations of gender preceded differentiations of sex.

The second explanation for the longevity of the one-sex model links sex to power. In a public world that was overwhelmingly male, the one-sex model displayed what was already massively evident in culture more generally: *man* is the measure of all things, and woman does not exist as an ontologically distinct category. Not all males are masculine, potent, honorable, or hold power, and some women exceed some men in each of these categories. But the standard of the human body and its representations is the male body.



## T H R E E

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# New Science, One Flesh

The books contain pictures of all parts inserted into the context of the narrative, so that the dissected body is placed, so to speak, before the eyes of those studying the works of nature.

VESALIUS, 1543

Across a millennial chasm that saw the fall of Rome and the rise of Christianity, Galen spoke easily, in various vernacular languages, to the artisans and merchants, the midwives and barber surgeons, of Renaissance and Reformation Europe. Various Latin translations, compendia, and Arabic intermediaries transmitted the one-sex body of antiquity into the age of print. "La matrice de la femme," writes Guillaume Bouchet in one late sixteenth-century potpourri of learning, "n'est que la bourse et verge renversée de l'homme" (The matrix of the woman is nothing but the scrotum and penis of the man inverted). A German doctor of no great fame pronounced, "Wo du nun dise Mutter sampt iren anhangen besichtigst, So vergleich sie sich mit allem dem Mannlichen glied, allein das diese ausserhalb das Weiblich aber inwendig ist" (Viewing the uterus along with its appendages, it corresponds in every respect to the male member except that the latter is outside and the former inside). Or "the likeness of it [the womb] is as it were a yarde reversed or turned inward, having testicles likewise," as Henry VIII's chief surgeon says in a matter-of-fact way. There was still in the sixteenth century, as there had been in classical antiquity, only one canonical body and that body was male.<sup>1</sup>

The various vernaculars also replicated in new voices the Latin and Greek linguistic complex of connections between organs to which we, in our medical texts, would give precise and distinctive names. *Bourse*, for example, Bouchet's word for scrotum, referred not only to a purse or bag but also to a place where merchants and bankers assemble. As bag, purse,

or sack it bridges male and female bodies handily. "Purse" could mean both scrotum *and* uterus in Renaissance English.<sup>2</sup> An anonymous German text declares in a commonplace simile, "the uterus is a tightly sealed vessel, similar to a coin purse (*Seckel*)."<sup>3</sup> The womb "shuts like a purse (*bursa*)" after it draws up the male and female ejaculate, says the Pseudo-Albertus Magnus in his immensely popular and much translated *De secretis mulierum*.<sup>4</sup> Scrotum also links up with womb through its more social, economic meaning. *Matrice*, Bouchet's term for uterus, as well as the English variant *matrix*, had the sense of a place where something is produced or developed, as in "mountains are the matrices of gold." There is a suggestion here of the common trope of the uterus as the most remarkable, miraculously generative organ of the body. The "matrice" is thus the place where a new life is produced while "bourse" is a place where a different, and culturally less valued, kind of productivity, an exchange, takes place. Two different kinds of bags, two different ways of making and keeping money, link organs that today have no common resonances.

The body's pleasures also remained as intimately bound with generation as they had been for Hippocrates. "Much delight accompanies the ejection of the seed, by breaking forth of the swelling spirit, and the stiffness of Nerves," says the most ubiquitous sex guide in the western tradition.<sup>5</sup> Through a physiology shared with man, woman "suffers both ways," the sixteenth-century physician Lemnius points out, and feels a double pleasure: "she draws forth the man's seed, and casts her own with it," and therefore "takes more delight, and is more recreated by it."<sup>6</sup>

But amid these echoes of antiquity, a new and self-consciously revisionist science was aggressively exploring the body. In 1559, for example, Columbus—not Christopher but Renaldus—claims to have discovered the clitoris. He tell his "most gentle reader" that this is "preeminently the seat of woman's delight." Like a penis, "if you touch it, you will find it rendered a little harder and oblong to such a degree that it shows itself as a sort of male member." Conquistador in an unknown land, Columbus stakes his claim: "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."<sup>7</sup> Like Adam, he felt himself entitled to name what he found in nature: a female penis.

Columbus' account is significant on two levels. First it assumes that looking and touching will reveal radically new truths about the body. The discoverer of the clitoris had nothing but contempt for his predecessors,

who either did not base their claims on dissection at all or failed to report accurately and courageously what they had seen. Mondino de' Luzzi (1275–1326), for example, the premier medieval anatomist, was made the butt of heavy irony for his perfectly commonplace though relatively novel claim that the uterus had seven cells; he “might as well have called them the porches or bedrooms.”<sup>8</sup> Columbus’ colleagues, meanwhile, attacked him with equal vigor. Gabriel Fallopius, his successor at Padua, insisted that he—Fallopius—saw the clitoris first and that everyone else was a plagiarist.<sup>9</sup> Kaspar Bartholin, the distinguished seventeenth-century anatomist from Copenhagen, argued in turn that both Fallopius and Columbus were being vainglorious in claiming the “invention or first Observation of this Part,” since the clitoris had been known to everyone since the second century.<sup>10</sup>

The somewhat silly but complicated debate around who discovered the clitoris is much less interesting than the fact that all of the protagonists shared the assumption that, whoever he might be, someone could claim to have done so on the basis of looking at and dissecting the human body. A militant empiricism pervades the rhetoric of Renaissance anatomists.

Columbus’ discovery would also seem to be fatal, or at the very least threatening, to the ancient representations of the one-sex body. Within the constraints of common sense, if not logical consistency, women cannot have a full-size penis within (the vagina) *and* a small homologue of the penis without (the clitoris). But Renaissance writers drew no such inference. Jane Sharp, a well-informed seventeenth-century English midwife, asserts on one page that the vagina “which is the passage for the yard, resembleth it turned inward” and, with no apparent embarrassment, reports two pages later that the clitoris is the female penis: “it will stand and fall as the yard doth and makes women lustful and take delight in copulation.”<sup>11</sup> Perhaps these positions can be reconciled in that the vagina only resembles the penis whereas the clitoris actually is one; both maintain the one-sex model’s insistence on the male as the standard. But Sharp had no interest in the question. Two seemingly contradictory accounts coexisted quite neatly, and the old isomorphism dwelt in peace with the strange new homologue from another conceptual galaxy.

Just when Columbus threatens to offer a new understanding of sexual difference, his text returns to the old track and the old tensions. Woman disappears, whether the vagina or the clitoris is construed as the female penis. Sexual delight continues to flow from the homoerotic rubbing of

like on like; pleasure is decoupled from the will so that her mind does not matter. "If you rub it [the clitoris] vigorously with a penis, or touch it even with a little finger, semen swifter than air flies this way and that on account of the pleasure, even with them [women] unwilling."<sup>12</sup> There remains but one sex, or in any case only one kind of body.

The discovery of the clitoris and its easy absorption by the one-sex model raises the central question of this chapter. Why did competent observers, self-consciously committed to new canons of accuracy and naturalistic illustration, continue to think of reproductive anatomy and physiology in a manner that is manifestly wrong and egregiously counterintuitive to the modern sensibility? In the first place, much of what is at stake is not empirically decidable. Whether the clitoris or the vagina is a female penis, or whether women have a penis at all, or whether it matters, are not questions that further research could, in principle, answer. The history of anatomy during the Renaissance suggests that the anatomical representation of male and female is dependent on the cultural politics of representation and illusion, not on evidence about organs, ducts, or blood vessels. No image, verbal or visual, of "the facts of sexual difference" exists independently of prior claims about the meaning of such distinctions.<sup>13</sup>

But there are empirically decidable contentions in Columbus' report and in the one-sex model generally. The clitoris (*dulcedo amoris*) he rightly says is the primary locus of venereal pleasure in women. On the other hand, he maintains—wrongly from a modern perspective—that semen, which looks very much like the male's, flies this way and that when it is stimulated and, were it not to do so, women would not conceive.<sup>14</sup> These are meant to be verifiable claims with the body as proof text:

You who happen to read these laboriously produced anatomical studies of mine know that, without these protuberances [the clitoris] which I have faithfully described to you earlier, women would neither experience delight in venereal embraces nor conceive any fetuses.

This is truly noteworthy: testes are produced in women so that they may produce semen. Indeed I myself can bear witness that, in the dissection of female testicles, I have sometimes found semen that is white and thick and very well concocted, as all the spectators have acknowledged with one voice.<sup>15</sup>

The specific claim that female orgasm was necessary for conception was, moreover, known to be vulnerable since antiquity.

Aristotle had pointed out that women in some circumstances could conceive "without experiencing the pleasure usual in such intercourse" and that conversely "the two sexes could reach their goal together" and the woman still not conceive.<sup>16</sup> Giles of Rome, a thirteenth-century scholar who was known even in that age of prolixity as "the verbose doctor," had argued at great length, on theoretical grounds, that the so-called female seed was essentially irrelevant to conception and that female orgasm was still more irrelevant. But he also offered empirical evidence of various sorts. Women purportedly told him that they had conceived without emission and presumably orgasm. Moreover, a clinical report by no less an authority than Averroës (ibn-Rushd, 1126–1198), the Arabic philosopher and author of a major medical encyclopedia, tells of a woman who became pregnant from semen floating in a warm bath. If, as this case is meant to show, penetration itself is only incidental to fertilization, how much more irrelevant still is female sexual pleasure?<sup>17</sup> And two thousand years after Aristotle, William Harvey repeated the old argument (though based, he says, on the evidence of "an infinite number" or at least "not a few" cases): the "violent shaking and dissolution and spilling of humours" which frequently occurs "in women in the ecstasy of coitus" is not required for the real work of making babies.<sup>18</sup>

It is also hard to believe that the consumers of vernacular medical literature—a wide swath of the literate public and those who might listen to them—needed the weight of tradition and learning to tell them that female orgasm did not always accompany conception.<sup>19</sup> Modern studies are quite consistent in showing that one third and perhaps as many as one half of women never have orgasm from intercourse alone, and certainly nowhere near such a proportion were infertile.<sup>20</sup> Maybe a higher percentage were orgasmic in an age in which what is now called "foreplay" was taken as a requisite prelude to procreative intercourse, but a great deal of everyday experience must nevertheless have belied the purported link between female orgasm and conception. Yet neither the evidence of the learned nor the actual experiences of marriage overturned the old model of bodies and pleasures.

Of course, some might say: those who knew—women—did not write and those who wrote—men—did not know. But this is not so telling a point. In the first place, the Hippocratic corpus and book 10 of Aristotle's *History of Animals*, for example, may well represent the voices of women, and other works give accounts much like these. Moreover, when women beginning in the Renaissance did publish on midwifery and reproduc-

tion, their views regarding the physiology of generation were entirely mainstream: Louise Bourgeois, Jane Sharp, and Madame de la Marche all propounded the common wisdom linking pleasure, orgasm, and generation. The occasional first-person account by women addressing these intimate matters, such as the remarkable autobiography of a seventeenth-century Dutch clergyman's wife, Isabella De Moerloose, further suggests that the literature I am citing reports commonly held beliefs.<sup>21</sup> Despite the growing tendency of the learned tradition to distance itself from "popular errors," my sense is that doctors, lay writers, and men and women in their beds shared a broad view on how the body worked in matters of reproduction.<sup>22</sup> The sort of highly politicized split between women's views of their bodies and that of a medical establishment would have to await the consolidation of a science-based profession beginning in the eighteenth, but not fully in place until the late nineteenth, century.<sup>23</sup>

Finally, there is modern evidence to suggest that women in the past might well have had no more or no less understanding of the timing and physiology of conception than did their doctors. Certainly, if advice columns are any indication, the view that orgasm is necessary for conception lives on today; physicians, both male and female, who in the early twentieth century attempted through interviews to determine the timing of ovulation during the menstrual cycle, failed to come up with consistent answers. And anthropological evidence suggests that living women whom one can interrogate actually hold views similar to those propounded by Renaissance midwifery and health guides. Thus an informant in Suye Mura told a Japanese-speaking woman anthropologist that "she [thought] that if a woman does not reach climax, she cannot conceive because her womb remains shut."<sup>24</sup> The Samo of Burkino Faso give an account of semen—"sex water" discharged by both men and women—blood, milk, and menstruation that is eerily like the one that dominated the western tradition.<sup>25</sup>

None of this argues against the fact that there must have been much local wisdom and a florid oral tradition among women in early modern Europe, which printed sources, no matter how popular, and modern evidence, no matter how wide-ranging, can never recapture. They are forever lost to historians. Nor does it prove that ordinary people, men or women, thought very much in terms of the anatomical isomorphisms of the one-sex model. Nevertheless, it does suggest that the sort of literature

on which I base these chapters—the only sort we are ever likely to have—shares the same conceptual universe of Renaissance people and even of “those who knew (women),” even if it does not speak in their voices.

Evidence bearing on the empirically testable claims of the one-sex model failed to dislodge them not because such data were silenced but because these claims were part of a far more general, intricate, and many-stranded conception of the body which no observations, singly or in combination, could directly falsify. Willard Quine suggests why this should be the case on philosophical grounds. The totality of our beliefs “is a man-made fabric which impinges on experience only along the edges.” So-called knowledge, switching metaphors,

is like a field [which] is so underdetermined by its boundary conditions, experience, that there is much latitude as to what statements to reevaluate in the light of any contrary experience. No particular experiences are linked with any particular statements in the interior of the field.<sup>26</sup>

The ancient account of bodies and pleasure was so deeply enmeshed in the skeins of Renaissance medical and physiological theory, in both its high and its more popular incarnations, and so bound up with a political and cultural order, that it escaped entirely any logically determining contact with the boundaries of experience or, indeed, any explicit testing at all.<sup>27</sup>

This is by now so standard an argument in the history and philosophy of science that it even has a name: the Quine-Duhem thesis. But it is worth making again for two reasons. The empirically testable claims of the old model, which represent and are represented by the transcendental claim that there exists but one sex, are so farfetched to the modern scientific imagination that it takes a strenuous effort to understand how reasonable people could ever have held them. It is an effort worth making, if only to unsettle the stability of our own constructions of sexual difference by exposing the props of another view and by showing that the differences that make a difference are historically determined.

Second, by making manifest the web of knowledge and rhetoric that supported the one-sex model, I am setting the stage for its challengers in the eighteenth and nineteenth centuries. If its stability can be attributed to its imbrication in other discursive modes, its collapse will not need to be explained by a single dramatic discovery or even by major social upheavals. Instead, the construction of the two-sex body can then be viewed

in the myriad new, and new kinds of, connections between, and within, sexual and other discourses.

### The practices of anatomy

"When you meet a human being," said Freud in his comments on "Femininity" in *New Introductory Lectures*, "the first distinction you make is 'male or female?' and you are accustomed to making the distinction with unhesitating certainty." Anatomical science at first seems to support this certainty but upon further reflections turns out to be far less authoritative: "what constitutes masculinity or femininity is an unknown characteristic anatomy cannot lay hold of." The more Renaissance anatomists dissected, looked into, and visually represented the female body, the more powerfully and convincingly they saw it to be a version of the male's.

*The body speaks itself.* In large measure the new science greatly strengthened the old model simply because it proclaimed so vigorously that Truth and progress lay not in texts, but in the opened and properly displayed body.<sup>28</sup> A rhetoric of bad-mouthing reinforced the idea that only error and misguided adherence to authority stood in the way and that with care one could *see*, among many other things, that women were inverted men. Vesalius publicly denounced the whole lot of his predecessors, including his teacher Jacobus Sylvius, for considering Galen infallible, and Columbus could write of the "by no means negligible corrections" he had to make in Vesalius to produce a dissecting guide that "will tell the truth about the human body."<sup>29</sup> Fallopius announced that he would refute the accounts of ancient and more modern writers and completely overturn some of their doctrines, "or at least make them totter."<sup>30</sup>

More important, the new, extravagantly public theatrical dissection and its visual representations advertised the conviction that the opened body was the font and touchstone of anatomical knowledge.<sup>31</sup> What had been hidden before—there was very little if any human dissection in antiquity and no anatomical illustration—and what had been practiced only occasionally and quietly—anatomy in medieval universities—was now made available for general consumption. One need no longer imagine Galen's topographical transformations; one could verify them by sight. As Harvey Cushing argues, the famous frontispiece to Vesalius' *De humani corporis fabrica*, the founding work of modern anatomy (fig. 3), stands as





Fig. 3. Sixteenth-century dissection scene from the frontispiece to Vesalius' epochal *De humani corporis fabrica* (1543).

a rebuke to those who only read ancient texts while barber surgeons did the dissection. Compare it, for example, to the frontispiece to Mondino's *Anathomia* (figs. 4 and 5), the medical-school standard before Vesalius. Text, in the form of the name of the book, or a reader expounding *ex cathedra* dominate the earlier pictures. The body seems almost an afterthought, lying passively within the picture's plane. The anatomist's gaze in fig. 5 lights on the cadaver's face, not on its exposed viscera, as if its humanity, not its value as dead material to be studied, demands attention. Vesalius must have imagined scenes like these when he condemned ana-



Fig. 4. Frontispiece to Johan Ketham, *Fasciculus medicinae* (Venice, 1550), a reworking of Mondino's *Anathomia*.



Fig. 5. Frontispiece to Mondino [Mundinus], *Anathomia* (1493).

tomists who "from a lofty chair arrogantly cackle like jackdaws about things they have never tried." A butcher in his meat market could teach a doctor more.<sup>32</sup>

By contrast, in fig. 3 the opened body is the unquestioned font of authority, enforced by the lordly skeleton that presides over the scene. Unlike the bodies in earlier representations, it comes out at us from the plane of the picture; its exposed entrails occupy dead center between the title and the bottom of the picture. An imaginary line passes down the spine of the skeleton, between its breasts and through the viscera, bisecting the image and dividing the magnificent rotunda in which the cadaver lies. Classical statues lend dignity, as they will later in the book, when the viscera are displayed in them, mediate the violence of dissection, and define the features displayed as those of a normative, median body. And, as in the frontispieces to many Renaissance anatomies, a great concourse of assorted observers looks on. This is a picture, in short, about the majestic power of science to confront, master, and represent the truths of the body in a self-consciously theatrical and public fashion.<sup>33</sup>



Fig. 6. Frontispiece to a 1642 Dutch edition of Vesalius' *Epitome* (1543).



Fig. 7. Frontispiece to G. Cassario, *Anatomische Tafeln* (1656), which is a reworking of the scene in fig. 6.

The picture may seem to be, more narrowly, an assertion of male power to know the female body and hence to know and control a feminine Nature.<sup>34</sup> Vesalius presides here over an assemblage of men who peer into a woman's helpless, naked, and revealed body before them. The cadaver in the frontispiece (fig. 6) to a later Dutch edition of Vesalius' *Epitome*, a sort of student guide to the larger *Fabrica*, is still more shapely, her generative organs more clearly shown, her face mysteriously veiled so as to emphasize the accessibility to her body to the male gaze. Even the banner bearers are men, the sex of the skeleton evident from his cape and gravedigger's shovel.

But the politics of gender in anatomical illustration is not so simple. The frontispiece to Cassario's *Anatomische Tafeln* (fig. 7) takes the engraving used in fig. 6 and substitutes a man's body for the woman's. His face is also draped, his body is if anything more subject to domination by the instruments behind him and by the knife resting on his thigh. The young and extraordinarily eroticized cadaver being dissected in fig. 8, the frontispiece to John Riolan's text, is clearly a man though androgynously del-



Fig. 8. Frontispiece to Jean Riolan, *Les Oeuvres anatomiques* (1629). The male cadaver is if anything more erotically portrayed than either the male or female in figs. 6 and 7.

icate in his features. More generally, it simply is not true that women, sensual or not, were particularly identified with the object of anatomical study. In the frontispieces of fourteen anatomy books published between 1493 and 1658, the body being dissected is male in nine cases, female in four, and indeterminate in one. Perhaps the availability of material rather than sexual politics determined the sex of the generic cadaver.<sup>35</sup> In any case, the body qua body is what matters, and the programmatic point of the Renaissance anatomical frontispiece is clear: anatomists have the power to open the temple of the soul and reveal its inner mysteries (fig. 9 is paradigmatic on this point).<sup>36</sup>

The bodies of women must be seen in the context of two further representational strategies, both of which emphasize the theatrical display of bodies as testimony for the anatomist's claims. In the first place, even when medieval anatomies—and indeed even Renaissance books before Jacopo Berengario da Carpi's *Isagoge brevis* in 1522—were illustrated, that is, rarely, what pictures they did contain were at best superficially connected with the text, whose authority rested in the words and reputation of the author. In Berengario, however, something novel was happening. He was committed to an *anatomia sensibilis*, an anatomy of what

could be seen, and illustrations were to be its printed aspect, the graphic substitute for actually seeing the structures in question and thereby vouchsafing the anatomist's words.<sup>37</sup> The frontispieces and the many spectacular engravings in Vesalius and subsequent works continued to invoke the authority, first, of a dramatically opened, exposed body and then, derivatively, of naturalistic representation itself.<sup>38</sup>

Even without words, these new illustrations were advertisements for their own truth. In them the dead act as if they were still somehow alive—not cadavers at all—and thus able to certify personally the facts that the anatomist presents and the epistemological soundness of anatomy generally. The thoroughly classical muscle man in Juan de Valverde's *Anatomia* (fig. 10) flays himself to reveal his surface structures, holding



Fig. 9. Frontispiece, after a drawing by Paolo Veronese, to Columbus, *De re anatomica* (1559).



Fig. 10. Classical figure, having flayed himself, displays both his skin and his surface musculature. From Juan de Valverde, *Anatomia del corpo umano* (1560).



Fig. 11. Three figures in various tortured poses of revealing themselves to the readers of an anatomy text. From Valverde, *Anatomia*.

up his skin—an allusion to Michelangelo's self-portrait, part Marsias, part St. Bartholomew, from the *Last Judgment*—for extra emotional appeal.<sup>39</sup> Later in Valverde's book a rather self-absorbed creature calmly lifts up his belly's fat and skin to show off his abdominal fascia; for our viewing convenience, the next figure holds up still more of his fleshly clothes to reveal the omentum beneath. He gestures with his left hand and turns, as if modeling or rehearsing on stage, to ask the artist or director who hired him whether this pose or gesture will do. A third fellow needs both his hands and his teeth—they hold up the omentum—to assure us an unobstructed vista of his viscera (fig. 11). In a Belgian edition of the *Epitome* (fig. 12) an opened anatomist—no greater sacrifice in the interests of science is possible—looks heavenward as his fingers resect the ribs of a Vesalian Apollo Belvedere or perhaps himself. Various well-proportioned men in Estienne's *La Dissection des parties du corps humain*, the most lavishly produced of the pre-Vesalian anatomies, look more or less pleased, pained or pathetic, as they tear themselves apart for their viewer's somewhat minimal anatomical edification (figs. 13–14).

The art and rhetoric of Renaissance anatomies thus proclaim the authority of seeing and the power of dissection. Various stratagems for cre-



Fig. 12. One anatomized cadaver dissecting another who is represented as a fleshly version of a broken classical statue. Original also from Valverde's *Anatomia* but borrowed by a 1559 Bruges edition of Vesalius' *Epitome*.



Figs. 13–14. Two male figures ripping themselves open for the edification of viewers. The “martyrdom” on the right reveals the tongue and tonsils, the one on the left the lower abdomen and genitals. From Charles Estienne, *La Dissection des parties du corps humain* (1546).



