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The Naturalized Female Intellect

The Argument

Naturalization confers authority on beliefs, conventions, and claims, but what kind of authority? Because the meaning of nature has a history, so does that of naturalization: naturalization is not the same tactic when marshaled in, say, eighteenth-century France and in late nineteenth-century Britain. Although the authority of nature may be invoked in both cases, the import of that authority depends crucially on whether nature is understood normatively or descriptively, within the framework of the natural laws of jurisprudence or within that of the natural laws of mechanics. During the early modern period, the denotative center of gravity of the word "nature" shifted dramatically. Writings about the female intellect are particularly well suited to reflect and focus these changes for three reasons: first, as with so many aspects of gender identity, what was distinctively female about women's way of thinking was usually alleged to be part and parcel of their "nature"; second, the political and social implications of the female intellect were debated heatedly and in unprecedented detail, particularly in France; and third, the actual content of beliefs about what traits sex the intellect as female remained relatively constant during this period, despite sharp differences of opinion over their putative "natural" causes. The female intellect was naturalized not once but repeatedly, and therein lies its value for a history of naturalization.

Introduction

It was predestined that the history of gender and the history of science and medicine would converge, for they share a central preoccupation with the understanding and uses of nature.[1] They also share a framework for analyzing conceptions of nature and their applications, that of naturalization. Reduced to its essentials, "naturalization" refers to ways of fortifying various social, cultural, political, or economic conventions by presenting them as part of the natural order. Naturalization is a leitmotif of gender studies, many of which show how forgers and enforcers of gender identities have appealed ceaselessly to the authority of nature, and how the interpreters of nature — natural philosophers, natural scientists, and physicians — have often aided and

[1] Among recent book-length studies at the intersection of history of science and history of gender, see Lloyd 1983; Keller 1985; Jordanova 1989; Schiebinger 1989; Russet 1989.

abetted that transfer of authority. In the context-dominated science studies of the last decade, naturalization has been the bridge carrying the heaviest traffic between science and its social context: Galileo, for example, "naturalizes" the shaky political legitimacy of the Medicis by christening the newly discovered moons of Jupiter in their honor; Darwin "naturalizes" the contested theories and practices of British political economy in the theory of natural selection. In both gender and science studies, naturalization is ideology at full strength, hardening the flimsy conventions of culture into the immutable, inevitable, and indifferent dictates of nature.

In this essay, I would like to use the history of early modern conceptions of the female intellect to challenge the notion of naturalization as it is currently deployed in both gender and science studies. Not only does this notion take the sharp boundary between "nature" and "culture" largely for granted — otherwise it would make no sense to talk about illegitimate "smuggling" across that border; it also routinely projects a relatively recent conception of nature back onto periods which understood that term quite differently. Where conceptions of nature diverge, so do the strategies (now emphatically in the plural) of naturalization. Naturalization is not the same tactic when marshaled in, say, eighteenth-century France as in nineteenth-century Britain. Although the authority of nature is invoked in both cases, the meaning of that authority depends crucially on whether nature is understood normatively or descriptively, within the framework of the natural laws of jurisprudence or the natural laws of mechanics. My quarrel is not with the claim that naturalization is a subspecies of ideology, nor with the claim that it is often a peculiarly potent form of ideology. Rather, I question the propriety of using a single term to blanket a multitude of meanings, of very different political valences. In short, I aim to historicize and thereby differentiate naturalization and, with it, the broader rubric ideology.

The early modern period, here construed as embracing the sixteenth through the eighteenth centuries, offers unusually stark contrasts between various meanings of nature and of naturalization. Within the compass of three centuries, the denotative center of gravity of the word "nature" shifted from essences to matter, from what is desirable to what is inevitable, from the sovereignty of reason to that of physical necessity. Writings about the female intellect during this period are peculiarly well suited to reflect and focus these changes for three reasons: First, as with so many aspects of gender identity, what was distinctively female about women's way of thinking was usually alleged to be part and parcel of their "nature"; second, the political and social implications of the female intellect were debated heatedly and at unprecedented length; and third, the actual content of beliefs about what traits sex the intellect as female remained relatively constant during this period, despite sharp differences of opinion over their putative "natural" causes. It is thus possible to isolate and track these naturalist explanations as a pure exercise in changing forms and standards of explanation per se, without addressing the conflating issue as to how new *explananda* might have influenced the course of these changes.

My argument is divided into four parts. I first briefly examine the terminology of intelligence in order to point out fundamental distinctions between modern and early

modern conceptions and thereby to forestall anachronisms. Second, I review at some length early modern descriptions of the female intellect in order to establish its alleged causes and characteristics. The third section contrasts the notions of "nature" that undergirded the explanations of the female intellect, calling attention to points of contrast and historical development that splinter the apparent unity of the term. For these latter purposes, I make some brief excursions into the nineteenth century, in order to amplify contrasts between early modern and modern views of naturalization. In conclusion, I consider the implications of these different forms of naturalization for the treatment of female intellectuals, as well as for conceptions of the female intellect. Throughout, I draw most heavily though not exclusively on French texts for my evidence. This preference has two grounds: First, the French literature on the female intellect, from the *Querelle des Femmes* of the seventeenth century through the controversies over female suffrage during the French Revolution, is at once the most voluminous, politically pointed, and influential of the early modern writings on this topic (Ascoli 1906; Hoffman 1977). German and British writers who took up these themes, such as Immanuel Kant and Mary Wollstonecraft, did so in reaction to French authors, especially Jean-Jacques Rousseau. Second, the dramatic changes in the concept of nature toward the end of the eighteenth century, which paved the way for ideology in the modern sense, appear to have emerged and taken root first in France, only gradually and with difficulty infiltrating German and British intellectual life, as the intoxication with *Naturphilosophie* in the one case and the persistence of natural theology in the other bear witness. By the turn of the nineteenth century, French intellectuals had largely become wary of both ways of infusing nature with sense and sensibility, and it is an avowedly neutral nature that is a precondition for the familiar version of naturalization.

Before Intelligence

Before taking stock of early modern representations of the female intellect, a word about terminology and its load of anachronism is in order. Intelligence as currently and conventionally understood by psychologists is a brashly modern notion. In contrast to theories about the intellect from antiquity through the mid–nineteenth century, the intelligence measured by such tests as the Stanford-Binet is general, quantitative, and, at least in principle, distinct from personality and moral character. This modern conception of intelligence did not arrive full-blown but rather emerged by fits and starts; it was general before it was quantitative, and quantitative before it was morally neutral. Herbert Spencer's and Hippolyte Taine's discussions of a general "intelligence," which matched the internal order of mental representations with the external order of phenomena (Spencer [1855] 1966, 1:410), antedate Francis Galton's first attempts to quantify what he called "natural ability" (Galton [1869] 1972, 26). Similarly, moralized intelligence survived the definitive quantification of intelligence

(see Binet 1898; Terman and Merrill [1916] 1937),[2] albeit not for very long; witness Catharine Cox's 1926 attempt to estimate retrospectively the IQs of three hundred past eminences such as Copernicus, Voltaire, Goethe, and John Stuart Mill, which included a character rating of, *inter alia*, their "degree of sense of humor," "trustworthiness," "family affection," "pure-mindedness," and "neatness" (Cox 1926, chaps. 11–13).