Fig. 15. A female sculpture has suddenly come alive and is leaving her pedestal to demonstrate the text’s claim that the uterus is like the penis and that testicles and various vessels also correspond. From Jacopo Berengario, *Isagoge brevis* (1522).





Fig. 16. The model has left her pedestal and gestures flamboyantly to her uterus. "You see," she says, "how the neck of the womb resembles a penis." From Berengario.

ating the "reality effect" make pictures stand in for bodies themselves and witness the truths of texts that viewers are invited to construe as only one remove from the cadaver itself. Seeing is believing the one-sex body. Or conversely.

*Believing is seeing.* The new anatomy displayed, at many levels and with unprecedented vigor, the "fact" that the vagina really is a penis, and the uterus a scrotum.<sup>40</sup> Berengario makes absolutely sure that his readers do not miss or doubt the point: "the neck of the uterus is like the penis, and its receptacle with testicles and vessels is like the scrotum."<sup>41</sup> In the first of the pictures accompanying this by now familiar assertion, a classical statue of a decidedly feminine woman seems miraculously to have come alive; she is in the process of throwing off her wrap and stepping carefully down to confront the reader with proof (fig. 15). In the next one (fig.

16) she flamboyantly tosses her cloak over her head with one hand, while with the other she directs her audience's gaze to what has been removed from her open belly and placed on the pedestal from which she descended: her uterus. She—the now animated cadaver whose voice has become indistinguishable from the anatomist's—gestures epideictically and announces with obvious authority: “you see how the neck [of the uterus] . . . resembles a penis” (p. 78). Finally, a third close-up illustration

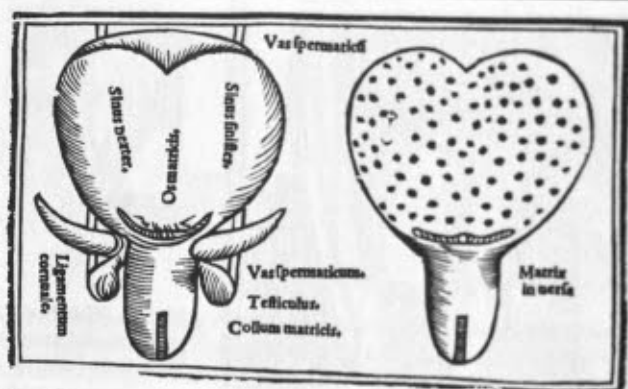


Fig. 17. The uterus and attached vessels labeled so as to make clear once again—“because a tenfold repetition is wont to please”—the correspondences between male and female organs. From Berengario.

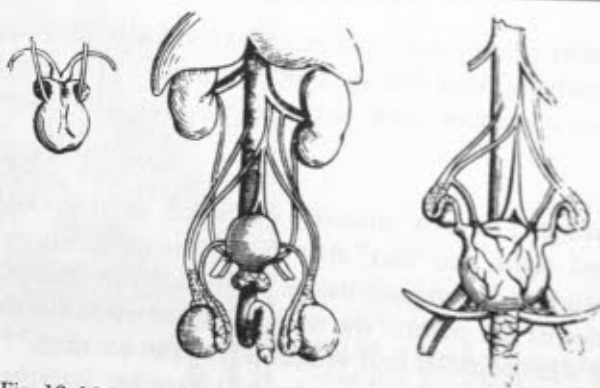


Fig. 18. Male and female organs displayed to demonstrate their correspondences. From Vesalius, *Tabulae sex* (1538).

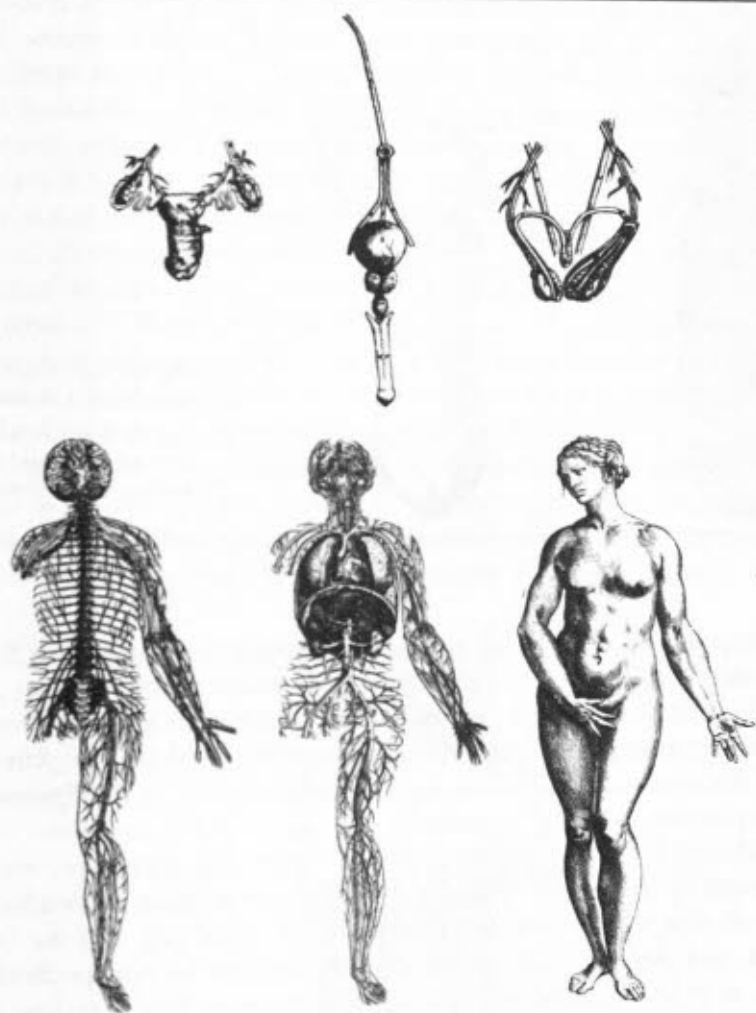


Fig. 19a-d. Top row (19a): the shorter penislike structure is the "uterus with the testes and seminal vessels"; the longer one is the male genitalia to which the student is then asked to attach the male testes. Both male and female organs were then to be glued onto fig. 19b, which in turn fit under 19c and then under 19d, a classical female nude. From Vesalius, *Epitome*.

hammers home the point visually and through labels that identify the ovaries as testicles and the Fallopian tubes as spermatic ducts (fig. 17).

Women's organs are represented as versions of man's in all three of Vesalius' immensely influential and widely plagiarized works. Among the

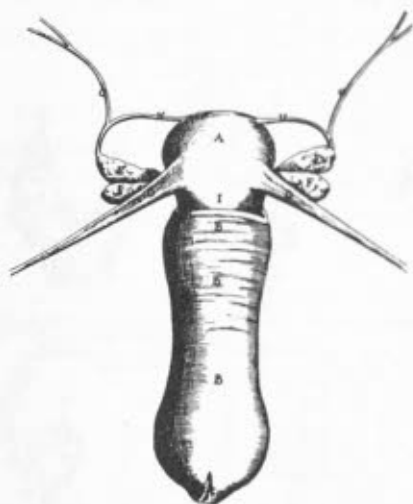


Fig. 20. (left) Vagina as penis from Vesalius, *Fabrica*.

Fig. 21. (right) The vagina and uterus from Vidus Vidius, *De anatome corporis humani* (1611)

founding images of modern anatomy is a powerful new register for the old ordering of bodies. His most reprinted image of the vagina as penis, and also the most explicit, is one of the illustrations (fig. 18) from the *Tabulae sex*, a set of cheaply printed pictures, so-called fugitive plates prepared for medical students or for lay consumption. In the *Epitome*, engravings of almost indistinguishable male and female reproductive organs are included for students to cut out and glue onto figures provided for that purpose (fig. 19).<sup>42</sup> But the most visually striking of Vesalius' pictures on this theme is in the *Fabrica* itself. Here (fig. 20) the uterus, vagina, and external pudenda of a young woman are not specifically arrayed, as in the *Tabulae* or the *Epitome*, to demonstrate that these structures are isomorphic with those of the male; they are just *seen as* such.

I emphasize "seeing as" because these images, and many more like them, are neither the result simply of representational conventions nor the result of error. A whole world view makes the vagina look like a penis to Renaissance observers. Of course a representational convention, a schema, is at work; Renaissance anatomical illustrators learned to depict the female genitalia from other pictures and not from nature alone (see figs. 21-24). But this does not mean that stylistic concerns kept them from seeing genital anatomy "as it really is," or as moderns see it.<sup>43</sup>

Nor is the strange quality of images in figs. 15–24 the result of someone's efforts to make the female body conform to some erroneous text or to distort women's genitalia so that they become a caricature of men's. The draftsman who produced fig. 21, for example, is not guilty of clandestinely substituting animal for human anatomy, as Vesalius coyly accuses Galen of doing in the *Fabrica's* famous juxtaposition of a woodcut of a canine premaxillary bone and suture with those of a man (fig. 25). He is, moreover, innocent of what Vesalius himself did on occasion: "seeing" something that does not exist because an authority declares it to be present.<sup>44</sup> There are gross errors of this sort in Renaissance illustrations of the female genitalia, but they are irrelevant to the rhetorical purposes of the illustrations. In fact, if they were more accurate, they would make their point even more powerfully. If, for example, in figs. 16–17 the nonexistent "cotyledons"—the dots representing the anastomosis of veins in the uterus—were rubbed out, the suggestion of two chambers eliminated, and the vagina drawn in correct proportion to the uterus, the organs would resemble a female scrotum and penis more closely. Expung-

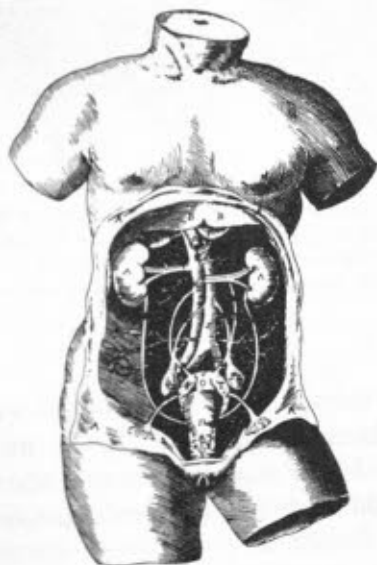


Fig. 22. The female torso, in the form of a piece of broken classical art, from which the penis-like vagina in fig. 21 was taken, following the artistic and scientific conventions of the time.



Fig. 23. This reworking of Vesalius in a 1586 edition of Valverde follows the same convention illustrated in figs. 21–22. On the left is a structure that looks like a penis; on the right are the classical female forms from which it was taken.

ing the “horns of the uterus” (GG) from John Dryander’s representation of the female reproductive organs (fig. 26) or from other Renaissance illustrations (figs. 32–33 for example) would make the uterus and vagina look more, not less, like a bladder and penis; and redrawing, in the interests of accuracy, the ovarian artery and vein EE in fig. 26 so that they appear less like the epididymis, II in fig. 27, would, at worst, leave the overall effect the same.<sup>45</sup>

However grotesque or monstrous the woodcut of the female genitalia

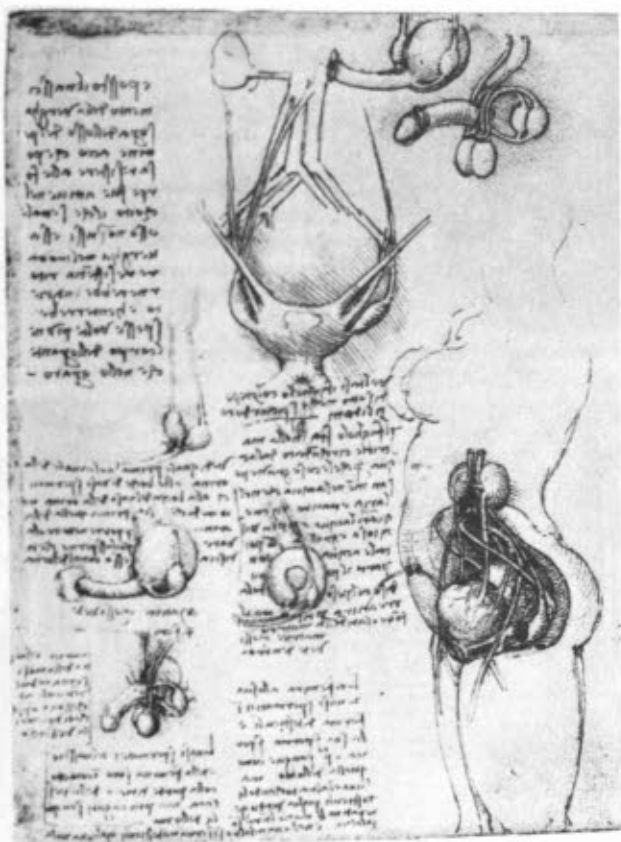


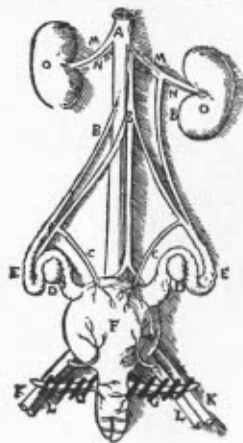
Fig. 24. Leonardo's version of the isomorphism between the womb and scrotum—upper right and lower left—is peculiar in that he renders it by making the vas deferens of the male curve around to resemble the shape of the uterus. The penis/vagina imagery is more conventional.

depicted in the *Fabrica* has appeared to some modern commentators, it is not incredible or “wrong.” Its proportions are roughly those of “accurate” nineteenth-century engravings (fig. 28) and illustrations from a modern text (fig. 29), though these of course were not drawn to illustrate the isomorphism between male and female organs.<sup>46</sup>

Subsequent discoveries that would force changes in the labels of illustrations are of equally minor importance in the history of “seeing as.” The *Zeuglin*, or testes, and the *Samadern*, seminal vesicles, did not exist, as



Fig. 25. "We have placed," Vesalius says in this polemical illustration from the *Fabrica*, "the skull of a dog beneath that of a man so that anyone may understand Galen's description of the bones of the upper jaw without the slightest difficulty."



¶ Die Figur zeigt an der inneren Seite die weibliche samt dem gebure gliedern / gefäß des jamens. vnd andern berdt. A. Debet die großblader / daher alle andere glieder narung haben. B. Ist die weisse samens. C. E. Aber so die bermteter begreifen / daher die frucht auch narung bekome. D. D. Sont die weisse seuglin. E. Da ma werden die weisse seuglin vmbgeben. f. sind ein theyl samens vnd ein theyl der bergader. J. Die bermteter gleich der blasen gefäße. G. Die gefäße der bermteter. dar an sie dem rucken vnd nebenst angehefft. H. Das innerlich mündlich der bermteter. J. Das außers der bermteter. K. Die säm. L. A. Blümm oder ist der blüthen der schenckel. M. N. Sörging von den vieren. O. Die vieren. P. Die vieren.

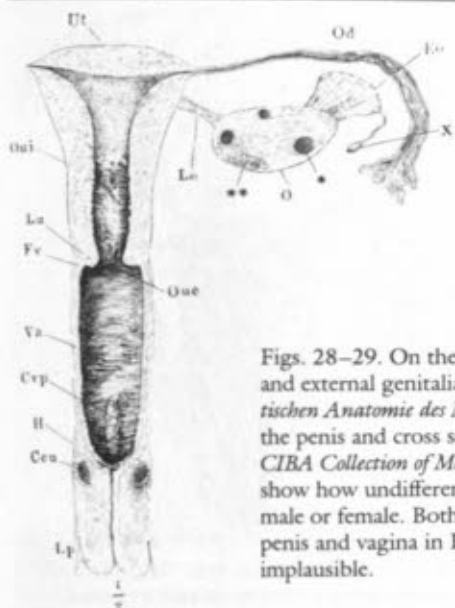


Das nebenstige figurum ist die blasen / mit samt ber harn vnd same abern.

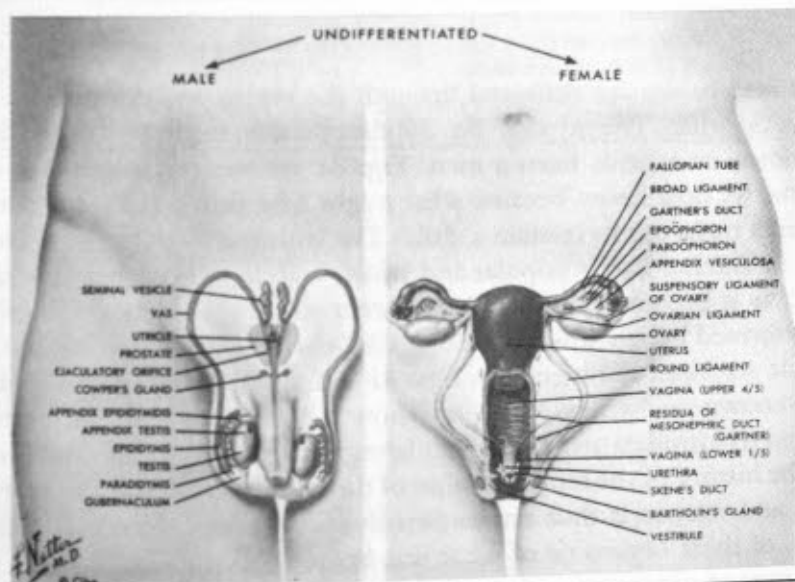
Figs. 26–27. The male and female reproductive systems adapted from Vesalius' *Epitome* in Johan Dryander, *Der Gantzen Artzenei* (1542). In fig. 26 I have blocked out the nonexistent horns of the uterus to show that making a drawing like this more accurate would also make them more convincing as illustrations of the penis/vagina isomorphism. Elongating the vagina so that it is in proper proportion to the uterus would have the same effect.

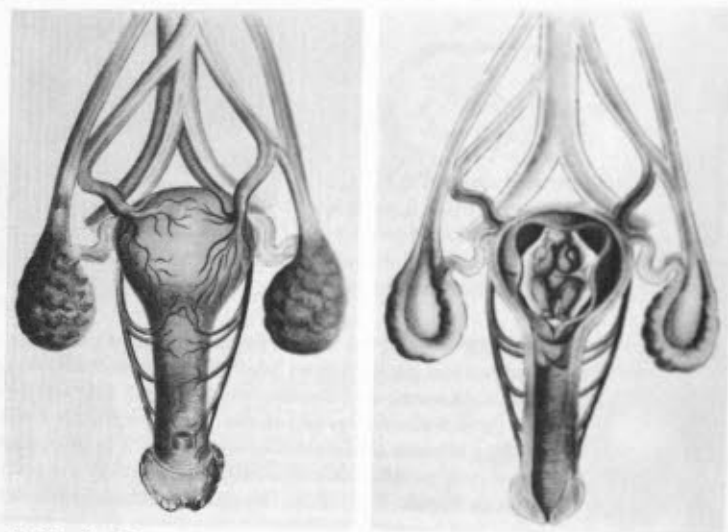
Dryander's labeling claims, in both men and women; nineteenth-century histology would teach that nothing of interest follows from the observation that the uterus, labeled F in fig. 26, has the same shape as the male bladder, G in fig. 27. But these advances pale beside facts that Renaissance anatomists did know and that did nothing to discredit the whole representational convention of seeing the female genital anatomy as an interior version of the male's. The uterus bears children but the scrotum





Figs. 28-29. On the left is a frontal section of the uterus, vagina, and external genitalia from Jakob Henle, *Handbuch der systematischen Anatomie des Menschen*, vol. 2 (1866). Below is a drawing of the penis and cross section of the female genitals by Frank Netter, *CIBA Collection of Medical Illustrations*, vol. 2 (1954), made to show how undifferentiated embryological structures end up as male or female. Both show that the geometrical relations between penis and vagina in Renaissance engravings are not intrinsically implausible.





Figs. 30–31. On the left are the penislike female organs of generation from Georg Bartisch, *Kunstbuche* (1575). On the right the front of the uterus is cut away to reveal its contents.

does not; babies are delivered through the vagina and not through the penis. So what? The organ in fig. 30, for example, might be a vagina from a woman or a penis from a man. Fig. 31 relieves the suspense. It is a vagina, we now know, because what might have been either a scrotum or a uterus turns out to contain a child! The womb with its penislike extension in Walther Ryff's popular and widely translated book plays the same trick, as it becomes strangely transparent to allow readers a view of the fully formed baby within (fig. 32). A little window has been cut into the female scrotum, the uterus, in figs. 33–34, an illustration from another well-known midwifery book, to show a fully formed child, its back turned to intruders and to the penile vagina through which it will pass.

The history of the representation of the anatomical differences between man and woman is thus extraordinarily independent of the actual structures of these organs or of what was known about them. Ideology, not accuracy of observation, determined how they were seen and which differences would matter.

*Seeing difference differently.* Renaissance "common sense," and critical observation directed against the view of woman as man turned outside in,

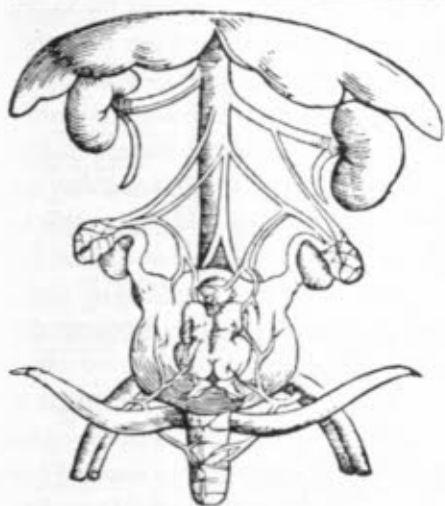


Fig. 32. The female organs of generation from Walther Ryff, *Anthomia* (1541). In this and the next illustration note that the vagina and uterus would look more like a penis and scrotum if the horns were expunged and the vagina drawn in correct proportion, that is, if they were more accurate.

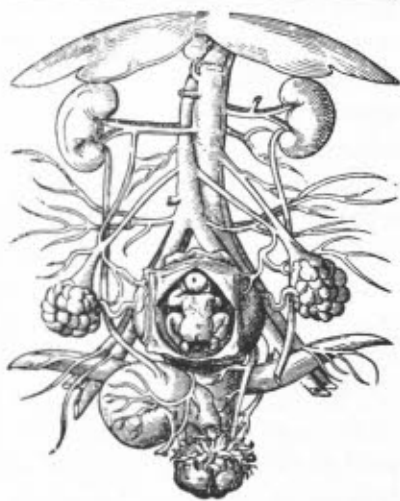


Fig. 33. The female organs of generation from Jacob Rueff, *Habammenbuch* (1583), which appeared in English as the widely plagiarized and popular *The Expert Midwife* (1637). Note that the left ureter has been cut and the bladder pushed to the right from its natural position so that we might look into the window of the womb and see the child.



Fig. 34. The gravid uterus with its penile vagina of fig. 33 *in situ*. The bladder has been pushed left, and the child shows its profile.

failed to make a dent in the one sex-model. Arguments against the vagina as penis, for example, are to the modern imagination stranger even than the claim itself. At the simplest level, an apparent failure to find equivalences between men and women could be saved by the sort of wishful thinking that daily saves phenomena in normal science. Except in moments of revolutionary crisis, there is always a way out. Women may not seem to have a scrotum, and indeed other parts of man might be difficult to find in woman or vice versa. But these difficulties, argues Charles Estienne, can be resolved by reference to position: "You would agree this is true: if you turn a womb removed from the body inside out (quoth Galen) you will find testicles bulging out from its outer surface, by which the womb itself, by outer appearances is as a scrotum."<sup>47</sup> We might or might not be able to find what this anatomist claimed if we followed his instructions, but the exercise would be entirely irrelevant to a world that believes in two sexes. No pushing or pulling of surfaces would convince us to see the womb as a scrotum, any more than a topologist could make us regard a tea cup as a doughnut even if her procedures were sound, which Estienne's were not.

Conversely, perfectly sound anatomical observations adduced against the old homologies seem, from a modern perspective, so curiously peripheral—even perverse—that they serve only to cast further doubt on the whole enterprise of searching in bodies for any transcultural signs of difference. The distinguished English anatomist Helkiah Croke argued, for example, against "any similitude betweene the bottome of the womb inverted [the cervix], and the scrotum or cod of a man," on the grounds that the skin of the "bottom of the wombe is a very thicke and tight membrane, all fleshy within" while "the cod is a rugous and thin skin." (True, but scarcely compelling, and not among the more telling differences that spring to mind between the cervix and the sack that holds the testicles.) Croke's rejoinder to the claim that the vagina really is a penis is still more amazing. "Howsoever the necke of the wombe shall be inverted, yet it will never make the virile member," he proclaims. Why? Because "three hollow bodies cannot be made of one, but the yard consisteth of three hollow bodies" and, as we have already been told, "the necke of the womb hath but one cavity." (As figs. 35–36 make clear, Croke is anatomically correct, however strange his argument seems to the modern sensibility.) Furthermore: "neither is the cavity of a man's yard so large and ample as that of the necke of the wombe." In short, the

**The Explication of the FIGURES.**

All the Parts of the Yard are represented in this TABLE.

**The XXIV. TABLE.**

**FIG. I.**  
 AA. The inner Surface of the Urethra being enlarged.  
 B. A Part of the Urethra which makes its way into the Head.  
 CC. The Head of the Yard.  
 DD. The two Nervous Bodies of the Yard.



**FIG. II.**  
 A. The Membrane of the Nervous Body torn away.  
 B. The straight Part of the first Body.  
 C. The Head of the Yard made bare.



**FIG. III.**  
 AAA. The inner Part of the Nervous Body, of the longer and shorter being torn away.  
 B. The Nervous Body torn away from the first Body.  
 CCC. The Head of the first Body.  
 DD. The membrane torn away by Scapula's method.



**FIG. IV.**  
 AAA. Fibre coming along the Back of the Yard.  
 BB. Membrane.  
 CC. The Head of the Yard.  
 DD. The Head of the Yard.



**FIG. V.** Shows the Membrane of the Yard in three places.  
 AA. The Part above the Head of the Yard.  
 B. The Part of the Head.  
 C. The Part below the Head of the Yard.  
 DD. The two Nervous Bodies.  
 E. The Urethra's Passage.  
 FF. The Membrane which makes the Passage.  
 GG. The Membrane which makes the Passage.  
 HH. The Passage cut off from the Head.  
 I. The Penile Membrane.  
 JJ. The Membrane of the Penile Membrane.  
 KK. The Membrane which makes up the Passage.

Fig. 35. Table 24 from Kaspar Bartholin, *Anatomy* (1668), showing "the parts of the yard." The drawing on the lower left shows the corpus spongiosum penis through which the urethra passes. In the drawing upper left, this passage is left intact and one of the two corpora cavernosa penis, the "nervous bodies" that were thought to produce erection, is excised: three hollows in all.

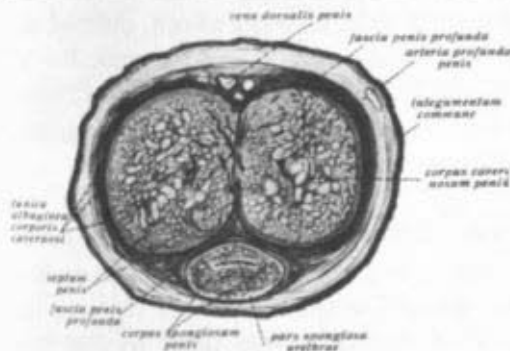


Fig. 36. Cross section of the penis from a modern atlas showing that indeed the penis does have three hollows, as Crooke said.

penis is not a vagina either because it is thrice hollow or because it is not hollow enough.<sup>48</sup>

But for others the hollowness test figured on the opposite side—in support of the Galenic isomorphisms—or at worst as irrelevant:

Whatever you see as a kind of opening in the entrance to the vulva [vagina] in women, such indeed is found in the foreskin of the male pudenda, like a

kind of outgrowth hollow inside. The only difference between them is that this hollowness is much greater in woman than in the man.<sup>49</sup>

At work here is a sensibility radically different from that of doctors in the world of two sexes.

Even when the broader cultural context of the one-sex model was clear to a critic of the Galenic isomorphisms, a web of significance kept the attack narrowly focused and harmless to overarching structures. Bartholin, for example, understood Galenic sexual politics perfectly. "We must not," he argued, "think with Galen . . . and others, that these female genital parts differ from those of Men only in Situation," because to do so would be to fall prey to an ideological plot "hatched by those who accounted a Woman to be only an imperfect Man." Its perpetrators, in talking about how the woman's "coldness of temper" kept female organs inside, were simply articulating their prejudices in the language of science. (One would like to know how and why Bartholin developed so political and so astute a critique.) But, quite apart from politics, Bartholin criticized Galen and his followers for not getting their story straight. Was the "neck of the womb" or the clitoris the female penis; was the womb the female scrotum, or was at least part of it her version of the "nut of the yard"? And the spermatic preparatory vessels, he pointed out, differed in number, origin, and function in men and women, and the male has a prostate, which the female does not have.<sup>50</sup> Finally, illustrations hammered home the point. The clitoris is clearly rendered as *the* female penis while the womb and the vagina are portrayed in an unambiguously unpenile fashion (fig. 37).

But despite these well-developed and thoroughly articulated criticisms, Bartholin seemed incapable of transcending the ancient images he explicitly rejected. The orifice, or inner mouth of the womb (the cervix), he explained, functions "like the Hole of the Nut of the Yard," so that "no hurtful thing may enter in." The "neck of the womb"—note the use of the conventional term for the vagina—"becomes longer or shorter, broader or narrower, and swells sundry ways according to the lust of the woman." Its substance "is of a hard and nervous flesh, and somewhat spongy, like the Yard." The vagina, in other words, became once again in his imagination a penis. But the clitoris too, like the vagina, was also like the penis. It is "the female yard or prick," because it "resembles a man's yard in situation, substance, composition, repletion with spirits, and erec-

The FIGURES • The XXVIII TABLE

Explained.  
This TABLE comprehends the Sheath of the Womb, the Body of the Clitoris, and the external Female Privy, both in Virgins, and such as are detour-  
ned.

- FIG. I.  
A. The Sheath of the Womb slightly enlarged.  
B. The Caruncle of the Barren.  
C. The Neck of the Womb.  
D. The Mouth of the Neck in a woman that has a Child.  
E. The copped neck of the Neck cut open.  
F. The usual Ligaments of the Womb cut off.
- FIG. II.  
A. The Nymph in Clitoris erect in its proper Situation.  
B. The Head of the Prepuce.  
C. The Bulbous part of the Neck of the Bladder near the Prepuce.  
D. The Prepuce.  
E. The margin of the Prepuce.  
F. The Neck of the Womb cut off.
- FIG. III.  
A. The Sheath of the Clitoris being up under the Skin.  
B. The same Legs of the Prepuce separated one from another.  
C. The Sheath of the Clitoris, and the Nymph (being) separated.  
D. The Caruncle placed about the Uterus (a).  
E. The Nymphs (being) together & Protruded.  
F. Membranes & Ligaments which contain the Clitoris.
- FIG. IV. Partures the Privy of a Girl.  
A. The Clitoris.  
B. The Lips of the Nymphs.  
C. The Wings or Nymphs.  
D. The Gland of the Uterus or Pili-pipe.  
E. A Few Muscles of the Caruncle.  
F. The small Caruncle cut off & divided into two, and kept in the Foldings of the Pili-pipe.  
G. The Bulb of the Bladder in Virgins-skin.  
H. The Lip of the Caruncle.  
I. The Penileum.



- FIG. V. Letter A. Shows the Membrane drawn over the Prepuce, which some have taken to be the Hymen or Virginal-skin.  
FIG. VI. Shows the Clitoris separated from the Prepuce.  
A. Triangulum of the Clitoris (including the Neck of a Man's Yard).  
B. The Fore-skin closed.  
C. The two Lips of the Clitoris cut off from the prepuce, and kept in the Foldings of the Pili-pipe.  
FIG. VII. The Clitoris cut slender aduax, in several young Subjects as appears.

Fig. 37. Table 28 from Bartholin's *Anatomy* in which the vagina (I) is shown with its wall open and folded back so as to emphasize its hollowness. The external pudenda are no longer represented to look like the foreskin of the penis, and the clitoris (VI and VII) is clearly rendered as the female penis. These images were stolen by Venette and reprinted in his *Art of Conjugal Love* and its many translations.

tion" and because it "hath somewhat like the nut and foreskin of a Man's Yard."<sup>51</sup> Clearly Bartholin was caught up in a way of looking that kept him tied to the images of one sex. Indeed, the more he looked, the more he saw and the more muddled the picture became for him, with not one but two female penises to accommodate.

It did not, moreover, escape Renaissance observers that Galen's topological inversions led to ludicrous results. Again, nothing followed. The one-sex model absorbed yet another category of simile. Jacques Duval, a prominent seventeenth-century physician, for example, tried Galen's thought experiment and concluded quite rightly that "If you imagine the

vulva (*vulve*) completely turned inside out . . . you will have to envisage a large-mouthed bottle hanging from a woman, a bottle whose mouth rather than base would be attached to the body."<sup>52</sup>

This bottle then "would bear no resemblance to what you had set out to imagine." To some, however, a bottle shaped like the vagina and womb hanging by its mouth *did* resemble a penis or scrotum enough to serve as the basis for a descriptive metaphor. William Harvey, discoverer of the blood's circulation, described a prolapsed uterus as "so rough and wrinkled as to take on the appearance of scrotum"; it hangs down, he said a few paragraphs later, "like the scrotum of a bull."<sup>53</sup>

Rabelais, in describing how Gargantua was dressed, also elided the distinction between the womb or, as in George Gascoigne's verse quoted below, a childbearing cradle, on the one hand, and the codpiece containing the penis and scrotum on the other.<sup>54</sup> True, the orange-sized emeralds on Gargantua's codpiece are said to be appropriate because "this fruit has an erective virtue." But then the pouch begins to appear as a finely embroidered and bejeweled horn of plenty, like that given by Rhea to the nymphs who nursed Jupiter. It is, the narrator says, while promising more in his forthcoming *On the Dignity of Codpieces*, "always brave, sappy, and moist, always green, always flourishing, always fructifying, full of humours, full of flowers, full of fruit, full of every delight."<sup>55</sup> The codpiece seems, in short, to have been transformed into the womb, which is not so odd given the ancient notion of the uterus as a belly and the late medieval sense of cod as a belly or bag. (Chaucer's Pardoner in *The Canterbury Tales* proclaims: "O wombe! O bely! O stynkyng cod.")

Moreover, the womb that to Duval seemed like a bottle hanging by its neck, and thus not a good candidate for the penis inverted, is the precise form of the codpiece, an obvious phallic sign in clothing whose visual representations are at the same time often decidedly unphallic (figs. 38–39). The codpiece tended to be, like Duval's bottle, broader at the end than at the base, blunt not sharp, decorated with ribbonlike braids. In the portrait of an unknown young aristocrat (fig. 40), it remains ambiguous whether the flower of betrothal he holds is an allusion to the hoped-for generative power of his penis or of the uterine structure in which it is coddled.<sup>56</sup> The codpiece indeed seems to bear a remarkable resemblance not just to a prolapsed uterus but to a swaddled child.

And this of course completes the circle back to Galen, to the womb as





Figs. 38–39. Jacobo Pontormo, *Albadiere* (1529–30). The codpiece in these pictures (close up on right) very much resembles Jacques Duval's bottle.



Fig. 40. Detail of *Portrait of a Young Man Before a Broad Landscape*, anonymous German painting of the 1530s, in which the codpiece is a sort of bundle for the penis. The boy holds the flower in his right hand; the bloom is to the right of his penis in the picture.

unborn penis, and to the Renaissance trope to the male organ as infant. Here is Gascoigne's "The Lullaby of a Lover":

Eke Lullaby my loving boye,  
My little Robyn take thy rest . . .  
With lullaby now take your leave,  
With Lullaby your dreams deceive,  
And when you rise with waking eye,  
Remember then this Lullaby.<sup>57</sup>

Duval's argument thus turns in on itself and in a curious way makes the case against which it was directed. Seeing opposition in organs before the eighteenth century was far more problematic than would seem possible later.

*The language of difference and sameness.* I want to shift now from images to words. The absence of a precise anatomical nomenclature for the female genitals, and for the reproductive system generally, is the linguistic equivalent of the propensity to *see* the female body *as* a version of the male. Both testify not to the blindness, inattention, or muddleheadedness of Renaissance anatomists, but to the absence of an imperative to create incommensurable categories of biological male and female through images or words. Language constrained the seeing of opposites and sustained the male body as the canonical human form. And, conversely, the fact that one saw only one sex made even words for female parts ultimately refer to male organs. There was in an important sense no female reproductive anatomy, and hence modern terms that refer to it—vagina, uterus, vulva, labia, Fallopian tubes, clitoris—cannot quite find their Renaissance equivalents. (I think anatomy, more than physics, provides the paradigmatic case of Thomas Kuhn's argument that one cannot translate between theories across the chasm of revolution.)

There has, of course, always been in most languages a vast metaphoric elaboration of terms for organs and functions that are risqué or shameful. (When adolescent boys talk today about "getting a piece of ass," they are not referring to the anus.) Until the late seventeenth century, however, it is often impossible to determine, in medical texts, to which part of the female reproductive anatomy a particular term applies.<sup>58</sup>

"It does not matter," says Columbus with more insight than he was perhaps aware of, "whether you call it [the womb] matrix, uterus, or vulva."<sup>59</sup> And it does not seem to matter where one part stops and the other starts. He does want to distinguish the true cervix—the "mouth of the womb (*os matricis*)," which from the outside "offers to your eyes . . . the image of a tenchfish or a dog newly brought to light," which in intercourse is "dilated with extreme pleasure," and which is "open during that time in which the woman emits seed"—from what we would call the vagina, "that part into which the penis (*mentula*) is inserted, *as it were*, into a sheath (*vagina*)."<sup>60</sup> (Note the metaphoric use of "vagina," the standard Latin word for scabbard, which was otherwise never used for the

part to which it applies today.) But he offers no other term for “our” vagina, describes the labia minor as “protuberances (*processus*), emerging from the uterus near that opening which is called the mouth of the womb,” and calls the clitoris, whose erectile and erotogenic qualities he is in the process of extolling, “this same part of the uterus (*hanc eadem uteri partem*).”<sup>61</sup> The precision Columbus sought to introduce by calling the cervix the true “mouth of the womb” vanishes as the vaginal opening becomes the mouth of the womb and the clitoris one of its parts. The language simply did not exist, or need to exist, for distinguishing male from female organs. This same sort of tension is evident in other anatomists. Fallopius is anxious to differentiate the cervix proper from the vagina, but has no more specific name for it than “female pudenda,” a part of a general “hollow” (*sinus*). The Fallopian tubes, as he describes them, are not the tubes that convey eggs from the ovaries to the womb, but twin protuberances of sinews (*nervei*), which do penetrate the peritoneum, are hollow, and do not have an opening into the uterus. Fallopius remained committed to the male-centered system and, despite his revolutionary rhetoric, assumed the commonplace that “all parts that are in men are present in women.”<sup>62</sup> Indeed if they were not, women might not be human.

Gaspard Bauhin (1560–1624), professor of anatomy and botany in Basel, sought to clear up the nomenclature, but with equal lack of success. The drive to see all genital organs with reference to man is too deeply embedded in language. “Everything pertaining to the female genitalia is comprehended in the term ‘of nature’ (*phuseos*),” he declares, but then informs his readers that some ancient writers called the male genitalia *phuseos* as well. Among the words for the labia he cites is the Greek *mutotheila*, meaning snout, with its obvious phallic connection, or more explicitly translated, “penile lips.”<sup>63</sup> This in turn fits the usual conflation of labia with foreskin that goes back at least to the tenth-century Arabic writer who points out that the interior of the vagina—a curious description—“possesses prolongations of skin called the lips,” which are “the analogue of the prepuce in men and has as its function protection of the matrix against cold air.”<sup>64</sup> According to Mondino, the labia guard the “the neck of the womb” in the same way that “the skin of the prepuce guardeth the penis,” which is why “Haly Abbas calleth them *praputia matricis* [prepuce of the uterus, of the vagina?].”<sup>65</sup> Berengario simply uses the word *nymphae* to refer to both the foreskin of the penis and the fore-

skin of the vagina, the labia minora.<sup>66</sup> (And when a new female penis appears, the labia become its foreskin as well. So John Pechy, a popular English writer during the Restoration, describes the "wrinkled membranous production cloath the clitoris [not the vagina] like a foreskin."<sup>67</sup>)

Much of the controversy around who discovered the clitoris arises out of just such a blurring of metaphorical and linguistic boundaries, the consequence of a model of sexual difference in which unambiguous names for the female genitals do not matter. I will offer only one example here. When Thomas Vicary, writing in 1548 before Columbus published, reports that the vulva "hath in the middest a Lazartus pannicle, which is called in Latin *Tentigo*," the reference would seem to be unambiguous. Moreover, *tentigo* in early seventeenth-century English means "a tennesness or lust; an attack of priapism; an erection." There is even less question that the structure in question is the female penis, the clitoris. But when Vicary reports on the functions of this part, its "two utilities," he seems to be discussing an entirely different organ. There is no mention of pleasure. "The first [utility] is that by it goeth forth the urine, or else it should be shed throughout al the Vulva: The seconde is, that when a woman does set hir thies abroad, it altereth the ayre that commeth to the Matrix for to temper the heate." What the name led us to expect, a female penis, turn out to be a pair of workaday flaps, a dual-purpose female foreskin.<sup>68</sup> But whatever Vicary means, it is impossible to translate across the chasm that divides this world from ours.

A web of words, like the constellation of images discussed in the previous sections, was redolent with a theory of sexual difference and thus sustained the one-sex model against more general testing. There was in both texts and images a quality of obsessive insistence, a constant circling around, always back to the male as standard. An almost defensive quality suggests that the politics of gender off the page might well have engendered the textual insistence that there really were no women after all.

### The truth of the one-sex model

As I said, parts of the one-flesh model were in principle open to empirical verification and hence also to falsification. But it remained untested, not only for the reasons mentioned above but also because it was woven into a whole fabric of interpretation, clinical practice, and everyday experience

that protected it from exposure to what we would construe as contrary evidence.

*Orgasm and conception.* It is scarcely surprising that men and women should think that there was a phenomenological correlative to so awesome and mysterious a process as generation. (Orgasm remains even today linked to conception in the imaginations of many people.) On the other hand, counterevidence must have been readily at hand that women frequently conceived without it. For a number of reasons, however, the old view survived. Systematic evidence on the subject is very difficult to gather and, even if women had been asked, it is more than likely that they would have answered what tradition dictated. They would have misremembered the night of conception or misreported their feelings because it is all too easy to dismiss a nonorgasmic conception as an anomaly or, many months later, simply to have forgotten the circumstances of conception, especially when to do otherwise would have been to fly in the face of accepted wisdom. Experience, in short, is reported and remembered so as to be congruent with dominant paradigms.

On a more technical level, it was not difficult to refute, or push to the margins, unwelcome facts. Aristotle, for example, was easy game. His own dictum that "nature never makes anything without a purpose and never leaves out what is necessary" was routinely turned on him.<sup>69</sup> Since women have organs that resemble the male testicles, and since they obviously experience sexual orgasm—"ye shall observe the same delight and concussion as in males"—there seemed no reason to deny them as active a role in human generation as men. "Why should we suppose Nature, beyond her custome, should abound superfluidities and uselesse parts," asks the progressive Oxford physician Nathaniel Highmore rhetorically.<sup>70</sup> Or, as Lemnius put it in 1557, in a simile that would have resonance in an increasingly commercial society, a woman's womb is not simply "hired by men, as merchant ships are to be fraited by them." And even if—as he denied—female semen had no other purpose "but only to excite, move and stir the woman to pleasure," it would be immensely important because without the "vehement and ardent lust and appetite" for carnal union, neither man nor woman would follow God's injunction to multiply and be fruitful. Thus the fact that women had gonads like men, that they had sexual desires, that they generally produced fluid during intercourse, and presumably showed signs of "delight and concussion," all

confirmed the orgasm/conception link that Aristotle, at least in his philosophical persona, had sought to deny.<sup>71</sup>

To be sure, the fluid women produced did not look like the male ejaculate, but that was precisely what was to be expected. In the first place, a thing did not have to look like something else in order to be it, as in the bread and wine at communion. More prosaically, the Galenic model of hierarchically ordered sexes would have predicted differences in the quality of the two. Patriarchy itself was predicated on the fact that when, "by the labour and chafing of the testikles or stones," blood is turned into sperm, the man's would be "hote, white and thicke" while the woman's would be "thinner, colder, and feebler."<sup>72</sup>

The heat (orgasm) conception nexus was also deeply entwined in medical practice and theory generally. As we have seen, the one-flesh-model, and the role of orgasm in it, is represented in the bodily economy of fluids generally and redounds throughout the entire structure of Galenic-Hippocratic medicine. The experience of patients would have supported it, if only out of the universal tendency of people to believe in, even as they ridicule, the efficacy of their healers.