Cox's ratings were almost the last overt vestige of an ancient tradition of moralizing the intellect. Although mid-twentieth-century psychologists divorced, at least in principle and in public pronouncements, intelligence from personality and character,[3] such connections were still vigorously and unabashedly advanced throughout the nineteenth century. For example, Darwin identified genius with "unflinching, undaunted perseverance" (Darwin 1870, 1:328); Galton claimed that "natural ability" was compounded of capacity, zeal, and "an adequate power of doing a great deal of laborious work" (Galton [1869] 1972, 77). The congeries of concepts used by early modern writers to chart the kinds and relationships of mental faculties were still more permeable to the influences of morals and character. For example, the central notion of sensibility (*sensibilité, Sinnlichkeit*) in late seventeenth- and early eighteenth-century psychology referred to both perceptual and emotional sensitivity to impressions. Thus sensibility was at once the precondition for empirical knowledge and for the reasonable emotions of charity and compassion, which bound society together (Baasner 1986). Reason was still more closely identified with morality, for it was through the "natural light" of reason that, according to jurists, humans came to recognize all forms of truth, including "the eternal distinction between good and evil, the inviolable rule of justice [that] receives without difficulty the approbation of every man who reflects and who reasons" (d'Alembert and Diderot [1757] 1969, 2:684, s.v. "Loi naturelle").[4]

The exercise of reason not only revealed moral principles; it also sometimes required them. The patience and concentration needed to "combine in sequence a long chain of ideas; [the] attention that annihilates all objects in order to see only one and to see that one in its entirety" (Thomas 1772, 109) were at once integral parts of discursive reason and of an upright character. More than one early modern author disqualified women from philosophical contemplation on the grounds that they lacked the self-discipline and stamina to follow long demonstrations and intricate arguments: "It is true that women ordinarily have less application, less patience for reasoning in sequence, less courage and resolution than men" (Fleury 1686, quoted in Ascoli 1906, 56). As this example shows, the interdependence of moral and intellectual traits opened a channel through which social norms and cultural values could flow. It is not difficult to see how character is shaped by social role, and insofar as intellect is in turn shaped by character,

[2] On the early history of intelligence measurements and mental testing, see Peterson 1925, chap. 5; Sokal 1987.

[3] As far as the connection between intelligence and sex was concerned, male and female intelligences were virtually defined as equal in the revision of the Stanford-Binet test (Terman and Merrill [1916] 1937, 22, 34). For discussions and criticisms of recent psychological research on sex differences in intelligence, see Macoby and Jacklin [1966] 1974; Bleier 1988; Fausto-Sterling 1985, 13–60.

[4] Unless otherwise noted, translations are my own.

it, too, is firmly anchored within the social order. Because of this interdependence, and the central role it played in the gendering of intellectual abilities, I use the term "intellect" rather than the putatively neutral "intelligence" in what follows, to underscore the differences between early modern and modern conceptions.

However, it is also somewhat misleading to use the singular term "intellect" when referring to early modern theories of mental abilities, for it suggests an approximation of our monolithic, general intelligence. In fact, seventeenth-century theories posited a collection of faculties and talents residing in the mind, and a correspondingly intricate division of intellectual labor. No single one or even simple sum of these faculties coincides with our concept of intelligence. For example, a census of possible eighteenth-century French candidates culled from the *Encyclopédie* would include: *intelligence* (the ability to "seize with ease the most difficult things" but meaning also concord between individuals, or information) (d'Alembert and Diderot [1757] 1969, 2:482, s.v. "Intelligence"); *raison* (the God-given faculty for "knowing the truth," especially innate truths) (ibid., 3:200, s.v. "Raison [Logique]"); *intellect* ("the soul insofar as it forms concepts" from the raw materials of sensation) (ibid., 2:482, s.v. "Intellect [Grammaire et Philosophie]"); *entendement* (the faculty for abstract thought, as distinct from the imagination) (ibid., 1:1180, s.v. "Entendement [Logique]"); and *esprit* (a mixture of "judgment, genius, taste, penetration, scope, grace, finesse," or "ingenious reason") (ibid., 1244, s.v. "Esprit [Philosophie et Belles-Lettres]"). In seventeenth- and eighteenth-century psychological treatises these comprehensive mental capacities might be supplemented by the more specific faculties of perception, imagination, memory, and judgment, plus abstraction, taste, or various "sentiments," according to the author's predilection. The early modern mind was a crowded place, crammed with separate but not always wholly distinct faculties that together orchestrated the life of mind and heart.

Sexing the Mind

It is within the framework of this moralized, pluralist intellect — rather than within that of a neutral, general intelligence — that early modern discussions of a distinctively female intellect were firmly lodged. Given this profusion of faculties and functions, one might expect early modern psychologists to have been preoccupied with group and individual differences along each of these many dimensions. If twentieth-century theories of general intelligence sustain such investigations, then the myriad possibilities of a dozen or so faculties, with character differences to boot, must have highlighted human diversity still more dramatically, or so one might think. However, individual and group differences in intellectual endowment excited relatively little interest within early modern theories of mind. To be sure, degrees of superiority and inferiority in the "liveliness of our conceptions" or in the speed of mental combinations were duly noted, but uniformities rather than deviations, shared mechanisms rather than individual differences, commanded center stage. As Thomas Reid remarked of judgment: "The

judgments grounded upon the evidence of sense, of memory, and of consciousness, put all men upon a level" (Reid [1785] 1969, 540).

There were religious as well as theoretical grounds for this apathy concerning individual differences among human beings, which were dwarfed, according to theologians, by the differences between humans and animals. This latter distinction completely overshadowed the minor distinctions among human minds. Souls, and therefore minds, come only in one kind, according to orthodox Christian theology since Augustine, a position reinforced by Aquinas (Lloyd 1984, 31, 35). Although neither Augustine nor Aquinas nor their theological successors were particularly generous in their opinion of female capacities and rights, the tenet that rational minds have no sex surfaced again and again in early modern defenses of the feminine intellect: "The unique form and difference of that [human] animal consists only in the human soul" (Gournay 1622, 18; cf. Agrippa [1566] 1670, 3; Schurman 1641, 21; Le Moyne 1660, 284; Poullain de la Barre [1673] 1984, 60; Hippel [1792] 1979, 66–68).[5]

That the female intellect required such defenses points to the single most glaring exception to the claim that individual and group differences kindled little interest among early modern writers. Although the topic seldom featured prominently in treatises devoted exclusively to philosophical psychology, it did command the attention of a large number of medical and legal writers, as well as engaging numerous other authors in polemics over the moral, intellectual, and political status of women. This early modern polemical literature centered on the moral fitness of women. For example, the opening salvo in the seventeenth-century *Querelle des Femmes*, Alexis Rousset's *Alphabet de l'imperfection et malice des femmes* (1617), rehearsed female vices from "Avarice" to "Zelus Zelotypus" (i.e., jealousy) but barely spared a sentence for the intellectual debilities of women, aside from complaining that they talked too much (Olivier [Alexis Rousset] [1617] 1646, 93).[6] However, just because moral and intellectual virtues overlapped in early modern philosophy, debates over women's morals often widened willy-nilly into debates over their intellect as well.