But heat, and orgasm specifically, was integral to the more mundane therapeutics of infertility, amenorrhea, and related conditions, not to speak of sexual dysfunctions whose physiological causes are the same as theirs. A physician, surgeon, midwife, wisewoman or other healer consulted regarding any of these, and especially barrenness, would immediately have suspected some caloric pathology. And since the statistical analysis of conception has evolved only very recently, and since doing nothing therapeutically has a remarkable chance of success in curing infertility, it seems probable that almost any advice Renaissance healers happened to give their patients regarding sexual heat and pleasure must have appeared to work often enough to confirm the model on which it was based.<sup>73</sup>

Even suspected anatomical defects might be regarded as damaging because of their effect on pleasure. If, as was thought, the generative body during coitus "shakes out" the semen, then irregularities in the actual physical contact between bodies would be among the first possibilities investigated by doctors in patients who consulted them for infertility.<sup>74</sup> If the penis fails to rub properly, either or both partners might fail to have an orgasm and hence to produce seed. Fallopius argues that a malformed foreskin needs to be corrected less for cosmetic reasons than because a penis without one is not "naturally lubricated"; "lubricity" is necessary

for sexual pleasure and "when the pleasure is greater, the woman emits seed and suitable material for the formation of the foetus and for the production of membranes."<sup>75</sup> No foreskin, less friction, no female orgasm, sterility. Too short a penis could have the same result for the same reason: inability to satisfy the woman. (Avicenna was the authority on this point.) And so too could an excessively large member by diminishing female pleasure, though one sixteenth-century German doctor is skeptical: "Perhaps you have not heard too many complaints about the penis being too long," he says; "I say unto you, the longer a weed grows, the better."<sup>76</sup>

But genital heat, from the rubbing genitals, was in fact construed as part of the larger caloric economy, just as semen was part of a more general traffic in fungible fluids. Thus the excess heat that was thought to cause nocturnal emissions or premature ejaculation might be assuaged by cutting back on spicy foods, suppressing "images of a desired woman," or not sleeping on one's back too long (because sleeping on one's back led to warmer kidneys, which increased the production of excrement generally and therefore also of semen).<sup>77</sup>

These were serious matters. In a society in which one in five children died before the age of one, and even prosperous families could consider themselves fortunate if they reproduced themselves, any waste of semen was a matter of the most poignant seriousness. A French physician tells of a man who came to see him in March 1694 because "whenever he was inclined to approach his wife, the emission followed the erection so fast, that he had no ability to penetrate. This hindered him from having children; and, as he had but one left, was afraid of being left without any at all." De la Motte prescribed cooling medicines and suggested that his patient abstain from wines, ragouts, and other heating foods. His condition improved, but his wife remained barren "though very young."<sup>78</sup>

The problem of too much heat in women was also part of any Renaissance differential diagnosis of the causes of infertility. Excessive desire; curly, dark, and plentiful hair (in men hair was a sign of virility, bravery, and of the vital heat that arose in adolescence and distinguished them finally from women); a short or absent menses (the hot body burned off the excess materials that in normal women were eliminated in the monthly courses), and so forth, all indicated a problem of excessive warmth that would burn up the seed. Cooling drugs were called for in these situations.<sup>79</sup>

Insufficient heat, however, loomed far larger in the literature than did its surplus. The absence of sexual desire in men, but with minor adjustments also in women, could be cured by rubbing the loins with calorific drugs or through lascivious talk; other drugs, coquetry, and more talk could cure a "defect of spirit," the inability to have an erection when desire itself was sufficient. In women, adversity and indisposition "to the pleasures of the lawful sheets," especially when accompanied by a slow pulse, little thirst, thin urine, "no pleasure and delight" during coition, scant pubic hair, and similar signs were diagnostically important indicators of excessive coolness in their testicles and thus of insufficient heat to concoct their seed. As Jacob Rueff put it in discussing the problem of frigidity, "the fruitfulness of man and wife may be hindered very much for want of desire to be acquainted with Venus."<sup>80</sup>

Desire then was a sign of warmth and orgasm a sign of its sufficiency to ensure "generation in the time of copulation." To produce sufficient heat in women, talk and teasing were regarded as a good beginning.<sup>81</sup> They "ought be prepared for sweet embraces with lascivious words mixed with lascivious kisses," because if "the man is quicke and the woman too slow, there is not a concourse of both seeds at the same instant as the rules of conception require."<sup>82</sup> (Men are invariably presumed to be more quickly aroused than women.) Ambroise Paré, the foremost surgeon of his day, opens his widely translated account of generation by emphasizing the importance of flirtation, caressing, and excitement. (The audience for his advice is clearly male.) In his account, men had literally to coax the seed out of women. When a husband comes into his wife's chamber, "he must entertain her with all kinde of dalliance, wanton behaviour, and allurements to venery." If he finds her "to be slow, and more cold, he must cherish, embrace, and tickle her"; he should "creepe" into the "field of nature," intermix "wanton kisses with wanton words and speeches," and caress her "secret parts and duges [nipples] until she is afire and "enflamed in venery." Rhythm and timing are all-important, he counsels, and if the two seeds are to come together, the man must be aware that his partner is not "all that quick in getting to that point" as he; and he must not leave the woman too soon after her orgasm "lest aire strike the open womb" and cool the seeds so recently sown.<sup>83</sup>

If all this failed, the Renaissance pharmacopoeia, like earlier compilations, was full of drugs that were thought to work either directly or by sympathetic magic. Paré recommended "fomenting her secret parts with



a decoction of hot herbes made with muscadine, or boiled in other good wine," or that civet or musk be rubbed into her vagina. Juniper and camomile, the heart of a male quail around the neck of a man and the heart of a female around the neck of a woman—presumably because of the lecherous character of birds generally and of quails in particular—ale hoof and pease straw, were all available to manipulate the one-sex body's heat.<sup>84</sup> Thus savin (juniper, readily available in gin) might be prescribed to allow an impotent man to have erections, to warm an infertile woman's genitals, and to produce an inhospitably warm womb in a Somerset prostitute who sought to end her pregnancy. The same goes for mugwort (wormwood or artemesia), calamin, spices like ginger or cinnamon, and concoctions made from various animal parts.<sup>85</sup>

A vast body of clinical practice and learning was thus bound up with heat, orgasm, and generation. It was and remains difficult to evaluate the efficacy of particular therapies, and it should not seem strange that the experiences of patients, unchallenged by modern survey techniques and statistical analysis, would confirm the notion that more intensely pleasurable intercourse was also more fecund.

*The fungibility of fluids.* The economy of fluids discussed in Chapter 2 was partly ideology—a way of talking about women as colder, less well-formed, and more protean than man—and partly a way of understanding the body generally as much less bounded and restrained than we would today. But it was also a way of organizing empirical observations, which strengthened it and the vision of sexual difference it formed.

To begin with, certain anatomical discoveries that improved upon Galenic anatomy actually seemed to confirm the basic physiology of the one-sex model, though no one would have thought such testing necessary. Vesalius, for example, correctly noted that, contrary to Galen, what we would call the left ovarian and testicular veins take their origin not from the vena cava but from the left renal vein (fig. 41). From this he concluded that while the right vein may "carry the pure blood to the testis," the left one, coming as it did from nearer the kidney, might specialize in carrying a more watery, serous blood whose "salty and acrid quality may bring about an itching for the emission of the semen." What was thought to be a significant correction of Galen thus fitted nicely with the thoroughly Galenic notion of genital puritus, of sexual feeling being at least in part the result of the corrosive qualities of certain body fluids.<sup>86</sup>

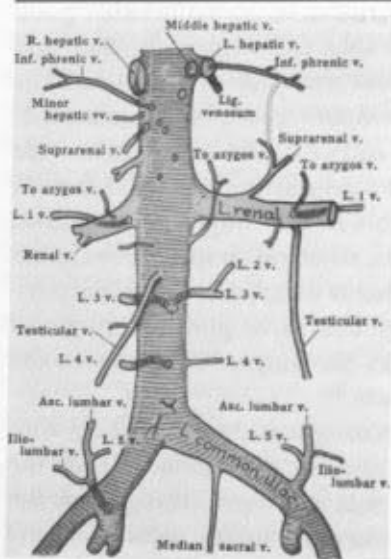


Fig. 41. This shows the left testicular vein, called the ovarian vein in women, coming off the left renal vein and not from the vena cava, the trunk running down the center of the picture.

Conversely, a finding that might have militated against the economy of fluids in the one-sex body—for example, the discovery, known already to Leonardo, that the epigastric vessels going to the breast did not originate from the uterine vessels and that therefore blood from the womb might not be so easily converted to milk and vice versa—was easily ignored. A novel bit of plumbing paled in the face of clinical and folk wisdom stretching back to Hippocrates and of the whole macrocosmic order of which such wisdom was a part.<sup>87</sup> “And is it not the same blood, which, having been in the womb, is now in the breasts, whitened by the vital spirit through its natural warmth?” Laurent Joubert, one of the great medical popularizers of the sixteenth century, asks rhetorically. Of course. It was common knowledge that women who were lactating usually did not menstruate, and, as Joubert said, women who had excessive menstrual flows (evidence for lots of surplus material) were also likely to have a great deal of milk once the flow stopped. (This discussion is in the context of a self-conscious effort to bring observation to bear on questions of natural history so as to get the answers right. Joubert, for example, denies the claim, made by Paré, that excess menstrual blood can produce birthmarks.<sup>88</sup>)

Doctors continued to write as if the actual vascular pathways simply did not matter. New clinical observations seemed to confirm the view that menstruation was simply a way of ridding the body of excess and not something specific to a female organ or single route. So one doctor offered a case-by-case list of all the places and various forms blood went when it could not go out its usual place: in a Saxon woman it came from her eyes; in a nun through her ears; a woman from Stuttgart got rid of stuff by vomiting; a slave through her spittle; a woman from Trent through her bellybutton; in others from the breasts; and finally (even he thinks it "most amazing") through the index and little fingers of one Monica.<sup>89</sup> Christopher Wirsung, a popular German writer, argued that the menstrual flow took three separate pathways during pregnancy, even if he did not know precisely how the body effected this division: the most refined and tender was reserved for the fetus, the middle grade went "by various veins to the breasts" to be made into milk, and the coarsest remained behind to be discharged when the child is born. The route from womb to breast is clearly less relevant than the poetics of milk and blood. Someone as thoroughly up to date as the English anatomist Helkiah Crooke, who must have known that there were no connections between the vessels of the uterus and those of the chest, nevertheless argued that the breasts were uniquely well situated to "alter and labor" blood into milk because of their proximity to the heart, the "shop of heate."<sup>90</sup> So even if anatomy did not support the blood/milk nexus, conceptions of the heart as the body's furnace did.

Observations on the periphery of western civilization and under pathological conditions did seem to provide direct new evidence for the interconvertibility of fluids and the underlying identity, between and among men and women, of various forms of bleeding. Brazilian Indian women "never have their flowers," writes a seventeenth-century English compiler of ethnographic curiosities, because "maids of twelve years old have their sides cut by their mothers, from the armpit down unto the knee [and] some conjecture that they prevent their monthly flux in this manner." Joubert likewise thought that Brazilian women "never menstruate, no more than do female animals," while Nicholas Culpepper, the indefatigable seventeenth-century English writer and publisher, uses the fact that at least some "never have any flowers" but nevertheless are fertile as evidence for the general claim that hot women can conceive even if they do not menstruate.<sup>91</sup>

Conversely, in the one-sex fluid economy, strange or feminine men might lactate. Hieronymus Cardanus, court physician to the king of Denmark, says on the basis of travelers' accounts that in some places "almost all the men have great quantity of milk in their breasts."<sup>92</sup> (An Italian commentator cites one of Cardanus' nearer-to-home cases: "Antonio Benzo, age 34, pale, fat and scarcely bearded, had so much milk in his breasts that he could feed a baby."<sup>93</sup>) Men, if they were "of a cold, moist, and feminine complexion," were quite likely to have milk in their breasts thought an English doctor, a view shared by Joubert, who adds that such men are to be found primarily in the east. He gives, in addition to the evidence in Aristotle, the example of a Syrian count who nourished his child for more than six months.<sup>94</sup>

This is not to say that a metaphorically lactating Christ, whose blood nourishes his church as Mary's milk had nourished him, or an infant Jesus depicted with female breasts ready to spurt milk, are to be interpreted as more ethnographic examples of the sort just cited. But they do suggest that, in the world of one sex, the body was far less fixed and far less constrained by categories of biological difference than it came to be after the eighteenth century. The boundary between a more motherly, more feminine Christ lactating in religious imagery and men with milk in prosaic ethnography and clinical reports is by no means clear.<sup>95</sup>

Obviously the cases of amenorrhea among Indians or the more bizarre reports of lactating men need not be interpreted as confirmation of the economy of fungible fluids. The absence of the menses during lactation would today be attributed to hormonal changes and not to the conversion of surplus blood to milk. It will therefore take a certain leap of the imagination to understand how Renaissance doctors and midwives interpreted a large body of clinical material as confirmation of a very different theoretical understanding of the body. But they did; what we would imagine as distinct, sexually specific, fluids were metaphorically conflated in the one-sex model. The "irregularity" (*Gebrechen*) that "women call white stuff and doctors *menstrua alba*" was understood by a sixteenth-century German physician, for example, not as an abnormal vaginal discharge but as a fluid that "has much in common with the flow of male semen" and that arose when disordered heat, excess warmth or cold, turned the menses into something like "the male semen."<sup>96</sup> (The German word for regularity or law, *Regel*, which is being broken in this case is also the word for menses.)

Similarly, discharges of blood by men, occurring naturally or through phlebotomy, were interpreted not as simple instances of bleeding but as a male substitute menses in what was merely a contingently gendered economy of fluids. Men were routinely bled, usually in the spring—more often for those who exercised little—to get rid of a plethora that in women would be lost every month. Well into the eighteenth century, certain pathological bleeding in men was still likened to menstruation. Albrecht von Haller thought nosebleeds got rid of extra blood in some pubescent boys which in girls found “a more easy vent downward,” and Hermann Boerhaave reported the case of a “certain merchant here at Leyden, a Man of Probity, who discharges a larger Quantity of Blood every month by the hemorrhoidal arteries than is discharged from the Uterus of the most healthy woman.”<sup>97</sup> (This association goes back at least to Aristotle.)

Indeed, the whole matrix of medical practice connected the physiology of fluids, orgasm, conception, and heat. Cold men, less desirous, less potent, and less fecund, were more likely to suffer menstrual-like bleeding and a whole host of mental and physical ails as well; cold women were thought more likely to suffer retention of the seed or of surplus blood, amenorrhea, which in turn might have a variety of clinical sequels: depression, heaviness of limb, barrenness, green sickness, hysteria. Calorific drugs, a midwife rubbing the genitals (in the case of women), or the ardors of coition itself could warm up the cool and clammy body to normality and restore its fluid balance. The issue was warmth.

Renaissance audiences would have taken as physiologically unremarkable the case of one girl, in Robert Burton's *Anatomy of Melancholy*, who was supposedly deranged by reason of a delayed menses and who, by some stroke of good fortune—from Burton's perspective—landed in a brothel where she lay with fifteen men in a single night. The experience cured her amenorrhea and restored her sanity. On the other hand, normal or even vicarious menstruation in women was interpreted as a sign of normal body heat and sexual receptivity. The knight in George Gascoigne's *Adventures of Master F. J.* has a terrible time wooing a lady until one day she gets a torrential nose bleed. When with his help her epistaxis resolves, he finally makes it into the lady's bed.

An entire clinical tradition thus embraced the testable parts of the one-flesh model. Specific discoveries and observations—that orgasm did not always accompany conception, that there were no direct routes between

uterus and breast, that the vaginal secretion of women did not look anything like the semen of men—could not, even taken together, shake ancient beliefs so deeply embedded in how men and women regarded and ministered to their bodies. And a variety of observations or putative observations, when interpreted within the constraints of the model, only confirmed its tenets.

### Bodies and metaphors

Although my next chapter will consider explicitly the extraordinarily fraught relationship between the social world of two genders and the one-sex body, I do not want to end this one without briefly exploring an alternative rhetoric of difference to the anatomy of isomorphisms and the physiology of fungible fluids I have been emphasizing, one that proclaims the *unique* qualities of a woman's body and the supposed role of these corporeal attributes in determining women's health and social standing. Dr. Rondibilis in chapter 32 of Rabelais' *Tiers livre de Pantagruel*, for example, says that nature has "placed in a secret and interior place" of women's bodies "an animal, an organ, that is not in men." The seventeenth-century midwife Louise Bourgeois leaves the problem of male infertility to male doctors but argues that specifically in women it is most frequently caused by wetness of the womb, that women would be as healthy in both body and spirit as men were it not for this organ, and more generally that God created its uniquely pathogenic qualities—its tendency to wander and cause hysteria, for example—so as to prevent envy between the sexes and to lead man to pity and love woman.<sup>98</sup> Moreover, there is an enormous literature that relates the cold, wet humors said to dominate women's bodies to their social qualities—deceptiveness, changeability, instability—while the hot, dry humors in men supposedly account for their honor, bravery, muscle tone, and general hardness of body and spirit.

*Both* ways of talking, of course, unambiguously proclaim difference. Both array sexual difference on a vertical axis of hierarchy. Both acknowledge the obvious: women have a womb and men do not. Both ways of talking, to paraphrase Ian Maclean on the Aristotelian logic of sexual opposition, refer at times to an opposition "of privation," at other times to an opposition of contraries that may or may not admit intermediaries,

and sometimes—I would say always—to other parts of a cognitive system, other “correlative opposites.”<sup>99</sup>

But these ways of talking also differ in two important respects. The first is rhetorical. The anatomists, physicians, and even midwives I have cited were writing to make their readers understand the body and its fluids in a particular way. They were articulating a set of representational or semiotic claims: that the womb must be *understood* as an interior penis, that menstruation must be *understood* as women ridding themselves of a plethora which the warmer, more active bodies of men consumed in the course of everyday life. These understandings were fraught with cultural significance, but they were not expounded primarily to make points about the corporeal foundations of the social order. On the other hand, certain midwifery and medical books, by authors who wished to emphasize their specialist knowledge, as well as a vast array of books about women, for and against, treated the body as if it contained the necessary and sufficient reasons for the medical problems and behavioral characteristics with which they were specifically concerned.

The second difference (but at the same time affinity) has to do with how these two Renaissance discourses construed the body in relation to its cultural meanings. In neither is the ranking of the sexes on the great chain of being just metaphorical—nothing in this cultural system is *just* metaphor—but it is not just corporeal either. The one-flesh discourse I have been explicating seems to regard organs and the qualities of bodies generally as ways of expressing hierarchy, as elements in a network of meaning. On the other hand, the discourse on female uniqueness seems to be postulating an almost modern reductionist theory of corporeal causation, even if it does not carry the notion of incommensurable corporeal opposition as far as would post-Enlightenment writers. Yet, and this is the critical point, the metaphorical and the corporeal are so bound up with one another that the difference between the two is really one of emphasis rather than kind.

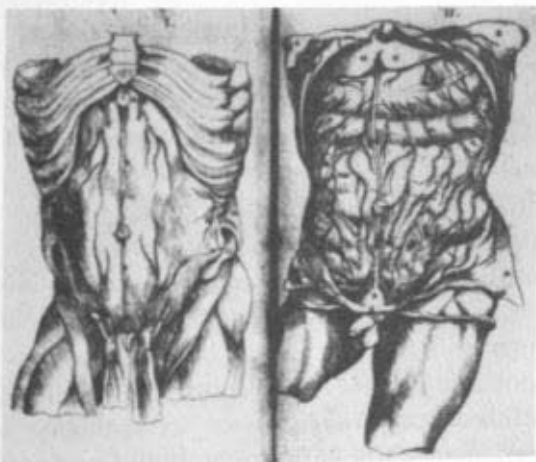
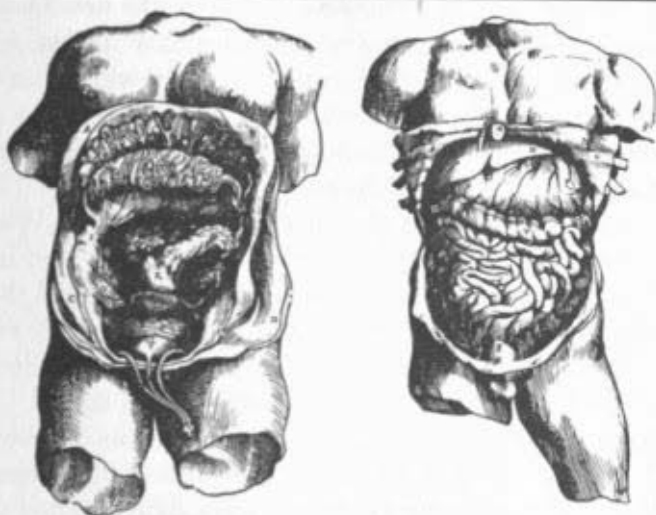
Even an apparently straightforward claim about the body like the one that Rabelais puts in the mouth of Dr. Rondibilis turns in on itself and becomes about something else as well: the womb comes once again to sound like a penis. Only women have a womb, Rondibilis says, with no hint of literary shiftiness. But the womb is “an animal,” he continues, a move to metaphor and an allusion to *Timaeus* (91b-d), where Plato refers

to *both* the male and female genital organs as animals prone to wander unless they are satisfied.<sup>100</sup> And then, in the usual Renaissance manner of piling on similes, this organ, the womb, which is said not to exist in man, becomes "un membre," a term that can of course mean simply an organ but that referred more specifically in the sixteenth century to an appendage—an arm or leg—or when used alone, as in "his member," to the penis. There was no sense in which *membre* ever referred to "her member."<sup>101</sup> The point here is not that Rondibilis is making a controversial claim in saying that only women have a womb; no one denied this. It is rather that once again a female organ is attracted into the metaphorical orbit of the male, not in order to make a claim about likeness but to assert that all difference is figured on the vertical scale of man.

It is also precisely in those contexts in which the womb seems most solidly the organic source of disease, as in the argument that hysteria is caused by a wandering womb, that it becomes most profoundly bound up with extracorporeal meaning. Even in classical writings it is difficult to comprehend the purchase of the claim that the womb wanders and *causes* hysteria. Herophilus in the third century B.C. discovered the uterine ligaments, and Galen merely repeated old arguments when he said that "those who are experienced in anatomy" would recognize the absurdity of a moving womb: "totally preposterous."<sup>102</sup> Someone must have believed literally in a rampant uterus—a folk belief perhaps—or the doctors would not have felt it necessary to keep attacking the view, and the prevalent fumigation therapies suggest that their adherents subscribed to this literal interpretation. But by the sixteenth century there was manifestly no place in the body for the womb to move to.

The new anatomy, and more specifically the widespread distribution of anatomical illustrations (such as figs. 42–44) well beyond the bounds of the learned community to midwives, barber surgeons, and laypeople, showed that not only was the uterus kept more or less in place by very broad ligaments but that the space between it and the throat was full of other organs and divided by thick membranes. Galen had already pointed out that the peritoneum covered the bladder and the uterus, but now this fact was there for anyone to see, splendidly displayed in the usual, slightly ruined classical torso.<sup>103</sup> The new anatomy thus made literal interpretation of a wandering womb impossible; but it did not produce a modern rhetoric of disease. Like Paracelsian iatro-chemistry, which seems to be





Figs. 42-44. Fig. 42, top left, shows the female torso from which the vagina in fig. 20 was removed. Vesalius tells us that the attachments of the uterus are in place but that he has removed the abdominal wall and intestines to present this view. Fig. 43 shows a male torso, a few pages before this one, opened to show the intestines still in place. Clearly this figure was meant to be applicable to women. Two still earlier plates from the *Fabrica* (fig. 44, bottom row) showing the abdominal wall of a male torso still in place were combined and used as the opening and illustration of a leading sixteenth- and seventeenth-century midwifery manual by Raynald, *The Byrth of Mankind* (1545).

but is not a version of modern medical chemistry, the new anatomy lures us into thinking that Renaissance writers must have spoken of organs as we do, which they did not. Whatever they were debating when they pondered whether the womb wandered, it was not a discussion about the actual travels of an organ from its ligamentary anchor below, up through a foot and a half of densely packed body parts.

By the eighteenth century, this was perfectly evident. When Tobias Smollett, author of *Humphrey Clinker* as well as a surgeon and ghost-writer of Smellie's famous treatise on midwifery, ridiculed the English midwife Elizabeth Nihell for citing Plato's wandering womb, Mrs. Nihell countered that *of course* she had meant it only figuratively. Smollett, she said, had quoted her out of context to make her look bad.<sup>104</sup>

Though less intractable, difficulties of translation also arise when interpreting the humors. Doctors as well as laypeople in the Renaissance believed that the humorial balances of the sexes differed along the axis of hot and cold, wet and dry, that such differences had implications for anatomy as well as for behavior, and that humorial imbalance caused disease. They spoke as if there were warm or cold qualities somewhere in the body whose presence was made known by observable features; skin color, hair, temperament. On the other hand, no one believed that a quantifiable amount of some humor caused someone to be male or female. There were thought to be hot, hirsute viragos and effeminate, cold and hairless men, colder than exceptionally hot women. The claim was rather that men as a species were hotter and drier than women as a species. Nor was it claimed that one could actually feel the wetness or the coldness that distinguished women from men or that, on occasion, caused female complaints.<sup>105</sup> The humors were not like organs and did not play the parts organs would play in eighteenth-century nosology or social theory. Though humors were "more real" than a wandering womb and were certainly not "just metaphors" or ways of talking, they were not just corporeal attributes either.

Perhaps the most telling feature of both ways of talking about sex in the Renaissance, however, is the extent to which all talk about sex is determined contextually. In the same texts from which women are excluded and denied both separate existence and subjectivity, they enter as subjects. There they are, where most egregiously absent. Consider again Columbus' discovery of the clitoris, this time with the Latin text:

Hanc eadem uteri partem dum venerem appetunt mulieres et tanquam oestro percitae, virum appetunt, ad libidinem concitae: si attinges, duriusculam et oblongam comperies . . .

If you touch that part of the uterus while women are eager for sex and very excited as if in a frenzy, and aroused to lust they are eager for a man, you will find it rendered a little harder and oblong . . .

If "you" (man) touch a certain part of a woman, "you" will find it harder. Women, in one of the few instances in which they are made the grammatical subject, are literally surrounded in the temporal clause by desire, *her* desire. *Appetunt*, "are eager for," is repeated, to flank *mulieres*, women; *percitae* and *concitae*, redundant predicate adjectives, attest further to *her* sexual arousal. But then the sentence takes an unexpected turn, and the scientifically objective, presumptively male reader is told that the part of the female anatomy in question will become hard and oblong if touched . . . making her semen flow "swifter than air."<sup>106</sup> Thus woman has entered as a separate, desiring being in what seems to be an all-male world.

This tension is everywhere, not only in the anatomy theater but at the Globe Theater, not only in medical texts but in the essays of Montaigne. The cultural politics of at least two genders is never in equilibrium with the "biology," or alternative cultural politics, of one sex. We shall see that context determines sex in the world of two sexes as well.

## F I V E

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# Discovery of the Sexes

The bicycle's triumph . . . necessitates an androgynous outfit worn by its adepts of the weaker sex . . . Will we never make our skirted publishers and sociologists in dresses understand that a woman is neither equal nor inferior nor superior to a man, that she is a being apart, another thing, endowed with other functions by nature than the man with whom she has no business competing in public life? A woman exists only through her ovaries.

VICTOR JOZÉ, 1895

Sometime in the eighteenth century, sex as we know it was invented. The reproductive organs went from being paradigmatic sites for displaying hierarchy, resonant throughout the cosmos, to being the foundation of incommensurable difference: "women owe their manner of being to their organs of generation, and especially to the uterus," as one eighteenth-century physician put it.<sup>1</sup> Here was not only an explicit repudiation of the old isomorphisms but also, and more important, a rejection of the idea that nuanced differences between organs, fluids, and physiological processes mirrored a transcendental order of perfection. Aristotle and Galen were simply mistaken in holding that female organs are a lesser form of the male's and by implication that woman is a lesser man. A woman is a woman, proclaimed the "moral anthropologist" Moreau in one of the many new efforts to derive culture from the body, everywhere and in all things, moral and physical, not just in one set of organs.<sup>2</sup>

Organs that had shared a name—ovaries and testicles—were now linguistically distinguished. Organs that had not been distinguished by a name of their own—the vagina, for example—were given one. Structures that had been thought common to man and woman—the skeleton and the nervous system—were differentiated so as to correspond to the cul-

tural male and female. As the natural body itself became the gold standard of social discourse, the bodies of women—the perennial other—thus became the battleground for redefining the ancient, intimate, fundamental social relation: that of woman to man. Women's bodies in their corporeal, scientifically accessible concreteness, in the very nature of their bones, nerves, and, most important, reproductive organs, came to bear an enormous new weight of meaning. Two sexes, in other words, were invented as a new foundation for gender.

Woman's purported passionlessness was one of the many possible manifestations of this newly created sex. Female orgasm, which had been the body's signal of successful generation, was banished to the borderlands of physiology, a signifier without a signified. Previously unquestioned, the routine orgasmic culmination of intercourse became a major topic of debate. The assertion that women were passionless; or alternatively the proposition that, as biologically defined beings, they possessed to an extraordinary degree, far more than men, the capacity to control the bestial, irrational, and potentially destructive fury of sexual pleasure; and indeed the novel inquiry into the nature and quality of female pleasure and sexual allurements—all were part of a grand effort to discover the anatomical and physiological characteristics that distinguished men from women. Orgasm became a player in the game of new sexual differences.

This did not happen all at once, nor did it happen everywhere at the same time, nor was it a permanent shift. When in the 1740s the young Princess Maria Theresa was worried that she had not immediately become pregnant after her marriage to the future Hapsburg emperor, her physician responded with advice that was no different from what Soranus might have offered a Roman matron: "Ceterum censeo vulvam Sanctissimae Majestatis ante coitum esse titillandum" (Moreover, I think the vulva of Her Most Holy Majesty should be titillated before intercourse.) She bore more than a dozen children.<sup>3</sup> Physicians in the nineteenth and early twentieth centuries could offer little more, and even today doctors disabuse patients of beliefs as old as Hippocrates:

Dear Dr. Donohue: I am ashamed to ask my doctor: Do you only get pregnant when you have an orgasm?

*Answer:* Pregnancy results when sperm meets and fertilizes an egg. Orgasm has nothing to do with it.<sup>4</sup>

As for the one-sex model, it too lived on. In the eighteenth and nineteenth centuries, books like *Aristotle's Masterpiece* and Nicholas Venette's

*The Art of Conjugal Love*, or to a lesser extent the Pseudo-Albertus Magnus' *Secrets of Women*, transmitted Galenic learning to hundreds of thousands of lay readers, whatever their doctors might have thought. And in a variety of contexts, physicians themselves also spoke in the language of the one-sex model (such as those who feared that German women workers engaged in unfeminine occupations would become *Mannweiber*, male women).<sup>5</sup>

There are two explanations for how the two modern sexes as we imagine them were, and continue to be, invented: one is epistemological and the other is, broadly speaking, political.<sup>6</sup> The epistemological explanation in turn has at least two articulations. The first is part of the story in which fact comes to be more clearly distinguished from fiction, science from religion, reason from credulity. The body is the body is the body, said a new group of self-appointed experts with ever more authority, and there are only certain things it can do. Lactating monks, women who never ate and exuded sweet fragrance, sex changes at the whim of the imagination, bodies in paradise without sexual difference, monstrous births, women who bore rabbits, and so on, were the stuff of fanaticism and superstition even if they were not so far beyond the bounds of reason as to be unimaginable. Skepticism was not created in the eighteenth century, but the divide between the possible and the impossible, between body and spirit, between truth and falsehood, and thus between biological sex and theatrical gender, was greatly sharpened.

The second part of the epistemological explanation is essentially the one given by Foucault: the episteme "in which signs and similitudes were wrapped around one another in an endless spiral," in which "the relation of microcosm to macrocosm should be conceived as both the guarantee of that knowledge and the limit of its expansion," ended sometime in the late seventeenth century.<sup>7</sup> All the complex ways in which resemblances among bodies, and between bodies and the cosmos, confirmed a hierarchic world order were reduced to a single plane: nature. In the world of reductionist explanation, what mattered was the flat, horizontal, immovable foundation of physical fact: sex.

Or, put differently, the cultural work that had in the one-flesh model been done by gender devolved now onto sex. Aristotle did not need the facts of sexual difference to support the claim that woman was a lesser being than man; it followed from the *a priori* truth that the material cause is inferior to the efficient cause. Of course males and females were in daily life identified by their corporeal characteristics, but the assertion that in

generation the male was the efficient and the female the material cause was, in principle, not physically demonstrable; it was itself a restatement of what it *meant* to be male or female. The specific nature of the ovaries or the uterus was thus only incidental to defining sexual difference. By the eighteenth century, this was no longer the case. The womb, which had been a sort of negative phallus, became the uterus—an organ whose fibers, nerves, and vasculature provided a naturalistic explanation and justification for the social status of women.

The context for the articulation of two incommensurable sexes was, however, neither a theory of knowledge nor advances in scientific knowledge. The context was politics. There were endless new struggles for power and position in the enormously enlarged public sphere of the eighteenth and particularly the postrevolutionary nineteenth centuries: between and among men and women; between and among feminists and antifeminists. When, for many reasons, a preexisting transcendental order or time-immemorial custom became a less and less plausible justification for social relations, the battleground of gender roles shifted to nature, to biological sex. Distinct sexual anatomy was adduced to support or deny all manner of claims in a variety of specific social, economic, political, cultural, or erotic contexts. (The desire of male for female and female for male was natural—hence the new slogan “opposites attract”—or it was not.) Whatever the issue, the body became decisive.

But no one account of sexual difference triumphed. It may well be the case that almost as many people believed that women by nature were equal in passion to men as believed the opposite.<sup>8</sup> We simply do not know how many people believed, with the eighteenth-century moral anthropologist Pierre Roussel and the nineteenth-century English feminist Elizabeth Wolstenholme, that menstruation was a contingent pathology of civilization and how many believed the opposite, that menstruation showed the power of the uterus over women's lives and hence was a natural foundation for gender difference.<sup>9</sup> For everyone who thought that women of color were especially responsive sexually because of the structure of their genitalia, someone else thought that their coarse nervous systems and dry mucous membranes resulted in a “want of genital sensitivity.”<sup>10</sup>

Studies of the micropolitics of these alternative accounts would be rewarding, but we should not lose sight of the fact that the very terms of the debates are new: difference that had been expressed with reference to

gender now came to be expressed with reference to sex, to biology. There were no books written before the late seventeenth century with titles like *De la femme sous ses rapports physiologiques, moraux et littéraires* or *De la puberté . . . chez la femme, au point de vue physiologie, hygiénique et medical* that argued so explicitly for the biological foundations of the moral order. There were hundreds if not thousands of such works in which sexual differences were articulated in the centuries that followed.

Scientists did far more than offer neutral data to ideologues. They lent their prestige to the whole enterprise; they discovered or bore witness to aspects of sexual difference that had been ignored. Moreover, the politics of gender very clearly affected not only the interpretation of clinical and laboratory data but also its production.<sup>20</sup> On the other hand, a number of new research traditions did produce considerable knowledge about the developmental and mature anatomy of the male and female body, about the nature of ovulation and the production of sperm, about conception, menstruation, and in the 1920s and 1930s the hormonal control of reproduction generally. By the early decades of this century, the power of science to predict and effect successful mating in humans and animals was considerably enhanced. In short, reproductive biology progressed in its understanding of sex and was not merely an "immature" enterprise that served competing social interests.

But my point here is that new knowledge about sex did not in any way entail the claims about sexual difference made in its name. No discovery or group of discoveries dictated the rise of a two-sex model, for precisely the same reasons that the anatomical discoveries of the Renaissance did not unseat the one-sex model: the nature of sexual difference is not susceptible to empirical testing. It is logically independent of biological facts because already embedded in the language of science, at least when applied to any culturally resonant construal of sexual difference, is the language of gender. In other words, all but the most circumscribed statements about sex are, from their inception, burdened with the cultural work done by these propositions. Despite the new epistemological status of nature as the bedrock of distinctions, and despite the accumulation of facts about sex, sexual difference in the centuries after the scientific revolution was no more stable than it had been before. Two incommensurable sexes were, and are, as much the products of culture as was, and is, the one-sex model.

In this chapter and the next I will primarily be making the negative



case that new scientific discoveries did not bring down the old model and enshrine the new. One sex, I want to emphasize again, did not die. But it met a powerful alternative: a biology of incommensurability in which the relationship between men and women was not inherently one of equality or inequality but rather of difference that required interpretation. Sex, in other words, replaced what we might call gender as a primary foundational category. Indeed, the framework in which the natural and the social could be clearly distinguished came into being.

### Biological sex

In the late seventeenth and eighteenth centuries, science fleshed out, in terms acceptable to the new epistemology, the categories "male" and "female" as opposite and incommensurable biological sexes. One can sense this in subtle turns of phrase. Buffon, the encyclopedic Enlightenment naturalist, translates back and forth as if he senses that he is on the cusp of a momentous transformation: the peculiar correspondence between the parts of generation and the rest of the body might be called (with the ancients) "sympathy" or (with the moderns) "an unknown relation in the action of nerves."<sup>11</sup> A notion of order and coherence is replaced by corporeal wiring.

More generally, by the end of the seventeenth century the various intellectual currents that made up the transformation of human understanding known as the scientific revolution—Baconianism, Cartesian mechanism, empiricist epistemology, Newtonian synthesis—had radically undermined the whole Galenic mode of comprehending the body in relation to the cosmos.<sup>12</sup> This meant the abandonment, among other things, of the anatomical isomorphisms between man and woman and also the purging from scientific language of the old metaphors that had linked reproduction to other bodily functions, to the natural world, and to the great chain of being itself. Generation could now less plausibly be seen in terms of rennin and cheese; iron and loadstone lost their resonance as metaphors for semen and womb. The penis as plowshare and the womb as field did not quite capture Enlightenment views of fruitful intercourse. Hoary images drawn from agriculture—the vagina as an organ "inwardly wrinkled, like the inner skin of the upper jaw of a cow's mouth"—disappeared from works intended for a self-consciously sophisticated audience.<sup>13</sup> Indeed the term "generation" itself, which suggested

the quotidian repetition of God's act of creation with all its attendant heat and light, gave way to the term "reproduction," which had less miraculous, more mechanistic connotations even if it did not quite capture the virtuosity of nature. As Fontanelle said, "Put a Dog Machine and a Bitch Machine side by side, and eventually a third little Machine will be the result, whereas two Watches will lie side by side all of their lives without ever producing a third Watch."<sup>14</sup> The importance in the eighteenth century of new theories of knowledge generally, and with respect to the body particularly, is a commonplace. Scientific race, for example—the notion that either by demonstrating the separate creation of various races (polygenesis) or by simply documenting difference, biology could account for differential status in the face of "natural equality"—developed at the same time and in response to the same sorts of pressures as scientific sex.<sup>15</sup> Claims of the sort that Negroes have stronger, coarser nerves than Europeans because they have smaller brains, and that these facts explain the inferiority of their culture, are parallel to those which held that the uterus naturally disposes women toward domesticity.<sup>16</sup> I want here simply to acknowledge that my particular story is part of what would be a more comprehensive history of exclusive biological categories in relation to culture.

Poullain de la Barre, one of the earliest writers in the new vein, illustrates the turn to biology when an old ordering of man and woman collapses. In his case the impetus to biology is twofold. In the first place de la Barre is committed to the Cartesian premise that the self is the thinking subject, the mind, and that it is radically not body. From this it follows that the mind, this decorporealized self, has no sex and indeed can have no sex. Gender, the social division between men and women, must therefore have its foundation in biology if it is to have any foundation at all. His version of Descartes' radical skepticism leads him to the same conclusion. He lists a number of views that the ignorant hold as unquestionable: that the sun moves around the earth; that traditional religion is true; that the inequality of man generally is evident in the "disparity of Estates and Conditions." And, "amongst these odd opinions," he writes, "there is not any mistake more Ancient, or Universal" than "the common Judgment which men make of the Difference of the two Sexes, and all that depends thereon"; ignorant and learned alike seem to think it "a paradox and piece of singularity" that woman might not be inferior to man in "capacity and worth."<sup>17</sup>

In other words, the usual views on sexual difference might simply be a mistake, like seeing a square tower as if it were round. It is not a Cartesian "clear and distinct" idea, as it would have been for Aristotle, but rather a question that can be decided on the same grounds as one judges whether the sun is the center of the solar system.<sup>18</sup> Given then that sexual difference is an empirical matter, even the most firmly held and seemingly secure views about women might turn out, upon further scrutiny, to be false. Moreover, de la Barre goes on, one can even demonstrate the precise, historically explicable causes of erroneous views: because the subject has been "but very lightly discoursed of"; because of "partiality"; because of the lack of "trial or examination." Once bias and superficiality have been dealt with, sexual difference is a question of biology that solely constitutes the category "sex." Specifically for de la Barre, the task is to demonstrate that the organic differences corresponding to the social categories of man and woman do not, or ought not to, matter in the public sphere. For others the project was quite the opposite. But whatever the political agenda, the strategy is the same: indeed, sex is everywhere precisely because the authority of gender has collapsed.<sup>19</sup>

Political theorists beginning with Hobbes had argued that there is no basis in nature, in divine law, or in a transcendent cosmic order for any specific sort of authority—of king over subject, of slaveholder over slave, or, it followed, of man over woman. For Hobbes, as for Locke, a person is essentially a sentient being, a sexless creature whose body is of no political relevance. Still, for both, males do end up being the head of households and nations. Men, not women, make the social contract. The reason for subordination, they want to hold, is not built into the world order; it does not arise from old-fashioned reasons like the superiority of spirit over matter or the historical dominance God granted Adam. Nor do they seem to want to attribute it to "mere nature," where a child would be more likely to obey its mother than its father. Instead it seems to have arisen in historical time as a consequence of a series of struggles that left women in the inferior position. Locke says simply that since "the last Determination, the Rule, should be placed somewhere, it naturally falls to the Man's share, *as the abler and the stronger.*"<sup>20</sup> In Hobbes it is much less clear, and one can only surmise that a woman's having a child puts her in a vulnerable situation, which allows the man to conquer her and her children and thereby create paternal rights by contract, by conquest in Hobbesian terms.<sup>21</sup> In any case he is adamant that paternal rights do

not, as in the old model, arise from generation. However problematic, the tendency of early contract theory is to make the subordination of women to men a result of the operation of the *facts* of sexual difference, of their utilitarian implications. What matters is the superior strength of men or, more important, the frequent incapacity of women because of their reproductive functions.<sup>22</sup> Bodies in these accounts are not the sign of but the foundation for civil society.

Rousseau, arguing against Hobbes, takes a similarly biological tack. Hobbes, he says, erred in using the struggle of male animals for access to females as evidence for the natural combativeness of the primitive human state. True, he concedes, there is bitter competition among beasts for the opportunity to mate, but this is because for much of the year females refuse the male advances. Suppose they were to make themselves available only two months out of every twelve: "it is as if the population of females had been reduced by five-sixths." But women have no such periods of abstinence—love is "never seasonal" among the human species—and they are thus not in short supply; even among savages there are no "fixed periods of heat and exclusion" that produce in animals such "terrible moment[s] of universal passion."<sup>23</sup> Reproductive physiology and the nature of the menstrual cycle bear an enormous weight here, as the state of nature is conceptualized in terms of the supposed differences in the sexual receptivity of women and beasts.

And, to give a final example, Tocqueville argued that in the United States democracy had destroyed the old basis for patriarchal authority and that it was necessary to trace anew and with great precision "two clearly distinct lines of action for the two sexes."<sup>24</sup> In short, wherever boundaries were threatened or new ones erected, newly discovered fundamental sexual differences provided the material.

Their provenance was science. In the late eighteenth century, anatomists for the first time produced detailed illustrations of an explicitly female skeleton to document the fact that sexual difference was more than skin deep. Where before there had been only one basic structure, now there were two.<sup>25</sup> The nervous system assured, in still another realm, that the body "would be an observable and internally consistent field of signs," that female sympathy would be the result of female fibers.<sup>26</sup>

Gradually the genitals whose position had marked a body's place on a teleologically male ladder came to be rendered so as to display incommensurable difference. We can, already by the late seventeenth century, trace

In other words, the usual views on sexual difference might simply be a mistake, like seeing a square tower as if it were round. It is not a Cartesian "clear and distinct" idea, as it would have been for Aristotle, but rather a question that can be decided on the same grounds as one judges whether the sun is the center of the solar system.<sup>18</sup> Given then that sexual difference is an empirical matter, even the most firmly held and seemingly secure views about women might turn out, upon further scrutiny, to be false. Moreover, de la Barre goes on, one can even demonstrate the precise, historically explicable causes of erroneous views: because the subject has been "but very lightly discoursed of"; because of "partiality"; because of the lack of "trial or examination." Once bias and superficiality have been dealt with, sexual difference is a question of biology that solely constitutes the category "sex." Specifically for de la Barre, the task is to demonstrate that the organic differences corresponding to the social categories of man and woman do not, or ought not to, matter in the public sphere. For others the project was quite the opposite. But whatever the political agenda, the strategy is the same: indeed, sex is everywhere precisely because the authority of gender has collapsed.<sup>19</sup>

Political theorists beginning with Hobbes had argued that there is no basis in nature, in divine law, or in a transcendent cosmic order for any specific sort of authority—of king over subject, of slaveholder over slave, or, it followed, of man over woman. For Hobbes, as for Locke, a person is essentially a sentient being, a sexless creature whose body is of no political relevance. Still, for both, males do end up being the head of households and nations. Men, not women, make the social contract. The reason for subordination, they want to hold, is not built into the world order; it does not arise from old-fashioned reasons like the superiority of spirit over matter or the historical dominance God granted Adam. Nor do they seem to want to attribute it to "mere nature," where a child would be more likely to obey its mother than its father. Instead it seems to have arisen in historical time as a consequence of a series of struggles that left women in the inferior position. Locke says simply that since "the last Determination, the Rule, should be placed somewhere, it naturally falls to the Man's share, *as the abler and the stronger.*"<sup>20</sup> In Hobbes it is much less clear, and one can only surmise that a woman's having a child puts her in a vulnerable situation, which allows the man to conquer her and her children and thereby create paternal rights by contract, by conquest in Hobbesian terms.<sup>21</sup> In any case he is adamant that paternal rights do

not, as in the old model, arise from generation. However problematic, the tendency of early contract theory is to make the subordination of women to men a result of the operation of the *facts* of sexual difference, of their utilitarian implications. What matters is the superior strength of men or, more important, the frequent incapacity of women because of their reproductive functions.<sup>22</sup> Bodies in these accounts are not the sign of but the foundation for civil society.

Rousseau, arguing against Hobbes, takes a similarly biological tack. Hobbes, he says, erred in using the struggle of male animals for access to females as evidence for the natural combativeness of the primitive human state. True, he concedes, there is bitter competition among beasts for the opportunity to mate, but this is because for much of the year females refuse the male advances. Suppose they were to make themselves available only two months out of every twelve: "it is as if the population of females had been reduced by five-sixths." But women have no such periods of abstinence—love is "never seasonal" among the human species—and they are thus not in short supply; even among savages there are no "fixed periods of heat and exclusion" that produce in animals such "terrible moment[s] of universal passion."<sup>23</sup> Reproductive physiology and the nature of the menstrual cycle bear an enormous weight here, as the state of nature is conceptualized in terms of the supposed differences in the sexual receptivity of women and beasts.