The Renaissance and early modern literature about the female intellect contained few novel substantive claims or justifications for these claims, although some writers did revalue allegedly female traits as equal or superior to allegedly male traits. The *locus classicus* for sex differences in all species during this period remained a passage from Aristotle's *Historia animalium* (608a19–608b12), so influential as to merit quotation at length:

> In all genera in which the distinction of male and female is found, nature makes a similar differentiation in the characteristics of the two sexes. This differentiation is the most obvious in the case of human kind and in that of the larger animals

[5] Although a controversial passage in Aristotle's *De generatione animalium* (775a9–20) suggesting that women were monsters excited some comment, no one seems to have seriously doubted their humanity and therefore their possession of a rational soul: see Maclean 1977, 8–9; also Castiglione [1528] 1967, 219–20, for a firm refutation of the imperfection view.

[6] On the *Querelle des Femmes* in general, see Maclean 1977, 35–48.

> and the viviparous quadrupeds. For the female is softer in character, is the sooner tamed, admits more readily of caressing, is more apt in the way of learning; as, for instance, in the Laconian breed of dogs the female is cleverer than the male. . . . In all cases, excepting those of the bear and the leopard, the female is less spirited than the male; in regard to the two exceptional cases, the superiority in courage rests with the female. With all other animals the female is softer in disposition, is more mischievous, less simple, more impulsive, and more attentive to the nurture of the young; the male, on the other hand, is more spirited, more savage, more simple and less cunning. . . . The fact is, the nature of man is the most rounded off and complete, and consequently in man the qualities above referred to are found most clearly. Hence woman is more compassionate than man, more easily moved to tears, at the same time is more jealous, more querulous, more apt to scold and to strike. She is, furthermore, more prone to despondency and less hopeful than the man, more void of shame, more false of speech, more deceptive, and of more retentive memory. (Barnes 1984, 1:948–949)[7]

Both in its form and in its content this passage reverberated through centuries, indeed millennia, of European debate about the differences between male and female. The polar opposition between complementary male and female intellect was not fully dissolved into a continuum until the late nineteenth century;[8] the intertwining of intellect and character persisted into the twentieth; the specific claims concerning docility, cunning, learning, memory, and so on are with us still. Complementary thinking about male/female differences structured early modern views about sex differences, even with respect to moral injunctions purportedly binding on all Christians. Thus to violate the passive virtues, chief among them chastity, was the cardinal sin for women but merely a peccadillo for men; conversely, timidity was the most easily excused fault in women and the least in men (Maclean 1977, 19; Kelso 1956, 24–27). Claims about the female intellect conformed to this structure of polarities strung together by loose analogy to the major rubrics of female passivity and male activity, although these primary poles could not capture all the nuances of alleged contrasts between men and women. As Ludmilla Jordanova points out, it would be misleading to isolate any single polarity from the web that sustained them all and defined each with reference to all the others (Jordanova 1989, 20–25).

What traits clustered around the feminine pole? Taking Aristotle's claims in the *Historia animalium* passage as their departure point, early modern philosophers, jurists, theologians, and physicians generally agreed that women excelled in memory, ability to learn (where "learning" was understood in the context of taming and therefore strongly associated with docility and pliability of character), cunning, and all

[7] On the Renaissance and early modern influence of this passage, see Maclean 1977, 11; 1980, 41.

[8] On the importance of the polarity structure in classical thought, see Lloyd 1966; on the relation of Aristotle's views on sex differences to ancient Greek society, see Lloyd 1983, 94–105; on how quantification ultimately dissolved the polarity between male and female intelligence, see Daston 1989.

aspects of mental mutability, including a quicksilver imagination and hair-trigger emotions. Just as women were alleged to have less aptitude for the active virtues, such as courage, so they were also branded inferior to men in active intellect, including the exercise of speculative reason (Maclean 1977, 11–19; 1980, 15, 51, 64).

Until well into the eighteenth century, these intellectual traits were corporeally grounded, largely determined by women's allegedly cold, moist bodily complexion. Sensory impressions, stamped upon the brain as a seal upon wax, therefore adhered more easily, distinctly, and durably in the soft, humid female matter than in that of the hot, dry male. Hence women excelled in memory and also in imagination, for the same complexion was linked to mutable mental impressions — as well as to levity, capriciousness, deception, and more intense passions (Maclean 1980, 34–42). Defenders of the female intellect in the sixteenth and seventeenth centuries sometimes thought these good grounds for admitting women into the company of the learned, deliberately transforming traditional infirmities into advantages: "One reproaches them [women] with the humidity of their complexion: but one will not reproach them if one recalls that humidity is the stuff of which the images employed by the sciences are formed: that it [humidity] is the proper temperament of memory, which is the depositary and nourishment of the sciences" (Le Moyne 1660, 285–86; cf. Agrippa [1566] 1670, 60). Neither the claim — women excel in memory and imagination — nor its causal justification — humoral physiology — had changed here, only its valuation.

Some of these early modern shifts in valuation of what were still thought to be distinctively feminine mental traits reflect upheavals in the global organization of scholarship, especially humanist-inspired attacks on the institutions and the acrimonious debating style of university scholasticism. Juxtaposed to the formal, dry consistency of scholastic argument and disputation, the vivacious, ornamental qualities associated with the female intellect were seen in a more favorable light. The Jesuit Pierre Le Moyne linked women with a philosophy more "agreeable and not less instructive" than that professed in the Schools, one that "embellished [axioms and decisions] in exquisite fashion, with curious and intricate figures," adding "luster to force; and endowing solidity with grace and dignity" (Le Moyne 1660, Preface). To someone as hostile to scholasticism as the Cartesian François Poullain de la Barre, women's lack of a proper university education was a positive advantage, for they were thus preserved from pedantry and dogmatism ([1673] 1984, 28–30).[9]

However, even for writers who did not welcome the polished, parry-and-thrust repartee of the salons (Lougee 1976, 27–30) as an improvement over the arid disputations of university scholastics, the perceived essence of the feminine intellect in the eighteenth century was its sociability. The mind of Rousseau's Sophy, educated to be the quintessential woman and ideal mate, was a work of social camouflage, amiable because perfectly accommodating: "Sophy's mind is pleasing but not brilliant, and

[9] See also Algarotti 1739, lvii–lviii, which aimed "to polish and ornament society, instead of drying out the mind." On seventeenth-century attempts by scientific academies to reform boorish scholastic manners, see Shapin 1988, 1991; Daston 1992.

thorough but not deep; it is the sort of mind which calls for no remark, as she never seems cleverer or stupider than oneself" (Rousseau [1762] 1974, 358). Tenacious memory, vivid imagery, swift and surprising associations, brief attention span, penetrating intuitions, excessive curiosity, the aim to please and be pleased — for admirers and detractors alike, these allegedly feminine mental traits converged on polite learning, as opposed to solitary, technical study. Defenders of the female intellect praised its grace and iridescence, so well suited to the social exercise of conversation: "Indeed if one considers in what manner men and women produce what they know, one will judge that the men are like those workers who work tediously on wholly unformed, rough-hewn stones; and the women are like Architects, or clever Lapidaries who polish and easily work at their own good speed what they have in hand" (Poullain de la Barre [1673] 1984, 33). Detractors turned the same traits and images against women: "Is it not true that their [women's] impatience and natural desire to change, resulting from fleeting and rapid impressions, does not permit them to follow the same studies for years on end, and thus to acquire profound and vast knowledge? One knows that there are qualities of mind which exclude one another. The same hand cannot cut the diamond, and dredge the mine" (Thomas 1772, 116). Despite diametrically opposed views on the value of the female intellect, polemicists on both sides were largely united in believing there was such a thing, and in their characterizations of it.