And, to give a final example, Tocqueville argued that in the United States democracy had destroyed the old basis for patriarchal authority and that it was necessary to trace anew and with great precision "two clearly distinct lines of action for the two sexes."<sup>24</sup> In short, wherever boundaries were threatened or new ones erected, newly discovered fundamental sexual differences provided the material.

Their provenance was science. In the late eighteenth century, anatomists for the first time produced detailed illustrations of an explicitly female skeleton to document the fact that sexual difference was more than skin deep. Where before there had been only one basic structure, now there were two.<sup>25</sup> The nervous system assured, in still another realm, that the body "would be an observable and internally consistent field of signs," that female sympathy would be the result of female fibers.<sup>26</sup>

Gradually the genitals whose position had marked a body's place on a teleologically male ladder came to be rendered so as to display incommensurable difference. We can, already by the late seventeenth century, trace



Fig. 51. The top drawing (I) shows a womb opened in relation to the "stones" and bladder. The lower drawing (II) shows the body of the uterus and the stones but, unlike earlier drawings, no vagina. From Bartholin, *Anatomy*.

the collapse of the old representations. Bartholin, who on occasion explicitly opposed the Galenic isomorphisms, produced in 1668 three separate drawings of the female genitalia: one that showed the whole generative system and pointedly left out the vagina and external pudenda; another that showed the womb open in relation to the "stones" (ovaries), again without a vagina; and finally one that showed the clitoris as a penis but rendered the vagina open so that it looked as little as possible like a penis (compare figs. 37 and 51). Even though these images belie the ancient construction of woman as an inferior, internalized man, their labels are still very much those of the old order: the "stones of woman" for the ovaries, the "deferent vessels" for the Fallopian tubes, the curiously metaphoric "sheath or scabbard of the womb" for what had been the neck of the womb and would become the vagina. Though the old representations were clearly no longer viable, genitals here were not yet doing the work of signification they would perform in the illustrations of the next century.

Just how shaky the new images still were is clear in the work of Regnier de Graaf (1641–1673). His discovery of the ovarian follicle provided the basis for much future discussion of sexual difference, but his illustrations of the female genitalia were more old-fashioned than Bartholin's. The



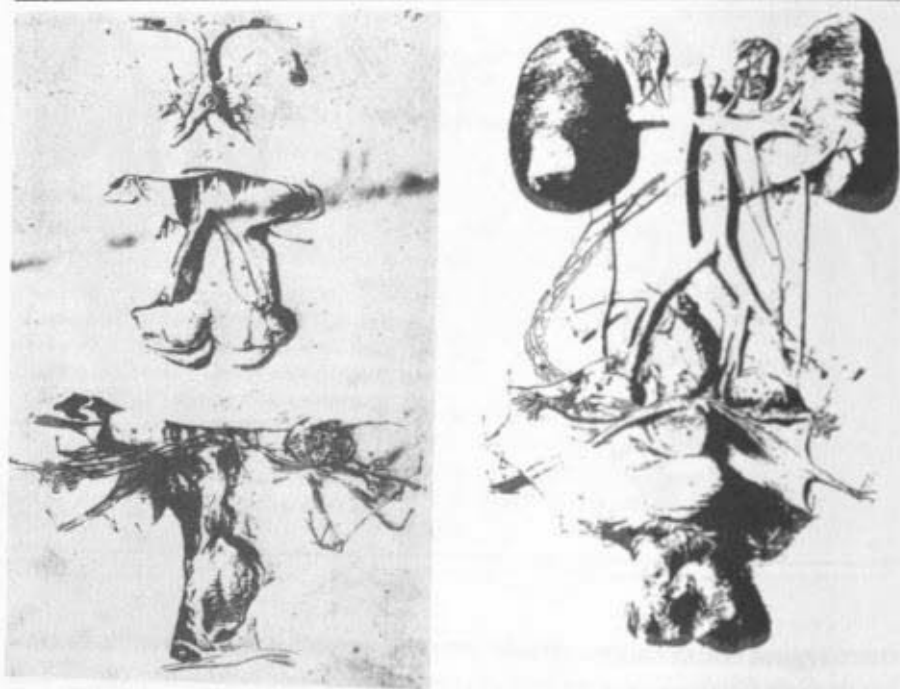
Fig. 52. The uterus, vagina, and ovaries—still labeled female testicles—from Regnier de Graaf, *De mulierum organis generationi inservientibus* (1672). If the vagina were not sectioned open, the picture would resemble earlier drawings produced to show the male and female organs as isomorphic.

entire vagina is still shown attached to the cervix, as in Renaissance texts, but de Graaf's depiction of the vagina opened just below the cervix and of the ovaries firmly attached to their ligaments tends to make the ensemble look considerably less penislike than its sixteenth- or early seventeenth-century counterparts (fig. 52).

By the late seventeenth century, the English anatomist William Cowper, like Bartholin, had separate drawings for the clitoris, for the pudendum and "fore part of the *vagina uteri*," and for the uterus, ovaries, and Fallopian tubes. The only hints of the old formula are that he includes part of the vagina, albeit "divided so as to show its rouge," in his image of the uterus (thereby detracting from the penis effect) and that he has not quite adopted what would become modern nomenclature (figs. 53–54).

Indeed, "vagina" or equivalent words (*schiede*, *vagin*) standing alone to designate the sheath or hollow organ into which its *opposite*, the penis, fits during coition and through which the young are delivered only entered the European vernaculars around 1700. Other genital nomenclature also became more specific and laden with meaning. In a pornographic fantasy-travel book published in 1683, for example, the author describes a female-shaped island that had power over its male inhabitants through its





Figs. 53-54. The various parts of the female reproductive system and external genitalia are disaggregated. The vagina is opened so that it does not have the penislike effect of the closed organ shown in Renaissance illustrations. The clitoris, left top, is shown separately, and no effort is made to render the external pudenda as a female foreskin as before. On the right the uterus is shown in relation to the kidneys and their vasculature; the vagina is not shown. From William Cowper, *The Anatomy of Humane Bodies* (1697).

“soyl” and “mould” but definitely not through its sexual parts. Only the pregnant belly and what must be the urethra—it is never named—get specific references. But by the 1740s this erotic island is replete with the obvious modern genital landmarks: “the two forts called Lba”; “a metropolis called Cltrs.”<sup>27</sup> Precisely during the intervening period, the hoary linguistic web in which words for womb and scrotum, penis and vagina, prepuce and vulva were entangled came unraveled. Whatever was there before, our forebears felt no need to name. Whatever came later is inseparable from the languages, largely scientific, through which it entered our subjectivity.

Organs that had been common to both sexes—the testicles—came as

a result of the discovery of sperm and egg to have each its own name and to stand in synecdochal relationship to its respective sex. Sometime in the eighteenth century "testicle" could stand alone to designate unambiguously the male gonad; it no longer carries the modifiers "masculine" or "feminine." "Ovary," not "female stones" or "testicle feminine," came to designate its female equivalent. Moreover, the overtly political language of some earlier anatomical descriptions—Zacchia's description of a *beneficium* of the clitoris as leading to a false diagnosis of hermaphroditism, for example—gave way to the more clinical, organ-centered language of nineteenth-century medicine: "spurious" hermaphroditism due to "abnormal development or magnitude of the clitoris" reads a heading in one early nineteenth-century encyclopedia.<sup>28</sup>

The new relationship between generation and sexual pleasure, and hence the biological possibility of a passionless female, also had its origins in the late eighteenth century. In the 1770s the famous experimentalist Lazzaro Spallanzani succeeded in artificially inseminating a water spaniel, which suggested that in a dog, at least, orgasm was not necessary for conception.<sup>29</sup> Syringes could not "communicate or meet with joy," as a Scottish doctor observed.<sup>30</sup> (The surgeon John Hunter had earlier used a similar instrument to introduce the semen of a patient who suffered from a urethral defect into the vagina of the man's wife. But since the procedure took place after intercourse and with semen that had been ejaculated at the usual time, if not place, the experiment proved little about the role of female orgasm in conception.<sup>31</sup>)

Pregnancy from rape provides the limiting case for a woman's conceiving without pleasure or desire. Samuel Farr, in the first legal-medicine text to be written in English (1785), argued that "without an excitation of lust, or enjoyment in the venereal act, no conception can probably take place."<sup>32</sup> Whatever a woman might claim to have felt or whatever resistance she might have put up, conception in itself betrayed desire or at least a sufficient measure of acquiescence for her to enjoy the venereal act. This is a very old argument. Soranus had said in second-century Rome that "if some women who were forced to have intercourse have conceived . . . the emotion of sexual appetite existed in them too, but was obscured by mental resolve," and no one before the second half of the eighteenth or early nineteenth century questioned the physiological basis of this judgment.<sup>33</sup> The 1756 edition of Burn's *Justice of the Peace*, the standard guide for English magistrates, cites authorities back to the *Institutes* of Justinian to

the effect that "a woman can not conceive unless she doth consent." It does, however, go on to point out that as a matter of law, if not of biology, this doctrine is dubious.<sup>34</sup> Another writer argued that pregnancy ought to be taken as proof of acquiescence since the fear, terror, an aversion that accompany a true rape would prevent an orgasm from occurring and thus make conception unlikely.<sup>35</sup>

In practice it is doubtful whether these views had much effect on courts of law.<sup>36</sup> To begin with, some legal authorities held that the maxim "it can be no rape, if woman conceive with child" seemed not to form a law.<sup>37</sup> Then, because of the difficulty in proving rape, and more generally the common law's leniency in matters of personal assault, only the most egregious and repugnant rapes ever came to trial: attacks on young girls or pregnant women, violations of mistresses by servants, cases in which venereal disease was transmitted or the victim mutilated.<sup>38</sup> In such instances the niceties of whether orgasm occurred were probably not relevant. Finally, the pregnancy defense was known not to be entirely reliable. One doctor argued in 1823 that conception was possible even when intercourse had been involuntary or with a man for whom the woman felt repugnance because both states may lead to "so high a tone of constitutional orgasm" as to make ovulation possible. The orgasm in question here—a turgescence of the reproductive organs—need not have been felt or desired for it to do its work.<sup>39</sup>

But by the 1820s the medical doctrines upon which legal definitions of rape were based had changed dramatically. The view that rape was incompatible with pregnancy was proclaimed in a much-cited text as "an extraordinary dictum of the ancient lawyers," a "vulgar idea, from which some ignorant persons might still infer that a woman had consented, because she was proven pregnant," thus adding unmerited stigma to the other burdens of the unfortunate victim of crime.<sup>40</sup> While the eighteenth-century edition of Burn quoted above was vague on the scientific question of whether conception ruled out rape, its nineteenth-century version stated unequivocally that the notion was absurd, that it would be surprising if "any whose education and intellect were superior to those of an old nurse" still believed it. Whatever the vulgar might have believed—and, as suggested earlier, ordinary people might very well have continued to subscribe in a deep, inarticulate way to old notions still widely circulating in books and gossip—the learned world firmly rejected the connection of female pleasure and conception. This does not mean that experts em-

braced the hypothesis, which remained controversial for another century, that women could ovulate independently of intercourse. The point is rather that women could experience the tension of sexual intercourse and even orgasm, in the nineteenth-century sense of the word as a turgescence or pressure, without any concomitant sensation. The ovarian system, in other words, could work not only without the influence of the conscious self but without any phenomenal sign. "Physical constraint . . . sufficient to induce the required state" was all the ovaries needed.<sup>41</sup>

Even in the late eighteenth century, some writers had said that there was no relationship between the erogenous qualities of the external female genitalia and the serious work that went on within. One argued that the "lascivious susceptibility" of the external organs was materially useless to generation; another noted the "organization of the vagina for the purpose of exciting titillation and pleasure" only to follow this observation with the non sequitur that "it can and does accommodate itself to whatever size is necessary closely to embrace the penis in the act of copulation."<sup>42</sup> A major obstetrics textbook remarked casually that it would not dwell on the clitoris and other external organs because they were irrelevant to midwifery.<sup>43</sup> So, even if doctors in these and many similar texts did not directly address the question of whether women had sexual feelings or experienced orgasm, they considered these sensations as contingent to the order of things. No longer necessary for conception, they became something that women might or might not have, something to be doggedly and inconclusively debated rather than, as had been the case for so long, taken for granted.

And we must not take for granted the terms in which science defined the new sexes. It claimed that the body provided a solid foundation, a causal locus, of the meaning of male or female. The trouble here lies not with the empirical truth or falsity of specific biological views but with the interpretive strategy itself. Sexual difference no more followed from anatomy after the scientific revolution than it did in the world of one sex.

### The aporia of biology

*The aesthetics of anatomical difference.* Anatomy, and nature as we know it more generally, is obviously not pure fact, unadulterated by thought or convention, but rather a richly complicated construction based not only on observation, and on a variety of social and cultural constraints on the

practice of science, but on an aesthetics of representation as well. Far from being the foundations for gender, the male and female bodies in eighteenth- and nineteenth-century anatomy books are themselves artifacts whose production is part of the history of their epoch.

This is not to say, as we have seen in Chapter 3, that an anatomy text or illustration cannot be judged more or less accurate. There is progress in anatomy. There are bounds to the scientific imagination. Vesalius *was* wrong in depicting the *rete mirabile* in humans, although his eagerness to see it is understandable within the context of Galenic physiology. There are normally no holes in the septum of the heart as Renaissance anatomists thought, although again it is not difficult to see how a patent *foramen ovales*, present in a quarter of cases, and the myriad spaces between the *trabeculae carneae* that anchor the valves might not be mistaken for vents between the right and left sides. The ovaries *are* structurally dissimilar from the testicles, although not so much in their gross surface appearance as the early texts would have it.

But all anatomical illustrations, historical and contemporary, are abstractions; they are maps to a bewildering and infinitely varied reality. Representations of features that pertain especially to male or female, because of the enormous social consequences of these distinctions, are most obviously dictated by art and culture. Like maps, anatomical illustrations focus attention on a particular feature or on a particular set of spatial relationships. To fulfill their function they assume a point of view—they include some structures and exclude others; they strip away the plenum of sheer stuff that fills up the body—fat, connective tissue, and “insignificant variations” that are not dignified with names or individual identities. They situate the body in relation to death, or to this world, or to an identifiable face—or, as in most modern texts, they do not. As figs. 10–16 suggest, the social situation of cadavers was once far richer and more varied than it became in the nineteenth century. The compilers of anatomical texts use or eschew various techniques of the engraver or painter to gain specific effects. Anatomical illustrations, in short, are representations of historically specific understandings of the human body and its place in creation and not only of a particular state of knowledge about its structures.

Thus, for example, figs. 20–26, which make the vagina look like the penis, are not incorrect because they emphasize a relationship between the female reproductive organs that anatomists since the late seventeenth

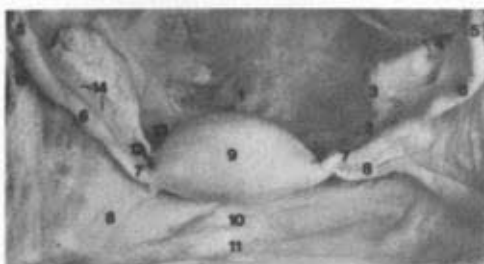


Fig. 55. Photograph of the uterus and ovaries from above, using embalmed material.

century have chosen to deemphasize; nor conversely are eighteenth-century illustrations (figs. 51–54) more correct because they do not emphasize this relationship. One could (figs. 28–29) produce a Renaissance look-alike from modern plates.

But the extent of interpretation inherent in any anatomical illustration is evident in less controversial contexts. Consider, for example, fig. 55, a photograph of the uterus and ovaries from above and in front. It is in no sense "ideological," but it is enormously selective. There is no blood or other fluid in the picture; most of the fat and connective tissue has been stripped away; the body in which the organ resided is scarcely in evidence; the tone is cool and neutral. Contrast this to two drawings of the same subject. The first (fig. 56), prepared to illustrate what was wrongly believed to be a human egg, looks almost like a Caspar David Friedrich landscape. Shaded valleys furrow the broad ligaments of the uterus; the trumpets of the Fallopian tubes look like exotic flowers growing out of a bank of billowing clouds. The second (fig. 57) is from a modern text and is in the tradition of schematic, almost architectural drawing introduced by the great German anatomist Jacob Henle, to show only particular features of an organ, salient for the occasion. There is almost no shading or sense of texture; the tone, as in the photograph, is detached and scientific; no affect mars its supposed objectivity; there is no sense of its being the organ of an individual. The final illustration of the same organ (fig. 58) operates at an even greater level of abstraction. Here is a blueprint, drawn to show a specific feature of the structure in question with no effort to situate it further, as if the organ were a machine. I do not want to maintain that these pictures are ideological in that they overtly distort observation in the interest of one political position or another. I simply want

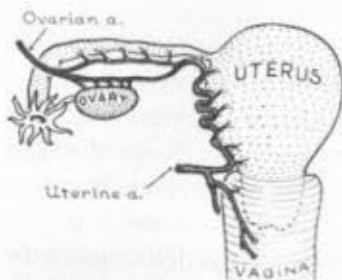
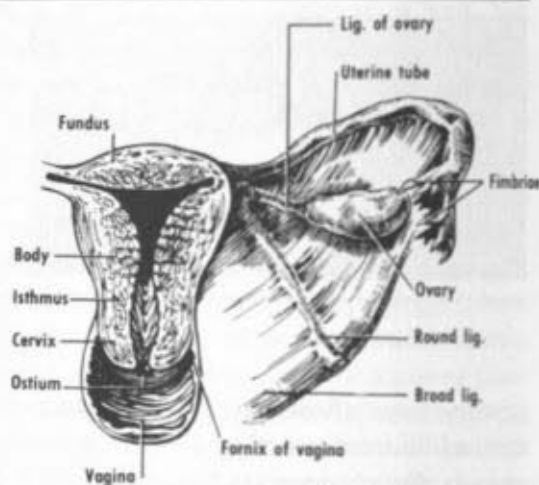


Fig. 56. (above, left) A richly textured drawing of the uterus, Fallopian tubes, and ovaries from an 1817 issue of *Philosophical Transactions* (no. 107). Note the way structures seem to flap in the wind and how shading creates a dramatic effect.

Fig. 57. (above, right) A modern, considerably less elaborated, and more abstract drawing of the structures seen in fig. 56.

Fig. 58. (left) A modern schematic drawing of the uterus, ovaries, and Fallopian tubes.

to point out what is already well established in the criticism of high art: pictures are the product of the social activity of picture making and bear the complex marks of their origins.

Still, anatomical illustrations that claim canonical status, that announce themselves to represent *the* human eye or *the* female skeleton, are more directly implicated in the culture producing them. Idealist anatomy, like idealism generally, must postulate a transcendent norm. But there is obviously no canonical eye, muscle, or skeleton, and therefore any representation making this claim does so on the basis of certain culturally and historically specific notions of what is ideal, what best illustrates the true nature of the object in question. Some texts, like the enormously successful Gray's *Anatomy*, blithely and unselfconsciously represent the general

case of every feature as male. All the surface anatomy is demonstrated by male, though curiously unmuscular, subjects and thereby belies whatever objective claim one might want to make for the advantages of the male body in illustrating surface articulations. Even the schematically drawn cleavage lines that divide thorax from abdomen and the markings to show the course of blood vessels are shown on a male model; the hands in various stages of dissection are all male hands; the distribution of cutaneous nerves are shown on the schematic drawing of a man. It is simply assumed that the human body is male. The female body is presented only to show how it differs from the male.<sup>44</sup>

Samuel Thomas von Soemmerring, who produced one of two competing canonical illustrations of the female skeleton in the nineteenth century, was more straightforward in articulating his principles of selection. The anatomically normal was for him, as for much anatomy in the idealist tradition, the most beautiful. An anatomist was thus engaged in the same deeply serious task as a painter: to render the human form, and nature generally, in accord with the canons of art. In his comment on his illustration of the eye, Soemmerring argues:

Just as, on the one hand, we assume that all works of art representing the human body and claiming ideal beauty for themselves must needs be correct from an anatomic point of view, so, on the other hand, should we as readily expect that everything that the dissector describes anatomically as a normal structure must needs be exceptionally beautiful.<sup>45</sup>

Like the distinguished anatomist Bernard Albinus, who counseled his colleagues to be like artists who "draw a handsome face, and if there happens to be a blemish in it, they mend it in the picture," Soemmerring promised to avoid anything in his representations that was "distorted, dried, shriveled, torn or dislocated."<sup>46</sup> Anything that failed to meet the highest aesthetic standards was banished from his representations of the body; the grand tradition of Sir Joshua Reynolds' prescriptions to painters in his *Discourses* was mirrored in the seemingly alien world of scientific illustration.

Soemmerring was dissatisfied with the d'Arconville/Sue female skeleton, the only alternative available in the 1790s, and set to construct an alternative based on the highest standards of observation and aesthetic judgment. Finding no skeleton in his collection suitable, he acquired one of a twenty-year-old girl of proven femininity (she had given birth); to



this skeleton he apparently appended the well-known skull, from Johann Friedrich Blumenbach's collection, of a Georgian woman. He then went to great lengths to determine the appropriate pose, seeking the advice of artists and connoisseurs; he posed live models; and eventually he compared his product with the Venus de Medici and the Venus of Dresden. The canonical skeleton had to seem plausible as the foundation of the canonical female form.

All of this bears an uncanny resemblance to Alberti's account of the Athenian painter Xeuxis (fifth century B.C.):

He thought that he would not be able to find so much beauty as he was looking for in a single body, since it was not given to a single one by nature. He chose, therefore, the five most beautiful young girls from the youth of the land in order to draw from them whatever beauty is praised in women. He was a wise painter.<sup>47</sup>

Thus the making of *the* female skeleton, or indeed of any ideal representation, is an exercise in a culturally bound aesthetic. And, as it happened, Soemmerring's beauty failed to meet the political standards of its day; the d'Arconville/Sue skeleton triumphed. Why? According to the Scots anatomist John Barclay, "although it is more graceful and elegant and suggested by men of eminence in modelling, sculpture and painting, it contributes nothing to the comparison which is intended."<sup>48</sup> The missed comparison of course was between men and women, and the specific mistake of which Soemmerring stood accused was his failure to represent with sufficient specificity the female pelvis, the most significant sign in the bones of sexual difference. To be sure that his readers fully comprehended the point, Barclay reproduced Albinus' male skeleton with George Stubbs's rendering of the musculature of a horse in the background and the Sue skeleton of the female with a skeletal ostrich looking on.<sup>49</sup> The iconography of the horse was transparent in a world in which the beast was bred for its speed, power, and endurance, in which a man on horseback still represented authority. The ostrich was a less usual sign, but it too must have been readable. Its enormous pelvis in proportion to its body directs the viewer's attention to the analogous feature in the accompanying human female, and its long neck must have been an allusion to the claim of phrenology that the characteristically long neck of women bore witness to their low "amativeness," their lack of passion.

Anatomical science was thus itself the arena in which representation of

sexual difference fought for ascendancy. The manifest anatomical differences between the sexes, the body outside of culture, is known only through highly developed, culturally and historically bound paradigms, both scientific and aesthetic. The notion that scientific advance alone, pure anatomical discovery, could account for the extraordinary late eighteenth- and nineteenth-century interest in sexual dimorphism is not simply empirically wrong—it is philosophically misguided.