Friend and foe were not only in basic agreement about the description of the female intellect and its complementarity to that of the male; they also mostly concurred as to its underlying causes. Although the principal seventeenth- and eighteenth-century explanations mostly tethered differences in mind to differences in body, the precise character of these latter differences changed during this period. Medieval complexion-based explanations were still common currency in the late seventeenth century, but they were gradually superseded in discussions of gender differences by appeals to the relative "delicacy" of female organs. Thus the Sieur de Saint-Gabriel called on the authority of "the Philosophers and the Doctors" to support his claim that because of the "tenuousness of their skin and the delicacy of their flesh" women had "more vivacity of understanding, having a more subtle imagination" (Saint-Gabriel 1660, 42). These feminist appeals to bodily delicacy were a bizarre twist on an ancient Aristotelian theme, namely the inferiority of matter to form (intimately linked to the soul and its faculties, in its Christian version). However, whereas Aristotle had quite pointedly identified matter with the female principle of generation, and form with that of the male, in *De generatione animalium* (738b18–30), the late seventeenth-century version of the distinction opposed the female to gross matter: "As for delicacy, apparently those who make this a subject of accusation to them [women] have not followed Aristotle's opinion: they would then have known that the most delicate temperament is the least charged with matter; the most pure and best suited to be penetrated by lights of the mind [*lumières de l'Esprit*]; the best prepared for beautiful images and the impression of the sciences" (Le Moyne 1660, 286).

The male trait complementing female delicacy was strength, both of body and of mind. Eighteenth-century writers intent on restricting the influence and educational

opportunities of women converted "delicacy" into "weakness" and made it the key to the feminine character, intellect, and social situation. Thus jurists pronounced men "by the prerogative of their sex and by the force of their temperament" to be "naturally capable of all kinds of employments and engagements," while simultaneously excluding women, "due to the fragility of their sex and their natural delicacy" (d'Alembert and Diderot [1757] 1969, 1:1377, s.v. "Femme [Jurisprudence]"). Most authors traced female weakness to childbearing and child-care responsibilities (Poullain de la Barre [1673] 1984, 21–23; Thomas 1772, 129); Voltaire anomalously reversed the explanation — because women are weak, they stay at home to look after the children: "Little able to labour at the heavy work of masonry, carpentry, medalling, or the plough, they are necessarily entrusted with the lighter labours of the interior of the house, and above all, with the care of children" (Voltaire [1764] 1824, 390).

Whichever way the causal arrow pointed, and whatever the political sympathies of the author as to the justice of current social arrangements, there was wide consensus in the second half of the eighteenth century that woman's weakness relative to man was the grounds for her confinement to the home and subordination to her husband. Rousseau praised the wisdom of nature, which made female cunning — still, as for Aristotle, a standard part of the female intellect — the counterweight to male strength, without which "woman would be man's slave, not his helpmeet," but recognized that cunning alone could not rescue woman from a life of submission to the stronger man (Rousseau [1762] 1974, 334–35). Condorcet branded both the domestic subordination and political disenfranchisement of women unjust, but he was as convinced as Rousseau that because woman was "weaker than man, it is natural that she lead a more retired, more domestic life" (Condorcet [1790] 1847–49, 10:128).

The most elaborated medical version of the weakness thesis can be found in the work of Pierre Roussel, who literally bodied out Rousseau's claim that "the male is only a male now and again, the female is always a female, or at least all her youth; everything reminds her of her sex; the performance of her functions requires a special constitution" (Rousseau [1762] 1974, 324). According to Roussel, not only the reproductive organs, but also the skeleton, ligaments, tissues, nerves, and vessels are "marked by the differences that display the functions to which woman is called, and the passive state to which nature destines her." Female organs are, Roussel claimed, soft, delicate, small, and elastic in comparison to those of the male, and from this fundamental distinction he read off all the clichés of feminine intellect and character. The mobility and sensitivity of her tender organs endow woman with the ability to seize at a glance "an infinity of nuances, of items of detail, and relationships that escape the most enlightened man"; her morality is dictated by sentiment and compassion; her good memory, mental agility, and animated conversation repair the omissions of the long studies her fragile frame cannot support without draining her "vital forces" (Roussel [1775] 1809, 9, 17–19, 59–64).[10]

Almost none of the traits, moral or intellectual, that Roussel derived from his global

[10] See Hoffmann 1977, 130–56, for a full discussion of Enlightenment theories of female physiology.

anatomy of female frailty was new, nor was the ancohoring of these traits in bodily constitution. Memory, imagination, intuition, and sociability dominated the female intellect, and compassion and docility the female character, just as thoroughly when they had been chalked up to a cold, moist complexion as when they were adduced from "cellular tissues." However, the doctrine of physical weakness, in conjunction with the ever more insistent emphasis on women's confinement to home and hearth because of that weakness, did ultimately reorient the complementarity between male and female intellects along a new axis, that of the abstract versus the concrete.

A limited sphere implied limited experience and limited activity, and experience and activity came to be seen as increasingly important to intellectual development in the last quarter of the eighteenth century. Even the old female bastions of memory and imagination could not withstand the call to broad experience and vigorous activity: the "sedentary and soft life" of women could at best foster an imagination of pretty scenes and tender emotions, but this paled beside the imagination of the "always active man . . . nourished on mountain peaks, at the edge of volcanoes, at sea, in battlefields, or in the midst of ruins" (Thomas 1772, 112–13). This particular vision of adventure elevating the poetic imagination owed much to the aesthetic of the sublime and was steeply slanted in favor of male talents. However, similar views can also be found in Mary Wollstonecraft's severely rational, ardently feminist *Vindication of the Rights of Women* some twenty years later. Wollstonecraft firmly rejected Rousseau's contention that nature intended a double standard of virtue for the two sexes, arguing that "the prevailing notion respecting a sexual character was subversive to morality." The appearances that spoke in favor of such distinct characters were in fact artifacts of women's neglected education and men's tyranny. Yet, although Wollstonecraft maintained that men and women were equally endowed with reason and therefore with the capacity for the same kind of virtue, she also conceded that because men were physically stronger, "they seem to be designed by Providence to attain a greater degree of virtue" (Wollstonecraft [1792] 1982, 21, 54, 68).

Nor did Wollstonecraft shrink from the association between bodily and mental vigor, thus challenging over a century's worth of feminist claims that male scholars, like women, were of a weak disposition (Le Moyne 1660, 286–87; Roussel [1775] 1809, 60–61): "I find that strength of mind has, in most cases, been accompanied by superior strength of body, — natural soundness of constitution, — not that robust tone of nerves and vigor of muscles which arise from bodily labour, when the mind is quiescent, or only directs the hands" (Wollstonecraft [1792] 1982, 91). Wollstonecraft admitted nature may have made women in general weaker than men in general, but she exhorted women at least not to exacerbate their frailty by inactivity, deluded by the conventional opinion that delicacy added to their charms. Activity and breadth of experience, particularly in childhood, were indispensable to the development of bodily and mental force, for girls as well as boys: "Most of the women, in the circle of my observation, who have acted like rational creatures, or shewn any vigour of intellect, have accidentally been allowed to run wild — as some of the elegant formers of the fair sex would have it" (ibid., 101).

The experience of women, confined as they were by their domestic duties, was necessarily narrowed to social relations, which taught them "effects and modifications" but not the "simple principles" yielded by the scientific study of nature (ibid., 61). Wollstonecraft would have nothing to do with those who argued that feminine debilities in virtue and intellect were irremediable — her dedicatory epistle to Talleyrand called for a national education in revolutionary France and elsewhere that would include women and correct these infirmities, to make women "more masculine and respectable" in both reason and virtue. However, in her description of these infirmities and her association of them with physical weakness and the narrow experience apparently dictated by that weakness, her views closely resembled those of such writers as Roussel and Cabanis, for whom sexual character admitted only of slight modification (Roussel [1775] 1809, 10).

Moreover, Wollstonecraft concurred with many late eighteenth- and early nineteenth-century writers on sex differences in underscoring how women's limited sphere barred them from the abstract, general principles necessary for science and for justice.[11] In the late eighteenth and early nineteenth centuries the age-old oppositions between female memory and imagination versus male discursive and speculative reason were reformulated and condensed into an opposition between the female grasp of concrete details and the male mastery of abstract principles. Kant for example firmly discouraged women from deep study in metaphysics and mathematics on the grounds that their "beautiful understanding [*schöner Verstand*]" was incompatible with "abstract speculations or knowledge, which are useful but dry" (Kant [1764] 1968, 230). Rousseau's formulation was characteristically peremptory: "The search for abstract and speculative truths, for principles and axioms in science, for all that tends to wide generalisation, is beyond a woman's grasp; . . . works of genius are beyond her reach, and she has neither the accuracy nor the attention for success in the exact sciences; as for the physical sciences, to decide the relations between living creatures and the laws of nature is the task of that sex which is more active and enterprising, which sees more things, that sex which is possessed of greater strength and is more accustomed to the exercise of that strength" (Rousseau [1762] 1974, 349–50). Regardless of whether these authors thought the distinction corrigible or inevitable, regrettable or fortunate, they concurred in recognizing its existence and in interpreting it as a consequence of women's limited sphere, itself in turn a consequence of women's physical weakness.

It is at this point that the history of general intelligence and that of the female intellect cross decisively. Had the late eighteenth-century opposition between concrete details and general principles remained one of several oppositions, attached to the several mental faculties that distinguished the male from the female, it would have been only a minor variation on an ancient theme. However, in the middle decades of the nineteenth century, psychologists increasingly preferred a single, overarching

[11] Cf. Kant's distinction between *adoptierte* and *echte Tugend* as it parallels the distinction between *schöner* and *edeler Verstand*, in Kant [1764] 1968, 217–20, 228–43.

intelligence to a mind crammed with disparate faculties. The defining property of this new, general intelligence was the ability to synthesize general principles from the teeming detail of experience. Thus, with the ascent of general intelligence the intellect effectively became masculinized to an unprecedented degree. Distinctively female mental abilities, like distinctively female virtues, had almost always been classified as abilities and virtues of the second magnitude. However, they had been abilities and virtues nonetheless. With the homogenization of the intellectual faculties into a single, all-purpose intelligence and the identification of that intelligence with the capacity for extracting general principles from experiential particulars, the link between "female" and "intellect" was all but severed.

The new concept of general intelligence excluded not only women but also savages and children. Hippolyte Taine contended that children show merely animal intelligence until they are capable of "extracting, remarking, and connecting two abstract terms" and of rising from particulars to "simple and fixed laws" (Taine [1870] 1888, 2:245); Herbert Spencer claimed that women and the "smaller brained races" were typically enmired in first impressions, "incapable of balancing evidence" ([1855] 1966, 1:581). For Spencer, as for late eighteenth-century writers on sex differences, this penchant for the particular and the concrete among women, the uncultivated, and the uncivilized stemmed in part from limited experience: "While throughout the lower grades of human intelligence, the concrete objects and acts within a narrow range of experience are reproduced in thought, and the imagination is thus almost exclusively reminiscent, that development of the conceptions which we have traced, implying a continually-wider excursiveness of thoughts more numerous, more heterogeneous, more involved, and bound together more variously and less coherently, makes possible new combinations of thoughts." Those minds denied this "excursiveness" were also thereby denied "abstract conceptions" and "truths of higher generality" (ibid., 2:603–4; Spencer 1873).

For Spencer, limited experience was no longer the exclusive cause of inferior, concrete intelligence. Rather, it was one of several factors, combining with "underdeveloped nervous systems" and small brain size, to cramp intelligence (Gould 1981; Tedesco 1987, chaps. 3–6). Despite its similarity to late eighteenth-century discussions of male and female intellects at the descriptive level, Spencer's theory of intelligence unfolded within a different explanatory space, recognizably ordered along the division between nature and nurture. In Spencer this division had not yet solidified; he could still countenance hybrid use/disuse explanations, in which experience, both individual and racial, somehow enlarged the brain and fortified the nervous system. Nature and nurture, though now distinct terms, were not yet necessarily mutually exclusive. However, later theorists of intelligence such as Galton separated the two cleanly into either/or components, ultimately to be quantified by correlational statistics (Galton [1869] 1972, 26, 56; Mackenzie 1981, 171–75). Although Galton himself plumped for the nature side in the debate over the causes of natural ability, opponents on the nurture side were just as tightly wedged into the same explanatory framework. Since debates about intelligence, female and other, are still waged within this framework, we

must return once again to the eighteenth-century discussion of male and female intellects in order to appreciate its contingency and novelty.

The Changing Nature of Nature

At first glance, the eighteenth-century framework for explaining gender differences, including those of intellect, looks reassuringly familiar. "Nature" and "education" are regularly invoked, usually in opposition to each other. Moreover, "nature's" dictates are generally expressed by bodily facts—be those facts cold, moist humors, a wandering uterus, physical weakness, or soft organs and tissues. The exact relation between these "facts" and what they purportedly explained admitted of several possibilities: causal, functional, and/or analogical. In the case of female mental traits, for example, cold, moist humors *caused* heightened imagination and memory by a straightforward, if crude, material mechanism of imprinting sensations on brain matter; physical weakness *functioned* to form women for their duties as wives and mothers with a suitable intellect and character; soft, elastic tissues *analogized* compassionate, mutable minds. All three forms of explanation survived well into the nineteenth century: small, underdeveloped brains *caused* low female intelligence (Broca 1861, 152–54); superior male strength relative to competitors *functioned* to win females (Darwin 1870, 2:316–17); the "quiescent" ovum *analogized* the "more passive, conservative, sluggish, and stable" female metabolism and character (Geddes and Thomson [1889] 1901, 18, 289).

Yet despite these parallels, the natures of the mid–eighteenth and mid–nineteenth centuries were different entities, and appeals to the authority of nature consequently rested on different grounds. To simplify the contrast for the sake of clarity: early modern nature was benevolent, purposeful, and sovereign through enlightened assent; modern nature was indifferent, aimless, and sovereign through physical necessity. Early modern nature could serve as an explicit source of social values because openly value-laden; modern nature, only as an implicit source because amoral. Early modern nature was incapable of "hard" facts, in the sense of unpleasant truths that vitiate ethical norms, for nature and enlightened morality joined together in prearranged harmony. Modern nature abounded in bitter revelations about the illusions of ethics and social reform, for nature was ruthlessly amoral. This does not mean that modern depictions and invocations of nature were any less ideological than their early modern counterparts, only that the ideology was hidden behind a façade of studied neutrality. More precisely, the concept of ideology in the sense of naturalization became possible in the middle decades of the nineteenth century, for only then did the embedding of social norms in nature come to be seen as necessarily fraudulent.