*Embryogenesis and the Galenic homologies.* A stranger surveying the landscape of mid-nineteenth-century science might well suspect that incommensurable sexual difference was created despite, not because of, new discoveries. Careful studies of fetal development would give credence not to new differences but to old androgynies, grounded this time not in myth or metaphysics but in nature. It had been known since the eighteenth century, for example, that the clitoris and the penis were of similar embryological origin. An early nineteenth-century textbook on forensic medicine, in a section on hermaphroditism and the difficulties of telling the sex of newborns, points out that at birth the clitoris “is often larger than the penis, and has frequently given rise to mistakes.” The writer cites the *Memoirs de l’Academy Royal des Sciences de Paris* for 1767 to the effect that the seemingly disproportionate number of male miscarriages in the third and fourth months is due to the size of the clitoris in female embryos and the resulting confusion of sexual identification. (The error is understandable, as fig. 59 suggests.) More generally the triumph in embryology, during the first thirty years of the nineteenth century, of epigenesis (the view that complicated organic structures arise from simpler undifferentiated ones rather than from preformed entities inherent in the sperm or the egg) would seem to undermine root and branch difference. Science revealed an embryo in which the Wolffian duct, named after Kaspar Friedrich Wolff, was destined to become the male genital tract, and the Mullerian ducts, after Johannes Müller, would become the Fallopian tubes and the ovaries. Until about the eighth week, the two structures coexist. Furthermore, it was known by the middle of the nineteenth century that the penis and the clitoris, the labia and the scrotum, the ovary and the testes, begin from one and the same embryonic structure. The scrotal sac, for example, is a modification of the labia majora, a version of the embryonic labiscrotal swelling in which the lips grow longer, fold over, and join along the scrotal raphe.<sup>50</sup> Here, even more powerfully than

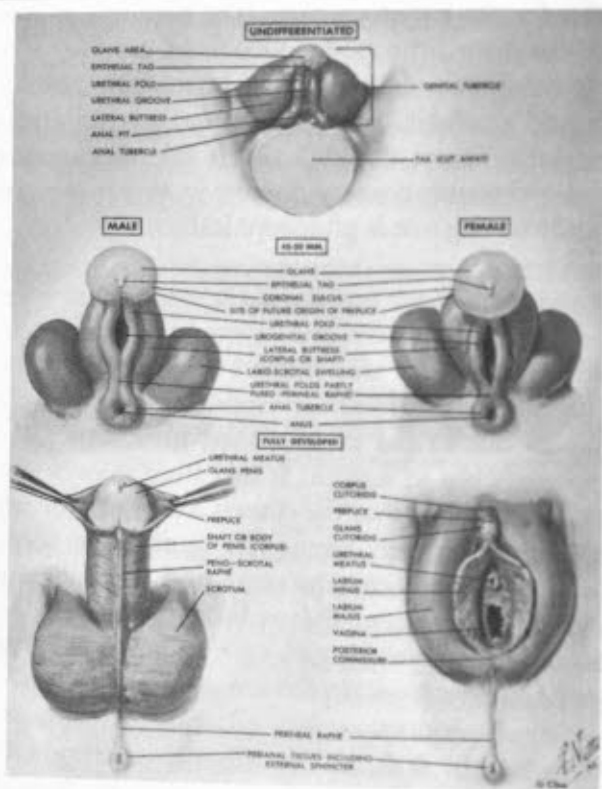


Fig. 59. At 40–55 mm in length, around two and a half months into gestation, the male and female genitalia are almost indistinguishable. Gradually, after the third or fourth month, it becomes easier to tell the sexes apart. Drawing by Frank Netter, *CIBA Collection of Medical Illustrations*.

in the early coexisting two ducts, the old Galenic homologies seem to find new resonance. Modern representations of the development of the external genitalia bear a remarkable resemblance to Vesalius' or Leonardo's illustrations, and modern charts of genital embryology seem faithfully to reproduce Galen's lecture on woman as inverted male.

Moreover, the idea of common embryological origins of various male and female organs, in the very different political climate of the 1980s, has engendered a modern version of ancient thought. One psychoanalyst in an effort to rehabilitate the vagina for its erotic and indeed erectile functions, after two decades of what he calls "clitorocentricity," marshals con-

siderable evidence for the homology of male and female ejaculation. There are, he says, immunohistochemical homologies between the secretions of the male prostate and the female paraurethral glands, structures whose common roots in the embryonic urogenital sinus have been known since the nineteenth century. In fact, as he points out, the secretory glands that empty into the female urethra were known as prostates in both sexes until in 1880 they took the name of A. J. C. Skene, who extensively investigated them.<sup>51</sup> Thus a vast scientific literature—indeed, embryological investigation was the glory of nineteenth-century descriptive biology—provided a great repertory of new discoveries, which, far from destroying old homologies, could well have strengthened them. My point, however, is not to argue that scientific advances did somehow give greater credence to the ancient model. New cultural imperatives of interpretation simply had a larger field out of which to construct, or not construct, a biology of sexual difference.

*Sperm and egg.* The claim by Harvey in 1651 that all life comes from an egg; the subsequent announcement by de Graaf in 1672 that he had discovered the ovarian follicle that was thought to be, or to contain, that egg; and the revelation by Leuwenhoek and Hartsoecker, also in the 1670s, that semen contained millions of little animalcules: all this seemed to provide, in the microscopic generative products, an imaginatively convincing synecdoche for two sexes. The vaginal secretions that had for millennia been taken to be a thin, cooler, less perfect version of the male ejaculate turned out to be something entirely different: “since the discovery of the egg . . . that Liquor which has been taken by all preceding Ages for the Seed in [women], is found to be only a mucous Matter, Secreted from the Glands of the *Vagina*.” For a time it seemed, in fact, that the newly discovered egg would detract “much from the dignity of the Male sex” since it “furnish’d the matter of the Fetus,” while the male only “actuated it.” But then Anton van Leuwenhoek discovered that the male ejaculate was not just a thick liquid seed: “by the help of his Exquisite microscope . . . [he] detected Innumerable small Animals in the Masculine sperm, and by this Noble Discovery, at once removed that Difficulty.”<sup>52</sup> Sperm and egg could now stand for man and woman; male dignity was restored.

Social sex thus projected downward into biological sex at the level of the microscopic generative products themselves. Very quickly the egg

came to be seen as a merely passive nest or trough where the boy or girl person, compressed in each animalcule, was fattened up before birth. Fertilization became a miniaturized version of monogamous marriage, where the animalcule/husband managed to get through the single opening of the egg/wife, which then closed and "did not allow another worm to enter."<sup>53</sup> In other words, old distinctions of gender now found their basis in the supposed facts of life.

Moreover, the discoveries of egg and sperm marked the beginning of a long research program to find sexual reproduction everywhere.<sup>54</sup> For a time it succeeded in doing just that. Whether one believed that the egg or the sperm contained the new life already preformed, or that each contributed elements toward the epigenetic development of succeeding generations, sexual reproduction and the nature of sexual difference dominated thinking about generation.<sup>55</sup>

Very quickly sex also filtered down from animals to plants. The pistil, a word from the Latin *pistillum* (pestle), became an unlikely name for the seed-bearing ovary. The stamen—actually the anther at its end—from which the pollen emanates, became the botanical penis. Instantly plants were gendered, and sex was assimilated to culture: "hence it seems rational to denote these apices by a more noble name and attribute to them the importance of masculine sexual organs; it is there that the semen, the powder that constitutes the subtlest part of the plant, accumulates, and it is from there that it later flows forth."<sup>56</sup> The sexual nature of plants became the basis for Linnaeus' famous classificatory system. Further investigation found sexual products up and down the living world; beginning in the 1830s spermatozoa, for example, were located in every invertebrate group except Infusoria. The *Naturphilosophen* thus seemed to be right in viewing sexual difference as one of the fundamental dichotomies of nature, an unbridgeable chasm born not of the Pythagorean opposites but of the reproductive germs themselves and the organs that produced them.

As it turned out, however, the new discoveries were of only fitful utility. In the first place, the immediate, promiscuous projection of gender onto sex in Linnaeus' sexual system made even contemporaries blush. The group of plants classed as Monoecia, meaning "one house," took its name and character from the fact that "Husbands live with their wives in the same house, but have different beds [leaves]." The class Polygamia aequalis meaning "equal polygamy," was seen to "consist of many marriages with promiscuous intercourse."<sup>57</sup> Plant sex was so extremely gen-

dered at its core that in his own day Linnaeus' taxonomy seemed quite indecent.

Furthermore, even in humans and other creatures in which egg and sperm were understood to be the distinct products of different sexes, the meanings of the terms were in constant flux. There was, in other words, no consensus as to what sperm and egg actually were or did, until the turn of the nineteenth century.<sup>58</sup> The synecdochic imagination was thus unfettered by the supposed discovery of distinctive generative products; the incommensurability of the sexes rested uneasily on microscopic bodies whose significance was much debated. Preformationists were unevenly divided between a majority who were ovists and a minority of animalculists. The choice between them was often ideological: among the main arguments against the animalculists was that God would never have devised so profligate a system that millions of preformed humans had to die in each ejaculation so that one might, on occasion, find food for growth in the egg. Insofar as observation had anything to do with theory—Haller, for example, was in part converted to preformationism and particularly to ovism because he thought that he could trace the continuity of the membranes of a chick embryo's intestines from the membranes of the yolk sac—gender played little role.<sup>59</sup>

So, even if some contemporaries spoke of the respective dignities of male and female being reflected in the two respective preformationist theories, the debate was really on different grounds. And in fact neither ovism nor animalculism suggested a world of two sexes but rather a world of no sex at all. Both bespoke parthenogenic reproduction: either the egg contained the new life and the sperm was just a living version of the glass rod that could make frog eggs develop on their own, or the sperm contained the new life and the egg was just a food basket. Technical developments in the explosively developing study of generation also undermined the supposed ubiquity of sexual reproduction. Charles Bonnet's proof in 1745 that aphids reproduced by parthenogenesis—a term coined by the great comparative anatomist Richard Owen in 1849—was the first step in finding that the development of unfertilized eggs from sexually mature females was far more widespread than had been thought possible. Abraham Trembley's demonstration, at about the same time, of the regenerative powers of hydra had general repercussions in discussions not only of sexuality but of generation at the theoretical level. Other developments and tendencies—the discovery of alternation of generations

in 1842 and the increasing interest in hermaphroditic reproduction—also tended to push eighteenth-century models of universal sexual reproduction, insofar as such models existed, to the sidelines.<sup>60</sup>

I do not want to rehearse the long history of sperm-or-egg but only to point out that the gender claims made on their behalf were constantly being undermined by these sorts of controversies.<sup>61</sup> Until the 1850s it was unclear whether sperm merely stirred the semen—a wormlike mix-master—stimulated ovulation, touched the egg, or actually penetrated it. The conceptual triumph of cell theory and advances in microscopy and staining finally allowed Oskar Hertwig, in 1876, to demonstrate that the sperm did indeed penetrate the egg and that the actual joining of the egg and sperm nuclei *was* fertilization. (As I said, this seemed to provide an unassailable microscopic model for incommensurable sexual difference, until a move to the molecular, DNA level made it all less clear again.) Well into the twentieth century, the debate continued on whether all or only some of the nuclear material blended.

For much of the period under discussion here, the role and nature of the sperm remained obscure. Spallanzani had proven in the late eighteenth century that no amount of vapor from semen would fertilize frog eggs, that Harvey's *aura seminalis* was insufficient to cause the female mold to produce tadpoles, and that increasing filtrations of semen eventually rendered it impotent. He showed that naked male frogs mounting a female fertilized her eggs but that frogs wearing little taffeta trousers did not; he went on to demonstrate, furthermore, that the residue on their ludicrous garb was potent. (He had previously shown—by killing a female frog in the act of copulation and noting that the eggs still inside her did not develop while those that had been in contact with the sperm were fertile—that the eggs were fertilized outside the body.) Despite all of this, he continued to think that the little creatures in semen were mere parasites and that semen worked by stimulating the heart of a preformed fetus released from the ovary after fertilization.<sup>62</sup>

The debate between preformationists—ovists or animalculists—on the one hand and epigenesists on the other provides further evidence for just how irrelevant research on germ substances was to thinking about two sexes. The choice between preformation and epigenesis was made on philosophical rather than empirical grounds, but quarrels about gender played no part. Albrecht von Haller differed from Christian Wolf not on the interpretation of this or that piece of data—indeed they generally

talked right by each other—but on basic issues in the philosophy of science: a mechanistic, Newtonian preformationism in which embryological development works out God's plan as against a rationalist, somewhat more vitalist epigenesis in which matter was not merely inert substance to be worked upon by God's laws.

Among epigenesists, a major figure like Buffon could still write in the cadences of the old biology of generation, as if nothing had happened, almost a century after the discovery of sperm and egg: "the female has a seminal liquor which commences to be formed in the testicles" and that "the seminal liquors are both [male and female] extracts from all parts of the body, and in the mixture of them there is everything necessary to form a certain number of males and females." The point is not that Buffon was wrong in his theories of pangenesis or right, for the wrong reasons, that there is a "moule intérieur" in the particles of male and female "semen" which organize matter into organic structures.<sup>63</sup> Rather I want to suggest that in the eighteenth and nineteenth centuries, and indeed today, at any given point of scientific knowledge a wide variety of contradictory cultural claims about sexual difference are possible. Pierre de Maupertuis, one of the major opponents of preformationism—he believed that atoms arranged one another according to some plan—in 1756 was still writing, as had Democritus in ancient Greece, about orgasm: "it is that moment, so rich in delight, which brings to life a new being."<sup>64</sup> Neither the level of scientific knowledge nor its "correctness" restrains the poetry written in its name.

But even if Maupertuis or other eighteenth- and nineteenth-century scientists had arrived at what we consider to be the correct interpretation of the data at hand, observation and experiment would still not have created a metaphor for maleness or femaleness. Translating facts about reproduction into "facts" about sexual difference is precisely the cultural sleight of hand I want to expose.

*The ovary and the nature of woman.* The most egregious instance of anatomical aporia, and the clearest case in which cultural assumptions fueled a research tradition whose results in turn confirmed those views, involved the ovary. "Propter solum ovarium mulier est id quod est" (it is only because of the ovary that woman is what she is), wrote the French physician Achille Chereau in 1844, forty years before there would be any evidence for the real importance of the organ in a woman's life. Here is a



synecdochic leap to incommensurability that would in any circumstances be unsupportable.<sup>65</sup> But it is particularly ironic because the large role of the ovary in the biological lives of women—though certainly not making woman “what she is”—was finally established in the late nineteenth century by assuming that which was yet to be proven and using it as justification for the surgical removal of histologically normal ovaries. Bilateral ovariectomy—the removal of healthy ovaries—made its appearance in the early 1870s and became an instant success to cure a wide variety of “behavioral pathologies”: hysteria,<sup>66</sup> excessive sexual desires, and more mundane aches and pains whose origins could not be shown to lie elsewhere. (The procedure was also called in German “die castration der Frauen,” in French “castration chez la femme,” or eponymously “Battey’s or Hegar’s operation” after Robert Battey and Alfred Hegar, the American and German surgeons who popularized it. It should be distinguished from what were usually called ovariectomies, the removal of cancerous or cystic ovaries for therapeutic reasons that would be regarded as medically sound today. The number of these operations also grew dramatically, as indeed did the number of all operations in the late nineteenth century, especially after the acceptance of Lister’s aseptic techniques.<sup>67</sup>)

Removing healthy ovaries in the hope of curing so-called failures of femininity went a long way toward producing the data from which the organ’s functions could be understood. The dependence of menstruation on the ovary, for example, was shown by assuming that the swelling of the ovarian follicle produced heatlike, estrous symptoms in some women and that removal of the organ would therefore halt such sexual excesses.

There is a further irony in all of this because the operation both assumes and does not assume incommensurable sexual difference; it purports to create women who both are and are not more like men than they were before the procedure. The name itself, female castration, suggests the old view that the ovaries are female testicles, much like the male’s. But doctors were quick to deny that ovariectomy was anything like castration in its psychological and social effects. There are no pictures comparable to fig. 60 in which roles are switched, in which instead of men, scalpel in hand, seen poised over the prostrate body of a woman, men (or more inconceivably yet, women) surgeons are preparing to castrate a man. There was no male castration, no removal of healthy testes, except in a few rare and quite specific instances for criminal insanity or to treat cancer of the prostate. While the female gonad was assumed, like its male coun-



Fig. 60. Three male surgeons, c. 1880, performing an ovariectomy on a patient with a large cyst.

terpart, to have profound effects on various parts of the body, ovaries were not testicles in any cultural or metaphorical sense in the minds of the overwhelmingly male medical profession. They, unlike testicles, were not sacrosanct.

Yet the theoretical justification for "female castration" was that the ovaries, a woman's "stones" (once understood as a cooler version of the testes), were in fact the master organs of the female body so that if she lost them she would become more malelike, just as castrated males would become more femalelike. Ovariectomy did cause women to stop menstruating and did effect other changes in secondary sexual characteristics that made them more like men. On the other hand, removing the ovaries also made a woman more womanly, or at least more like what the operation's proponents thought women ought to be. Extirpating the female organs exorcised the organic demons of unladylike behavior.

All of this speculation about the synecdochic relationship between an organ and a person—a woman is her ovaries—or even between the ovary and some observable physiological or anatomical change was ideological hot air. Up to the late nineteenth century no one knew what removing the ovaries would do. (Even today the effects of postmenopausal ovariectomy are not well understood.) Far more was known about the effects

middle of the nineteenth century for the function of the ovary in the reproductive physiology of women remains slight.

The rise of "justifiable" ovariectomy after 1865—mostly for cysts, tumors, or other obvious pathologies—began to provide some quasi-experimental evidence for the ovary's functions, but since the workings of a healthy organ could not in many cases be reliably deduced from the effects of excising its diseased counterpart, such material was less than conclusive. Though an authoritative German handbook argues that there were so many cases on record attesting to the connection between the ovary and menstruation that further cases were scarcely worth noting, it still refers to Bischoff's by now forty-year-old citations of Roberts and Pott (whose report itself had by then been around for a century). Moreover, it proceeds to note that considerable weight was currently being placed on instances of menstruation continuing after removal of the ovaries and that, should a recent attack on such evidence prove inconclusive, one might have to reconsider whether the intimate relationship postulated between the uterus and the ovary had not been exaggerated.<sup>72</sup> In 1882 a French handbook cites both new material and much older evidence which suggested that the role of the ovary in menstruation and indeed in the whole reproductive cycle might well be as passive as that of the uterus.<sup>73</sup>

No one bothered to adduce age-old practical experience with oophorectomy in animals before 1873 when, a year after Battey began to advocate removal of the ovaries for various neurotic ills, a French physician remarked that in cows and pigs in which the operation was "commonly done during the first two months of life, the uterus ceases to grow and its volume remains stationary."<sup>74</sup> In short, when Battey and Hegar began removing healthy ovaries, and at the height of popular belief in the life-determining role of the organ, almost nothing was known of its function in women and no effort had been made to exploit what little veterinary experience existed. Here is a question not of the indeterminacy of anatomical and physiological knowledge but of willful ignorance.

Twenty years and the removal of thousands of healthy ovaries later, some of the assumptions on which the operation had been predicated finally rested on experimental evidence. It was Alfred Hegar, the distinguished professor of gynecology at Freiburg and the main European advocate of female castration, who brought the wisdom of generations of farmers together with his own clinical practice. Curious to know the

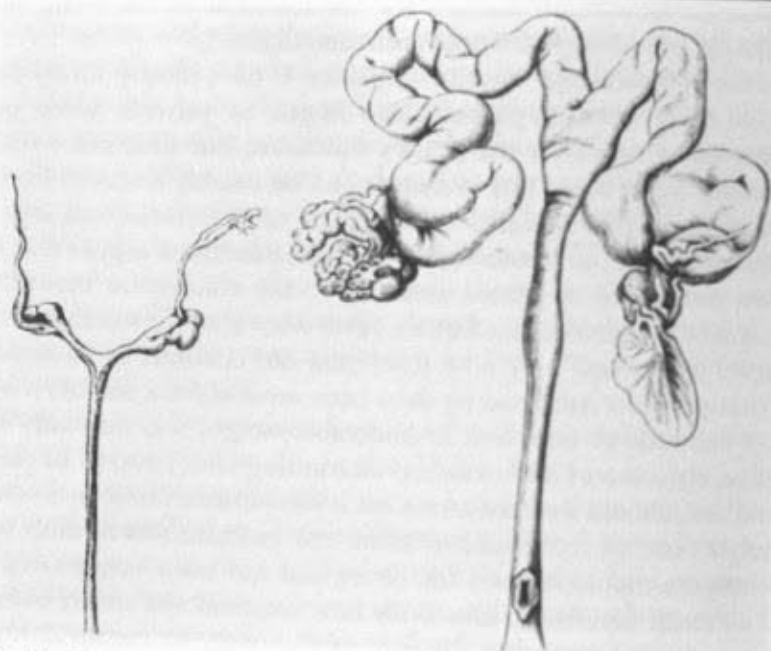


Fig. 61. Alfred Hegar's "first illustration of castrate atrophy of the uterus ever published."

long-term effects of the operations he was already performing, he searched the literature and found that female castration in animals was an ancient practice. He discovered that the castration of cows was popular in France in the 1830s but that the practice had fallen out of favor because the cows got too fat and stopped lactating. Veterinarians in his own day still removed ovaries but only when medically indicated: for "desire for the bull, a sort of nymphomania" (*Steiersucht, eine Art Nymphomanie*), which afflicted some 10 percent of the cows in certain regions!<sup>75</sup>

Not to be deterred in his quest for knowledge, Hegar went back to the classics and to Aristotle's account of cutting out a sow's ovaries. He then sought out a *Schweine-Schneider*, "a cutter of pigs," whose basic technique, it turned out, was indistinguishable from that of his Greek predecessor, though from a nineteenth-century bourgeois perspective much more disgusting. The man took out a dirty knife, made a two-centimeter incision, put his dirty fingers around the ovaries, tubes, and ligaments, and cut

them out. He then sewed up the incision with a needle and thread drawn from his "evil-smelling" trousers. (It has never been clear to me why, with such an exquisite sense of dirt and propriety, the idea of aseptic surgery did not occur to Hegar and his contemporaries in the decade before Lister. Hegar, by his own account, lost a third of his patients to sepsis.)

Having watched the pig cutter at work, Hegar tried the operation himself. He bought two female piglets and proceeded to remove both ovaries from one and only one from the other. When they had grown to maturity, he had them butchered and found that the completely spayed pig showed dramatic aplasia of the uterus, a uterus of infant size. He made a drawing of this specimen, had it engraved, and proudly published it as the "first illustration of castrate atrophy of the uterus ever published."<sup>76</sup> One need not deride the genuine contribution to knowledge that Hegar's experiments represents in order to condemn him, Battey, or other doctors for the mutilations they practiced in the name of therapy. The important point, however, is not simply that they were driven by a particular vision of woman to regard the ovary as the source of illnesses whose origins lay more in culture than in the body, but rather that they subscribed to an epistemology that regarded anatomy as the foundation for a stable world of two incommensurable sexes. Ovaries were removed not because they made women what they were, nor even just because of physicians' anti-feminism, but because some doctors took literally the synecdoches they had invented. Ironically their practices did yield new knowledge about the ovaries' physiological functions. But their symbolic role, their function as a sign of difference, was untouched by progress.