The concept of natural law still current throughout the eighteenth century throws these contrasts into relief. European jurists inherited the concept of natural law from Roman law, but seventeenth- and eighteenth-century treatises on the subject simultaneously widened the legal and social significance of natural laws and deepened their

justification.[12] Natural laws transcended and superseded statute laws in their universality and validity: "The most general Rule for Human Actions, that is, that [rule] which one must follow qua Reasonable Animal, is what one ordinarily calls the *Right of Nature,* or *Natural Law,* and which one also could call *Universal Law,* because all of human kind is bound to observe it, or *perpetual law,* because it is not subject to change, as Positive Laws are" (Pufendorf [1682] 1734, 1:192). The necessity of natural laws was that of mathematical demonstrations, for we come to know and accept natural laws because "Human Understanding has the ability to discover clearly and distinctly, in reflecting on the nature and the constitution of man, the necessity of conforming its conduct to natural laws" (ibid., 217). Natural laws commanded assent in much the same way that mathematical demonstrations did — by the coercion of reason, not that of physical constraint.

Thus natural laws were at once necessary and violable, while laws of nature, such as the laws of motion, were neither. The laws of nature were physically irrefragable but rationally on a par with the positive laws of human legislatures, for God might well have ordained others (d'Alembert and Diderot [1757] 1969, 3:200, s.v. "Raison [Logique]"). In contrast, the natural laws that governed society could muster all the force of reason behind them but were nonetheless broken daily. Neither self-evidence nor self-interest could compel unenlightened governments and/or their unenlightened subjects to square conduct with, for example, the natural necessity to form a peaceable society. Custom, ignorance, bad education, vice — all conspired to silence, though not wholly to efface the "impression of the eternal reason that governs the universe" engraved upon the human soul (ibid., 2:685, s.v. "Loi naturelle").

Nature and education were thus sometimes paired as antagonists in eighteenth-century writings, but they were also sometimes yoked together. The "natural" was opposed to both the supernatural and the artificial, but the opposition was not symmetric. The natural and supernatural were mutually exclusive, separated in theory if not in practice by a sharp boundary. The natural and the artificial, however, could overlap, and the boundary between them was often blurred. In one sense, the artificial encompassed everything that required human labor (including, for example, training in eloquence or an education in affability as well as handicrafts and manufactures). But in another sense all objects, even man-made ones, belonged to nature; and in yet a third sense, all of nature was potentially artificial, waiting to be put to human use (ibid., 2:1006, s.v. "Naturel [Métaphysique]").

Hence the relationship between the natural and the artificial in general, and between nature and education (or upbringing) in particular, was never so starkly complementary as that between nature and nurture. Even the most ardent proponents of a female nature, grounded in anatomy and natural law, could not have posed a crisp either/or question about the relative contributions of nature and education. First, female nature, like natural law, could be intensified or diluted by education. Rousseau's most influential pronouncements about female nature occur in the middle of a long treatise

[12] On the natural law tradition in early modern jurisprudence, see Gierke 1934.

on education: the young Sophy must be painstakingly reared in order to realize her true nature as a woman. Hers was, to be sure, a highly circumscribed education, lest it corrupt that nature, "for to make woman our superior in all the qualities proper to her sex, and to make her our equal in all the rest, what is this but to transfer to the woman the superiority which nature has given to her husband?" (Rousseau [1762] 1974, 345). Similarly, the physician Roussel worried that the entire scheme of female anatomy and physiology might be undermined by education and custom (Roussel [1775] 1809, 21–22). Only in the nineteenth century did anatomy — and all other "natural" endowments — become destiny; the hold of eighteenth-century nature was feeble by comparison and all too easily subverted.

Attempts to subvert the dictates of nineteenth-century nature were deemed futile; attempts to subvert those of eighteenth-century nature, perverse. Natural law not only bore the imprimatur of reason, it also displayed the benevolent wisdom of the creator or of a pantheistic nature. Nowhere was this smug teleology more blatant than in discussions of female nature and the rights and duties derived therefrom. Just because the hold of natural law on actual conduct was so precarious, needing to be propped up by education and voluntary submission, it was essential to underscore that the natural order was also the most desirable one: "You must follow nature's guidance if you would walk aright. The native characters of sex should be respected as nature's handiwork. . . . Nature herself has decreed that woman, both for herself and her children, should be at the mercy of man's judgment. . . . What is, is good, and no general law can be bad" (Rousseau [1762] 1974, 326; cf. d'Holbach 1773, 123, 135; Charlton 1984, 161–63). Nor was teleology restricted to the sphere of manners and morals; anatomy and physiology provided equally explicit examples of how the female body was ideally constructed for its natural tasks (Schiebinger 1986; Hoffmann 1977, 165).

In the final decades of the eighteenth century, the wise, provident face of nature began to harden, at least in France. Drawing on the writings of Diderot, d'Holbach, Laclos, and de Sade, A. E. Pilkington has argued that "a new use of the idea of nature emerges: nature is now argued to be ethically neutral and blindly amoral" (1986, 55). Neither teleology nor values disappeared from the natural sciences; however, they did go underground. The overt harmony between what is and what is good had dissolved into a dissonance between hard facts and utopian hopes. Nature no longer revealed to reason what should be; rather, nature set stern limits to what could be. Indifferent to human concerns, and therefore incorruptibly neutral in human disputes, the new nature was also inexorable. The reasonable necessity of natural laws had given way to the physical constraint of laws of nature. Whether or not enlightened reason dictated, for example, that girls should receive the same educational opportunities as boys, the "hard facts" of inferior female intelligence pronounced the expenditure of effort and resources futile. The hallmark of nature coupled with nurture was that nurture was powerless to change nature. What belonged to nature and what to nurture was (and is) furiously debated; but once a trait was consigned to the natural, no human will could alter it. Justice no longer counted as an argument in the natural realm. Once a weapon for progressives or even radicals in the eighteenth century, the standard against which

the social status quo could be measured and found wanting, nature was more often than not enlisted on the side of conservatism in the nineteenth century.

It is important to bear in mind three points concerning this transformation in the meaning of nature as they relate to debates about the nature of women. First, the old, sometimes even ancient claims, and the cultural values that underpinned them, were easily assimilated within the new framework. Despite protests of neutrality, nineteenth-century biologists and psychologists who studied gender differences often decked out the age-old platitudes, and the social attitudes that went with them, in the new scientific language of evolutionary theory, cell physiology, and mental measurement. Indeed, these claims redoubled their force, now vaunted as neutral descriptions of an indifferent nature by disinterested scientists. Second, nineteenth-century expositors of the "laws of nature" governing gender roles were no more successful than eighteenth-century proponents of "natural laws" in eliminating disobedience. Although nature was now allegedly immune to the corruptions and corrections of nurture, the nineteenth-century literature on gender differences is strewn with stern reminders to women reformers to submit themselves to the laws of their nature, although there presumably should have been little choice in the matter. Third, the new categories of nature versus nurture as applied to gender differences owed little or nothing to the attempts of Roussel, Cabanis, and others to base these differences in anatomy and physiology. Materialist medical explanations had been a staple of the literature on gender differences since time immemorial; "inscribing" sexual difference in the body did not begin at the turn of the nineteenth century.

What was new was the interpretation of these "natural" differences as incommensurable with values and as immiscible with education. For the first time medical materialism implied medical determinism in this realm. Naturalization as a strategy of legitimation underwent a parallel transformation. Nature never relinquished its authority as last court of appeal, but its authority was now of a palpably different kind. It ruled no longer through the principle of sufficient reason or even through that of enlightened self-interest; it now ruled through the iron necessity of matter. Its decrees were no longer reasonable and tending to safeguard human welfare; they were indifferent to human values and ends. The chasm between nature and culture yawned wider than ever before, and attempts to bridge that chasm were policed more severely than ever before. Those who read the cultural into the natural stood accused of anthropomorphism and ideology; those who read the natural into the cultural, of scientism and reductionism. The modern understanding of naturalization depends on this fault line, and is read back into earlier historical geographies only at the peril of distortion.

Conclusion

What difference did these different senses of naturalization make? Naturalizers drew the boundaries between the natural and the nonnatural, and regulated the traffic

across the frontier: eighteenth-century naturalizers distinguished sharply between the natural and the conventional but permitted the moral to pass freely between both realms, mingled the psychological with the somatic in both causal directions, and invoked education to correct or corrupt nature; nineteenth-century naturalizers barred the moral from the natural, made the body the causal substratum of character and intellect, and opposed obdurate nature to pliable nurture.

It is important to realize that although each of these forms of naturalization had a global political affinity, reformist or conservative, it was possible — indeed, inescapable — for both sides of a political debate to couch arguments in the terms dictated by the then reigning framework of naturalization. Not only did Wollstonecraft and Condorcet enlist nature to support their case for the educational and political emancipation of women; they invoked much the same image of nature that Rousseau and d'Holbach had in summoning women back to hearth and husband. Similarly, when John Stuart Mill in 1869 protested against the subordination of women, he understood "natural" capabilities in the same immutable sense that Galton (who was persuaded of the inferiority of women's intelligence) had. Hence Mill and other reformers were forced to argue either that the extent of such capabilities could not yet be fairly judged or that they were irrelevant for suffrage or other rights (Mill [1869] 1970, 190–91). Naturalization is not just the weapon of one or another side of a political controversy, nor is it always monopolized by conservatives. Rather, it is the framework within which all combatants must erect their positions and arguments if they hope to tap or circumvent the formidable authority of nature.

Why nature, however understood, should wield such authority in Western societies has yet to be explained satisfactorily. Very little comparative work, either cross-historical or cross-cultural, has been brought to bear on the assumption that nature's authority is always the highest, perhaps because the assumption has so long had the status of a self-evident truth. However, if the meanings of nature, and therefore the *kinds* of authority it radiates, change historically, there exist at least *prima facie* grounds to think that the *degree* of authority has also changed. Although it would be difficult to find a period in European history since the twelfth century when nature was not a concept to conjure with, particularly with regard to the nature of sexuality and the relations between the sexes (Brundage 1987, 7, 16, and passim), nature's authority, and consequently attempts at naturalization, seem to have been steadily increasing since the late seventeenth century. However, it would be premature to argue (a) that these changes took place abruptly, once and for all, or (b) that they were simple, direct consequences of the Scientific Revolution. *Pace* Alexandre Koyré and E. A. Burtt, meaning and value were not banished from nature, or even from natural philosophy, with the triumph of Newtonianism (Koyré 1957; Burtt [1924, 1932] 1954). When theologians sought the advice of natural philosophers in apologetics, as Richard Bentley did from Isaac Newton in drafting his Boyle Lectures, the bedrock of justification in society had indeed shifted decisively. But the causes of this shift, and the twists and turns of the subsequent history of naturalization, have yet to be charted.

The female intellect — and a good many other putatively female traits — had long

been naturalized, but the import of that naturalization changed dramatically during the eighteenth and early nineteenth centuries. Without ever leaving the realm of the "natural," the specific justifications for these assertions changed as well. Anabolic metabolisms replaced cold, moist humors; sexual selection replaced the natural law of the jurists; brain size replaced physical delicacy. What did not change markedly was the content of these assertions, however diversely naturalized. The passages on sexual character in Darwin's *Descent of Man* differ little from eighteenth-century descriptions, opposing male energy and "inventive genius" to female compassion, imitation, and "powers of intuition" (Darwin 1870, 2:316, 326–27). Darwin's identification of these female faculties with "the lower races" was a characteristically nineteenth-century addition, but otherwise the description could have been taken from Rousseau.

Given that the content of the descriptions of the female intellect remained largely constant, and that the explanations (however these may have differed in their specifics) remained largely "natural," we can study the difference made by a shift in the meaning of naturalization for beliefs about the female intellect detached from these potentially conflating factors. One particularly sensitive index for detecting this difference is the portrayal of female intellectuals. Although their numbers were never large, there were women in early modern Europe who pursued lives of learning and who sometimes even made a living out of learning (Grafton and Jardine 1981; Schiebinger 1989, chaps. 2–3). Whether they enjoyed an international reputation, as did the physicists Emilie de Châtelet and Laura Bassi, or remained local celebrities (or notorieties), as did the astronomer Maria Winkelmann and the naturalist Maria Sibella Merian, these women confronted reigning beliefs about the female intellect with flesh-and-blood counter-examples. Nineteenth-century writers on the female intellect had to deal not only with a somewhat larger group of such counterexamples but also, at least in the final decades of the century, with campaigns to open the universities to women. How did those who described and explained the female intellect respond to these challenges, and did the entrenched framework of naturalization matter to their responses?

Before surveying these responses by period, it should be made clear that almost no one welcomed the prospect of women deserting their familial duties in droves for the life of the mind. This claim holds true even for authors who believed that women were intellectually equal or superior in some respects to men. For example, Le Moyne collected scores of instances in which women throughout history had distinguished themselves in philosophy, government, religion, and even on the battlefield, and argued on physiological and theological grounds that women's intellectual parts were at least the equal of men's: "In all this it is certain that there is nothing which the mind of women cannot achieve, nothing is above their abilities, and the paths which nature has opened for them. Why would they not be as capable as we of contemplation and of the sciences of speculative philosophy?" Yet Le Moyne protested that he did not thereby intend for women to abandon domesticity, for "it is not my intention to call women to the colleges . . . to exchange their needles and wools for astrolabes and spheres. I respect the boundaries that separate us too well" (Le Moyne 1660, 285, 288–89). Even the most fiery eighteenth-century defenders of women's educational

and political rights, writing in the heat of the French Revolution, respected these boundaries. Condorcet imagined that the political emancipation of women would in no way disturb the household status quo; Wollstonecraft thought that education for women would make them better wives and mothers (Condorcet [1790] 1847–49, 10:128; Wollstonecraft [1792] 1982, 114–16). More conservative writers were even more emphatic that a woman's place was in the home and that this precluded strenuous intellectual activities (Jordanova 1986; Charlton 1984, 162–163). I have been able to locate only one early modern source that followed the logic of female intellectual equality to its practical conclusion, imagining women as professors at universities, ministers in churches, magistrates in courts, and generals commanding armies (Poullain de la Barre [1673] 1984, 57, 76ff.). For the most part, however, the learned woman was an object of ridicule, at best useless and at worst a renegade who had deserted her rightful duties. Molière could find no better way of damning the bluestocking Armande in *Les Femmes savantes* (1672) than by having her scorn marriage and children in favor of intellectual pursuits (Molière 1688, I:i).