### Orgasm and sexual difference

On May 15, 1879, Mabel Loomis Todd—later the lover of Emily Dickinson's brother—carried out an extraordinarily precise experiment. Her hypothesis was that she would be fecund only at the moment of climax because afterwards her womb would close off, and "no fluid could reach the fruitful point." To test this proposition she allowed herself, she says, "to receive the precious fluid at least six or eight moments after my highest point of enjoyment had passed and when I was perfectly cool and satisfied." She got up and, since all of her husband's semen had apparently escaped, considered herself vindicated; their daughter Millicent, born nine months later, proved her wrong.<sup>77</sup>

Mabel Todd was very wrong. Unlike questions of anatomy and sexual difference, the question of whether women can conceive without orgasm—however culturally desirable “passionlessness” might be—can be definitively answered. So can the question of whether female orgasm closes off the womb. Empirical evidence can address even more complicated and problematic matters: whether women generally have orgasms during intercourse, or whether they have strong sexual—I mean here heterosexual—drives at all.<sup>78</sup> But, though science certainly articulated new views about female passionlessness as part of the making of two sexes, it provided only inconclusive and fragmentary evidence on orgasm until the early twentieth century, more than a century after the abandonment of the universally held view linking orgasm to generation and women to passion. New information, much less a coherent new paradigm in reproductive biology, did not render ancient wisdom out of date. (I will show, in some technical detail, that nothing about the discovery of the ovaries or their functions required major revisions in the physiology of pleasure and conception. Readers willing to accept this without elaborate documentation might want only to skim this section, especially the pages on the corpus luteum.)

De Graaf's careful dissections, which established that “female testicles should rather be called ovaries,” inadvertently strengthened the link between intercourse and female “emission” because they showed that in rabbits the follicles, which de Graaf took to be eggs, “do not exist at all times in the testicles of females; on the contrary, they are only detected in them after coitus.” Like other observers for at least the next century and a half, he was sure that ovulation occurred *only* as a result of intercourse, which simply by the nature of things had to be pleasurable: “if those parts of the pudendum [the clitoris and labia] had not been supplied with such delightful sensations of pleasure and of such great love, no woman would be willing to undertake for herself such a troublesome pregnancy of nine months.” De Graaf's was the standard Renaissance account, except for his views on the female ejaculate: instead of being understood as weaker, more watery semen, it was construed as an egg in its surrounding liquid.<sup>79</sup>

There were actually very little new data on reproductive physiology. “The modus of conception,” as the obstetrician William Smellie noted in 1779, “is altogether uncertain, especially in the human species, because opportunities of opening pregnant women so seldom occur.”<sup>80</sup> One had

to take the cases when they came along and make up a narrative as best one could.

Albrecht von Haller, for example, one of the giants of eighteenth-century biological science, simply projected male sexual experience onto women. He did this not because he had any particular interest in maintaining the skewed symmetry of the Galenic model, but because the analogy of the sexually aroused woman to the sexually aroused man seemed so commonsensical:

When a woman, invited either by moral love, or a lustful desire of pleasure, admits the embraces of the male, it excites a convulsive constriction and attrition of the very sensible and tender parts, which lie within the contiguity of the external opening of the vagina, after the same manner as we observed before of the male.

The clitoris grows erect, the nymphae swell, venous blood flow is constricted, and the external genitalia become turgid; the system works "to raise the pleasure to the highest pitch." A small quantity of lubricating mucus is expelled in this process but, more important, "by increasing the heights of pleasure, [it] causes a greater conflux of blood to the whole genital system of the female," resulting in an "important alteration in the interior parts." Female erection, inside and out. The uterus becomes hard with inflowing blood; the Fallopian tubes engorge and grow "so as to apply the ruffle or fingered opening of the tube to the ovary." Then, at the moment of mutual orgasm, the "hot male semen" acting on this already excited system causes the extremity of the tube to stretch still further until, "surrounding and compressing the ovarium in fervent congress, [it] presses out and swallows a mature ovum." The extrusion of the egg, Haller points out finally to his learned readers, who would probably have read this torrid account in the original Latin, "is not performed without great pleasure to the mother, nor without an exquisite unrelatable sensation of the internal parts of the tube, threatening a swoon or fainting fit to the future mother."<sup>81</sup> The evidence for this scenario was scanty, but there is some in the literature. An English anatomist in 1716, for example, dissected a woman who had just been executed and purportedly found one tube "clasped around the ovarium"; upon investigating how this might have come about, he learned that "she had enjoyed a man in prison, not long before execution."<sup>82</sup>

Intercourse continued to be linked to ovulation and to an inner drama

that, as in Haller's account, could be plausibly marked by pleasure. W. C. Cruickshank, searching for rabbit ova in 1797, found the corpus luteum only after coition, from which he concluded that "the ovum is formed in and comes out of the ovarium after conception." (The corpus luteum, the "yellow body," is formed after an ovarian follicle releases the egg. It is now known to secrete progesterone, which maintains the uterine lining in a state suitable for implantation. In most mammals it forms "spontaneously," independent of intercourse or conception, because ovulation occurs spontaneously; but in rabbits, which are generally coitally induced ovulators, it would not be present except in the circumstances Cruickshank describes.) But, more important, there seemed to be evidence for a real battle in wresting the egg from the ovary. The Fallopian tubes, he thought, "twisted like wreathing worms . . . [which] embraced the ovaria (like the fingers laying hold of an object) so closely, and so firmly, as to require some force, and even some laceration, to disengage them." Of course rabbits are not women, but Cruickshank clearly thought that his findings were applicable to humans, and so it would be surprising if so stormy a scene had no sensory correlative. The evidence would thus suggest that ovulation, like male ejaculation, would occasion some pleasurable feeling.<sup>83</sup>

C. E. von Baer (1792–1876), the German-Estonian biologist who was the first actually to see the mammalian ova, was still convinced when he reported on his extraordinary series of observations in 1828 that only a bitch who had recently mated could produce the egg he was seeking.<sup>84</sup> Indeed up to the early 1840s almost all authorities believed that coitally induced ovulation in humans as well as in other mammals was the norm. Thus in the two-sex model, as before, the generative substances in *both* men and women were believed to be produced only during intercourse; only now it was thought by some that these events could routinely occur, in women, without sensation.

This does not mean that no one advocated the view that ovulation occurred spontaneously. (If it did take place without intercourse, then a sort of mechanical, passionless conception would seem likely.) But what were later taken to be critical data against coitally induced ovulation in humans were, until the second half of the nineteenth century, interpreted as anomalous. There was nothing decisive in the existence of scars or "cicatrices," that is, the remains of the corpus luteum in the ovaries of virgins; burst follicles in the ovaries of women who died during or just after menstruation; or simply more scars in the ovary than could be ac-



counted for by fruitful coition. Biologists seemed unwilling to let go of the idea that somehow the excitement of intercourse and sexual arousal was relevant to conception even if, miraculously, women did not feel any. Anesthetic conception, in other words, in no way followed from observation.

Thus John Pulley, an obscure eighteenth-century Bedfordshire doctor, found corpora lutea in virgins but argued that these scars were the result of uterine excitation induced through the unnatural "gratification" of desires, one presumes masturbation. Evidence from the dissection of "hysterical women" whose ovaries showed the signs of ovulation provided further proof, according to Pulley, for the role of sexual excitement in causing the extrusion of the egg.<sup>85</sup> Though forensic texts during the first half of the nineteenth century were generally skeptical of the notion that heightened pleasure signaled either conception or ovulation, and made much of the possibility of conception from nonconsensual intercourse, it remained perfectly plausible that ovulation did require the Sturm und Drang of coition or a reasonable facsimile. J. G. Smith wrote in a standard 1827 textbook that he could not deny that "there may be a sensible impulse conveyed by the excitement into which the uterine system appears to be thrown," when conception takes place. But, he said, many women are apt to imagine, out of hope or fear, that they have conceived—their reports on this matter are not to be trusted and can be of no practical concern.<sup>86</sup>

On the other hand, the question of whether a corpus luteum is evidence of past pregnancy or of intercourse *was* of considerable significance to forensic physicians: "it is a celebrated question, of great importance both in physiology and forensic medicine, and much agitated in recent years."<sup>87</sup> The answer was a qualified and complicated no. Women did show signs of ovulation without pregnancy or even intercourse, the majority view held, but only because the female reproductive system could be coaxed into action by lesser stimuli, strong desire for example. So, while generally speaking the presence of a corpus luteum could be taken as evidence for a woman's having had intercourse or a pregnancy, it was far from conclusive proof. Since "all those causes which excite greatly the sexual organs" can cause ovulation, the presence of corpus luteum is not "taken alone . . . a certain sign of sexual union having occurred"; but taken together with other signs it must be regarded as good presumptive evidence.<sup>88</sup> "A jury ought to be cautious," said one authority in jumping to the conclusion, based on signs of ovulation, that a woman had not

been a virgin despite the "fact" that ovulation was generally occasioned only by fertile intercourse.<sup>89</sup> "Upon certain occasions," advised another, "excessive salacity may detach the ovum" and leave the scars in question.<sup>90</sup> (There is added confusion here because nineteenth-century doctors could not distinguish between the larger and more visible scars of the *corpus luteum verum*—the much enlarged corpus luteum that remains until the fifth or sixth month of pregnancy—and the smaller remains of the *corpus luteum spurium*, which fades rapidly after two weeks if pregnancy does not occur.<sup>91</sup>)

A great deal rests on these controversies over the corpus luteum because they suggest that, as late as the early 1850s, no one had a clear idea of the circumstances governing the production of the egg. The evidence pointed to an even larger role for venereal excitement than in the old model of bodies and pleasures. Thus Johann Friedrich Blumenbach (1752–1840), professor of medicine at Göttingen and one of the most distinguished physicians of Europe, noted that ovarian follicles could burst without the effects of semen or even "without any commerce with the male," but concluded from this simply that on occasion "venereal ardor alone . . . could produce, among the other great changes in the sexual organs, the enlargement of the vesicles" and even cause their rupture. Far from undermining the old orgasm-conception link, Blumenbach's observations strengthened it; desire alone was enough to excite ovulation in certain sensitive systems. His English translator added supplementary anecdotal evidence: Valisneri's report of finding vesicles protruding from the ovaries of an eighteen-year-old woman who had been brought up in a convent and gave every appearance of being a virgin, a situation "frequently observed in brutes during heat"; Bonnet's report of a young woman who died "furiously in love with a man of low rank, and whose ovaria were turgid with vesicles of great size." Though not too confident of his position, Blumenbach ended up even more committed to the importance of sexual excitement than Galen was:

On this point I find it difficult in the present state of knowledge to make up my mind; but I think it pretty evident that, although semen has no share in bursting the ovarium, the high excitement which occurs during the heat of brutes and the lascivious states of the human virgin is sufficient frequently to effect the discharge of ova. It is perhaps impossible otherwise to explain the fact that ova are so commonly expelled from the ovaria, and impregnated whenever a connection is arbitrarily or casually brought about.<sup>92</sup>

Johannes Müller (1801–1858), a brilliant teacher and a leading proponent of physiological reductionism, also downplayed the evidence that might have suggested spontaneous ovulation in women. He argued that the presence of scars in the ovaries of virgins were merely signs of anomalous ovulation and not of normal ovulation independent of coition and conception. Though the exact forces that caused the thrusting of the egg into the Fallopian tube remained obscure, most of the evidence suggested that the egg itself was generated only as an immediate part of the process of fertilization itself. Humans worked like that ubiquitous experimental creature of the nineteenth century, the rabbit. Something spectacular was still thought to happen in coition, and medicine lent little technical support for the rise of passionlessness.<sup>93</sup>

Nineteenth-century accounts of the mechanics of conception also offered no technical support for the notion of anesthetic intercourse and conception. What emerges is a new and vastly inflated role for semen, which somehow pushes, squeezes, or otherwise excites a woman's insides and which, judging from the silence on the matter, is able to do so without her feeling anything. The distinguished Edinburgh physician John Bostock argued that in women "certain causes and especially the excitement of the seminal fluid" produced "an unusual flow of blood to the ovaria"; amid all the "excitement" a vesicle bursts and discharges a drop of albuminous fluid (the egg was still only imprecisely imagined), which is picked up by the erect Fallopian tubes embracing the ovary and carried down to the uterus.<sup>94</sup> Once again, we have a projection of male physiology inward. Another eminent obstetrician thought that the male sperm worked like an electric current coursing through the Fallopian tubes and causing the expression of the ovum; a major English medical handbook in 1836 postulated the swelling of the follicle as a consequence of sexual excitement and its bursting as the result of "an action which begins usually during sexual union, but which may also occur without any venereal orgasm."<sup>95</sup>

The remarkable thing about all these accounts is not that they are wrong by modern standards—humans ovulate, and the corpus luteum is formed, independent of intercourse, orgasm, or conception—or even that they are so rich in what today seem like improbable metaphors, but rather that they grant so large a role to female sexual excitement and genital arousal. More remarkable still is that they say so little about the accompanying sensations. Orgasm continues to play a critical part in conception but now those who suffer it need feel nothing.

In part this has nothing specifically to do with women or with intercourse. Sexual pleasure was not the only subjective quality to lose its place in the new medical science. The power of the anatomical-pathological model, as it emerged from Paris hospitals in the late eighteenth century, lay in its capacity to strip away individual differences, affective and material, so as to perceive the essence of health or disease in organ tissues. The autopsy, not the interview, was the moment of truth; corpses and isolated organs could not speak of pleasures.

The nineteenth century was the great age of the post-mortem, of pathology's ascendancy. During his career as pathological anatomist, Karl von Rokitansky, one of the founders of the discipline, is said personally to have made some 25,000 diagnoses. His department at the Vienna General Hospital performed some 2,000 autopsies a year during his tenure—over 80,000 by this estimate—probably more than had been performed in the entire previous history of medicine.<sup>96</sup> Because of the advent of large teaching hospitals with an almost endless supply of poor patients in most of the major cities of Europe, and because of increasing state interest in the causes of death, the number of bodies and organs available to the medical profession for research was almost unlimited. A new kind of medicine, and the new institutions in which it was practiced, made subjectively reportable states, such as pleasure, of relatively little scientific interest. The state of organs was what mattered, and indeed almost all of the evidence for the reproductive physiology of women prior to the end of the nineteenth century came from the ovaries, uteruses, and tubes removed from the dead or from surgical patients: "I now send for your inspection the ovaries of a young unmarried woman who died a few days ago," wrote the surgeon Mr. Girdwood to his colleague Robert Grant; on July 2, 1832, Sir Astley Cooper sent Robert Lee the ovary of a woman who died from cholera while menstruating; Emma Bull, who had only one period and who died of dropsy on May 23, 1835, was opened in the morning to reveal one smooth ovary and one with a single scar; a twenty-year-old virgin's ovaries showed all the stages of ovulation, thus providing still more evidence, a French doctor thought, for the independence of the process from sexual feeling.<sup>97</sup>

The erasure of women's orgasm from accounts of generation is also not the simple result of male ignorance of, or willful blindness to, female genital anatomy. One of the obstetricians quoted above notes that the clitoris is "strictly analogous" to parts of the penis and that it contributes "a large share, and perhaps the greater part, of the gratification which the

female derives from sexual intercourse.”<sup>98</sup> The 1836 handbook cited says straightforwardly that the “lower part of the vagina and the clitoris are possessed of a high degree of sensibility” but then claims, with no supporting evidence, that in “*some* women, but not in all” they are “the seat of venereal feelings from excitement” and that “in many women such feelings are altogether absent.” Feelings were considered irrelevant to both the “fecundating power” of the male and the “liability of conception” of the female, but our author makes no similar claim about the absence of male pleasure. The argument seems to be that only women have an orgasm—how else does the egg get out?—but do not feel it. They have this capacity, as I reconstruct the argument, because human sexual feelings are under “the intellectual and moral powers of the mind.” Civilization in all its political, economic, and religious manifestations mercifully leads mankind from “scenes and habits of disgusting obscenity among those barbarous people whose propensities are unrestrained by mental cultivation” to a state in which “the bodily appetites or passions, subject to reason, assume a milder, less selfish, and more elevated character.”<sup>99</sup> In the literature I have examined, women’s bodies in particular bear the marks of this civilizing process. The physiology of their bodies—in this instance, in many like it, and most powerfully in Freud—adapts to the demands of culture. Although women, like men, were held to experience erection (both of the clitoris and of the internal organs) excitement, and ejaculation, “many” could somehow do so without feeling anything. Again, the point is not to sort out what is, by modern standards, right or wrong about these propositions, but rather to note that culture and not biology was the basis for claims bearing on the role and even the existence of female sexual pleasure. As in the one-sex model, the body shifted easily in the nineteenth century from its supposedly foundational role to become not the cause but the sign of gender.

If one regards the question of female passionlessness as an essentially epidemiological question, about the correlation between orgasm and ovulation or conception, there was equally little known on either side of the issue. No one before the twentieth century had inquired into the incidence of women’s pleasure during heterosexual intercourse and, as Havelock Ellis pointed out in 1903, “it seems to have been reserved for the nineteenth century to state that women are apt to be congenitally incapable of experiencing complete sexual satisfaction, and peculiarly liable to sexual anesthesia.” He proceeds to cite scores of studies that purport, on the basis of almost no evidence, to speak to this novel is-

sue.<sup>100</sup> Adam Raciborski, the French physician who claimed to have discovered spontaneous ovulation in women, simply declares that three quarters of all women merely endure the embrace of their husbands, just as William Acton in the midst of his book about men thought that he need do no more to make his case than pronounce, "the majority of women are not much troubled by sexual feeling of any kind."<sup>101</sup>

No one knew the answer. One English writer pointed out in his chapter on "the relative amorousness of males and females" that in a field "so characterized by delicacy and silence," most people "judge others in the light of their own limited experiences." Or, as he might more accurately have observed, according to what they would have liked to believe. His own answer, with no supporting data, is that there are three, roughly equal classes of women: (1) those as passionate and responsive as the average man; (2) those less passionate but still taking pleasure "in sexual congress—*especially just preceding menstruation and immediately following its periodical cessation*"; and (3) those who experience no physical passion or pleasurable sensation and who endure sex out of duty. He concludes, disagreeing with his initial hypothesis, that category two is probably the largest after all, category one the smallest.<sup>102</sup> Otto Adler, a late nineteenth-century German expert on these matters, presents an even less ingenuous case of passing off personal or social prejudice for scientific fact. He concludes that as many as 40 percent of women suffered "sexual anesthesia," among whom he included ten who reported that they either masturbated to orgasm or were subject to unconsummated but nevertheless powerful sexual appetites, and one who actually had an orgasm on the examining table as the good doctor examined her genitalia.<sup>103</sup>

The peculiar problems of research in relating sexual pleasure to reproduction were due not only to biases but to professional politics and to the very doctrines of female passionlessness and delicacy that science was called upon to support. The comparative anatomist and birth-control advocate Richard Owen lamented that all theories of generation were "mere speculation": "Would more time have been spent on collecting the actual experiences of human beings." But such work was too difficult for the ignorant and beneath the dignity, or so they thought, of the learned.<sup>104</sup> A German physician, puzzled over how the ovaries became involved in reproduction, surmised that perhaps "libido" was after all the primary agent. In animals, he reasoned, the ovaries changed in time of heat; from a fellow physician he learned that a colleague's wife had long been barren

and "bore the masculine embrace without pleasure" but that "she felt libido once and immediately became pregnant." On the other hand, he also knew from his own practice that women became pregnant without feeling anything. There must be "many supremely interesting confidences" told to doctors by their patients, which if correlated would provide the answer. But, alas, politics and prudery stood in the way of epidemiology.<sup>105</sup> A Sicilian physician reported that patients spoke of nothing so much as sex, but that reporting to the profession on such matters was out of the question.<sup>106</sup>

If the respectable physician had no direct access to information about the sexual experiences of women, they could sometimes report on what the husbands of these women had to say. An English writer with a determined empirical streak did just this. Forty out of fifty-two men said that the sexual feelings of their wives had indeed been dormant prior to marriage. This is no surprising result, given each man's presumed pride in his own awakening powers; more surprising is that fourteen out of the fifty-two husbands reported that their wives continued to feel no sexual desire.<sup>107</sup> Clearly the data are flawed by a less than satisfactory survey technique.

The first systematic modern survey of normal women's sexual feelings was one conducted by Clelia Duel Mosher starting in 1892. Based on the answers of some fifty-two respondents, it was inconclusive. True, 80 percent reported having orgasms, leading one historian to argue against the stereotype of the sexually frigid Victorian woman.<sup>108</sup> But as Rosalind Rosenberg points out, most of the women also reported considerable reluctance to have sex and that they would be happier left alone.<sup>109</sup> In short, almost nothing was known about sexual responsiveness among women in general, much less about its relation to ovulation or conception. (There was perhaps even less known about the sexual responsiveness and habits of men, but that is another story.)

Similarly, the epidemiology of infertility in relation to orgasm remained a cipher. In the old model, an ungendered absence of heat as suggested by lack of sexual desire or orgasm was regarded as a common and remediable cause of barrenness. In the new model, which questioned the very existence of female sexual desire, such matters ought to have been irrelevant. They were not. The first systematic survey on the subject, published in 1884, accepts the ancient account as its initial hypothesis. Matthews Duncan, a well-known London gynecological surgeon, was

convinced that the absence of sexual pleasure was a major cause of infertility. Yet he found that 152 out of 191 sterile women who consulted him (79 percent) said that they desired sex and that 134 out of 196 (68 percent) reported sexual pleasure, if not orgasm, in coition. Without comparable statistics for fertile women, these numbers mean little, but they seem to suggest quite the opposite of his initial hypothesis and also, incidentally, that English women did not merely lie back and think of Empire.<sup>110</sup>

Other than Duncan's survey, there is little except for a few impressionistic reports, all of which support not the new view of passionlessness but the old link between desire and conception. E. H. Kisch, a German specialist and spa doctor, was convinced that sexual excitement in women was "a necessary link in the chain that leads to impregnation." This conviction derived from his research into 556 cases of first pregnancy, which he found occurred seldom after first coition and most often between ten to fifteen months after marriage (a dubious claim) and from his personal experience that an unfaithful wife was more likely to conceive with her lover than with her husband. The inference from date of first pregnancy to the role of passion depended on the more fundamental observation that most women were sexually unawakened until marriage and that their capacity for erotic pleasure flowered slowly. Presumably, pregnancy coincided with full bloom.<sup>111</sup> B. C. Hirst, in a leading American obstetrics text from 1901, repeated the sort of impromptu clinical lore that had been around for centuries: the ideal condition for conception was mutual synchronous orgasm; conversely, in one of his cases a married woman had endured six years of frigid, infertile intercourse but had become pregnant when coitus and orgasm finally coincided.<sup>112</sup> But how this was to be interpreted remained problematic. Commenting on female pleasure, the *Reference Handbook of Medical Sciences* (New York, 1900-1908) casually states: "Conception is probably more likely to occur when full venereal excitement is experienced."

In short, there was almost no specific new epidemiological information available during the nineteenth century on the incidence of female sexual desire or on its relation to conception. Indeed, as the next chapter will show, "moral" causes of infertility and other repercussions in the body of "good order" gone awry make their way into the world of scientific sex.