It is important to distinguish these early modern responses to women intellectuals from the debate about whether and how women should be educated, and also from the controversy waged over the salons. Although critics such as Molière often linked the *femmes savantes* to the salons, the *salonneuses* were as persuaded as their enemies that the essence of the female intellect was its sociability, its penchant for vivid details, its tenacious memory, its lightning imagination. The battle waged over the salons was "not whether women should become scholars, but whether women should continue to play their [political] role in the salons" (Lougee 1976, 30). In what follows, I shall be concerned with responses only to those learned women whose interests ran counter to beliefs about the strengths of the female intellect. Many critics who puzzled or ranted over a woman's taste for, say, metaphysics might well have strongly recommended that she be educated in some other, more appropriate discipline, such as moral philosophy. Women novelists who probed the psyche and anatomized morals and manners were seldom the target of such attacks.

At the heart of the early modern response to the learned woman was the sense of the denatured, variously expressed as absurdity, revulsion, or wonder. The French fabulist La Bruyère compared the learned woman to an exquisitely carved firearm, useless except as a curious "pièce de cabinet" (La Bruyère [1688] 1693, 148). Kant thought the accomplishments of "learned ladies" worse than useless — "they might awaken a certain cold admiration by dint of rarety, but will at the same time weaken the charms which give them sway over the opposite sex" — and freakish to boot, like the bearded woman at the fair (Kant [1764] 1968, 229). Neither Kant nor La Bruyère doubted the authenticity of the achievements of these female prodigies. But both found something ludicrous in the very notion of the woman intellectual, a certain comical inappropriateness in a woman's serious interest in Greek philology or the foundations of mechanics (Kant explicitly mocked the classicist Dacier and the physicist du Châtelet), when she might instead have dabbled in the more feminine fields of belles lettres and geography. The impression of absurdity was heightened by the apparent futility of

such studies: If women were destined never to leave the home, queried these critics, what possible use could such learning be to them or to anyone else?

For those who could only too well imagine women forsaking the bosom of the family for the glittering conversation of the salon or, still worse, for solitary scholarship, the woman intellectual was not merely absurd but revolting. The French physician Cabanis thought intense intellectual work to be incompatible with femininity: "She [woman] is rightly frightened by mental work . . . ; she chooses that which demands more tact than science, more imagination than reasoning" (quoted in Hoffmann 1977, 165). The woman who defied these "natural" preferences thereby perverted her nature and became monstrous. The denatured female intellect here took on darker colors, those of the things and acts branded *contra naturam* and therefore morally loathsome. This response to the woman intellectual drew on the deep moral reserves still present in Enlightenment conceptions of nature, ultimately rooted in medieval Christian sexual taboos (Brundage 1987, 212–13, 286–87, 533, 571; Boswell 1981, 312–13).

In some contexts the woman intellectual could evoke more positive associations, if her sheer rarety was uppermost in the response. In the early modern period a learned woman capable of conversing with male scholars on their own terms was always an anomaly, and anomalies could be interpreted as wonders as well as abominations, as *praeter naturam* as well as *contra naturam*. The Bolognese physicist Laura Bassi seems to have fallen into this category of wonders, crowned with laurels (sometimes literally) at home by leading citizens bent on making her a symbol of Bologna's cultural aspirations, and admired abroad by such as Voltaire (Elena 1991). Yet the very magnitude of Bassi's reputation and the honors heaped on her underscored her status as prodigy rather than as woman intellectual. Bassi's career as professor of philosophy at the University of Bologna and member of the Istituto delle Scienze was almost sui generis for the period,[13] never intended as a model for more than a handful of other learned women — if for no other reason than that such imitators would have destroyed Bassi's title to uniqueness, to near miraculous status.

Moreover, the highly ceremonial existence that Bassi led was, as Paula Findlen has shown, redolent of ancient mythological associations, routinely apostrophizing her as "most learned virgin" or even as the virgin goddess Minerva, not to mention the obligatory comparisons to various muses (Findlen forthcoming). By transforming Bassi into a living allegory, her admirers at home and abroad intensified the aura of the wondrous. That her fame throughout the Enlightenment Republic of Letters was owed mostly to this aura rather than to her international influence can be concluded from her meager record of publications outside of Bologna (Elena 1991, 514–16). Learned women who also happened to be of royal blood, such as Princess Elizabeth of Bohemia and Queen Christina of Sweden, also partook of the wondrous, their rank and accom-

[13] Bologna had some tradition, perhaps in part legendary, of women taking degrees and instructing students: Maria Delfini Dosi took a law degree there in 1722; Christina Roccati Rodigina, a medical degree in 1751; Maria Gaetana Agnesi was offered an honorary chair in mathematics in 1750; Clotilde Tambroni became professor of Greek in 1790: See Findlen forthcoming..

plishments admitting them into the realm of the preternatural and the admirable rather than that of the unnatural and the abhorrent.

Whether absurd, monstrous, or wondrous, the denatured woman intellectual of the late seventeenth and eighteenth centuries was never impossible. Until the final decades of the eighteenth century, it was the appropriateness not the authenticity of such pursuits that called down laughter, shock, or wonder. This is wholly in keeping with a framework of naturalization that was materialist without being determinist or amoral. Physician though he was, Cabanis was still willing to accept the existence, if not the desirability, of women intellectuals, without thereby calling into question the anatomy that should have inclined the entire sex in other directions. Enlightenment critics may have bemoaned the misguided education that had fitted a woman for natural philosophy or philology, but they were all too conscious that such unnatural upbringings were possible — and therefore to be reproached all the more severely. For the sternest of these writers, to stray from the course of nature was a matter of moral lassitude but not of miracles. In those few cases in which women intellectuals counted as wonders rather than as absurdities or abominations, they were treated as benign marvels, akin to the aurora borealis or a volcano, rare and unexplained but still credible.

Not so within the more rigid framework of mid–nineteenth-century naturalization, in which the prevailing tone was one of skepticism or paradox. Once "natural laws" had hardened into "laws of nature," violations could no longer be a matter for reprimand but only for incredulity. When the violation was too well attested to be simply dismissed out of hand, as in the case of the novelist Georges Sand or the chemist Marie Curie, critics insinuated that all genuine achievement could be traced back to male lovers and/or associates (Slama 1980, 213–43; Pycior 1987, 191–215). Cesare Lombroso, in his study of genius, doubted a priori whether women, who like children were "notoriously misoneistic," could ever muster the originality required to inaugurate new movements in art, science, or politics. The rare exceptions were, according to the inexorable logic of the new naturalization, disqualified as women: "Even the few [genial women] who emerge have, on near examination, something virile about them. As Goncourt said, there are no women of genius; the women of genius are men" (Lombroso [1888] 1891, 138). This retreat to paradox was a perfectly consistent response to exceptions within the nineteenth-century framework of naturalization, which demanded that exceptions be at all costs either discredited or reclassified. The denatured woman intellectual had become an impossibility.

Frameworks of naturalization may sometimes ascribe necessity to nature, but they themselves are contingent creatures of history. The conditions for their rise and fall, their longevity and modification have barely been granted existence, much less attracted investigation. The example I have sketched here — that quite similar beliefs about the female intellect could be differently naturalized — is more a kinematics than a dynamics of such a history, contrasting end states rather than unearthing causes. It is meant more as an existence proof by instantiation than as a full-dress account even of this brief episode in the history of naturalization. Naturalizations come in the plural, and their varieties matter to how and why the social and the natural come to be fused in

specific instances. Without making frameworks of naturalization themselves objects of investigation, as well as engines of explanation, we cannot understand what "the authority of nature" meant and means, much less the sources of its power.

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