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Margaret Cavendish, Jan Baptista van Helmont, and the Madness of the Womb

Jacqueline Broad

In April 1667, Mary Evelyn wrote to her son's tutor, Ralph Bohun, describing a visit that she had paid to Margaret Cavendish, the Duchess of Newcastle (1623-73). Evelyn reports that Cavendish was with the physician and natural philosopher, Walter Charleton (1619-1707), and that he was "complimenting her wit and learning in a high manner; which she took to be so much her due that she swore if the schools did not banish Aristotle and read Margaret, Duchess of Newcastle, they did her wrong, and deserved to be utterly abolished."[1] Evelyn left the meeting declaring that "Never did I see a woman so full of herself, so amazingly vain and ambitious."[2] And her complete description of the encounter does not leave the reader with a favorable impression of Cavendish's humility: enthusiastically recounting the details of her philosophy (citing "her own pieces line and page"), Cavendish paused for breath apparently only in order to greet the arrival of new admirers. While Evelyn may have had a personal grudge against Cavendish,[3] her detail about "banishing Aristotle from the schools" still rings true with our present-day opinions

about Cavendish's natural philosophy. The author of at least six original philosophical works, and someone who built her views upon her own "sense and reason," Cavendish is widely regarded as an innovative (albeit, somewhat ignored and uninfluential) participant in early modern scientific discourse.[4] There is much in Cavendish's philosophy that strikes the reader as modern or forward thinking in nature: she supports the separation of science and religion, she is a thorough-going materialist, she challenges the usefulness of supernatural explanations for natural occurrences, she denies the existence of witches and demons in the natural world,[5] she supports reliance upon sense and reason rather than learned authority, and she is a defender of probabilism and anti-dogmatism in the development of scientific theory.[6] On some of these points, Cavendish has a great deal in common with Thomas Hobbes,[7] a thinker who did have a tremendous influence on the development of modern philosophical ideals.

But if we look carefully at Cavendish's writings, it is possible to disrupt the notion that Cavendish was someone going forward rather than backwards in terms of scientific progress. In this chapter, I examine Cavendish's opinions about medicine and disease in her 1664 work, the *Philosophical Letters: Or, Modest Reflections Upon some Opinions in Natural Philosophy.*[8] This book is a collection of epistles about the opinions of "several Famous and Learned Authors of this Age," addressed to an anonymous (and most likely imaginary) female correspondent. In this work, in an effort to make her philosophy more intelligible, Cavendish compares her ideas to those of the leading natural philosophers of her day: Thomas Hobbes, René Descartes, Henry More, Joseph Glanvill, Jan Baptista van Helmont, William Harvey, Galileo, Walter Charleton, and Robert Boyle—among other (unnamed) authors. Here I focus exclusively on her critique

of the Flemish chemist and physician, Jan Baptista van Helmont (1577-1644), a reformer of medicine and science in early seventeenth-century Europe. In her *Philosophical Letters*, Cavendish provides an extended commentary on *Oriatrike, Or, Physick Refined* (1662), John Chandler's English translation of van Helmont's collected writings, the *Ortus Medicinae* (first published in Latin in 1648).[9] Among Cavendish scholars this critique has received little attention, despite the fact that out of all the figures in the *Philosophical Letters*, Cavendish devotes the most attention to challenging van Helmont and his philosophy (187 of 542 pages).[10] This critique complicates some of our common perceptions about Cavendish as a natural philosopher and a feminist.

In the first part of the chapter, I show that in matters concerning medicine and "physick", far from having Aristotle thrown out of the schools, Cavendish is strongly opposed to the questioning of ancient authority. She declares that "it is better, in my judgment, to follow the old approved and practised way of the Schools, grounded upon Experience and Reason, then his [Van Helmont's] Paradoxical Opinions."[11] On the subject of the causation and treatment of diseases, she is a defender of the Aristotelian-Galenic medical tradition. In the second part, I examine an area in which Cavendish seems to be more in step with the modern way of thinking: her statements in defense of women. In *Oriatrike*, van Helmont argues that women are more inclined to madness, depression, and bewitching or enchantment than men because of the influence of the "mad raging Womb"; and he claims that the strong imaginations of pregnant women are responsible for birthmarks and birth defects in their children. In response, Cavendish appeals to common reason and experience in defense of women; she denies that women are any more susceptible to madness and bewitchment than men; and she refutes van

Helmont's ideas about women's role in creating birth marks and producing "monstrous" births. For some scholars, this may reaffirm the view that Cavendish's philosophy is significant for what it tells us about women's attitudes toward science in the early modern period. Her writings reveal that when women engaged in the natural philosophy of the time, they were among the first to challenge traditional medical views about female inferiority. In the third and concluding part of the chapter, I do not deny that Cavendish's views are significant in the above respect. But I emphasize that, given her support for the Aristotelian-Galenic tradition, Cavendish's attack on van Helmont's prejudices about women are not necessarily as modern or as forward thinking as they might appear. In turn, however, Cavendish's reluctance to part with tradition provides us with insight into the "changing of the guard," or the gradual shift from the old worldview to the modern scientific approach, in the seventeenth century.

I

With his *Ortus Medicinae*, Jan Baptista van Helmont presented a radical challenge to medical orthodoxy in early modern Europe.[12] Completed before his death, this composite work was first published posthumously in 1648 by van Helmont's son, Franciscus Mercurius (1614-99). Van Helmont the elder's thinking was strongly influenced by Paracelsus (1493-1541), the founder of iatrochemistry (chemistry applied to the practice of medicine) and one of the earliest philosophers to challenge the dominance of the Aristotelian-Galenic tradition in the schools. Though van Helmont follows Paracelsus closely, he takes the challenge to traditional medicine further than his predecessor. While Paracelsus retains some of the materialistic concepts of the Aristotelian theory of elements (air, water, fire, earth), van Helmont completely rejects this theory as well as

Galen's corresponding doctrine of the four humors (blood, phlegm, bile, and black bile) and their qualities (hot, cold, dry, and moist). His message is blunt: the Aristotelian-Galenic approach to medicine is fundamentally flawed, and those who continue to practice it are putting lives at risk. In *Oriatrike*, he says that, by teaching ancient medical theory, the schools "have prostituted vain talkings … instead of the knowledge of Medicine" (47). Empirical evidence reveals that "the composition, connexion, qualities, effects of humours, and the diseases that are dreamed to arise from thence, are meer fictions" (1). The schools thus perpetuate a state of affairs in which physicians practice nothing but ignorance and deceit, and the art of healing has become nothing but "miserable butchery" (3). In response, van Helmont calls for a complete overthrow of traditional medicine. Now famous as the originator of the term "gas", in his *Ortus* van Helmont introduces his new terminology alongside a new observational approach to the understanding of nature and the human body. His goal is to take medicine beyond uncertainty and guesswork, and to bring about a true art of healing based upon empirical insight and chemical investigation.

Allen Debus observes that some of the most extensive literary conflicts of the late sixteenth century were centered on the Paracelsian introduction of chemistry to medicine, and that works on this topic far outnumbered even those relating to Copernican theory.[13] In the mid-seventeenth century, van Helmont's challenge to the medical curriculum was similarly controversial. Recent scholars emphasize van Helmont's tremendous impact on scientific thinkers of the early modern period, and especially on those in England.[14] From the 1650s onwards, Helmontian ideas were widely debated in English intellectual circles. In 1650, Cavendish's friend Walter Charleton promoted the discussion by publishing two

English translations of van Helmont's works, *A Ternary of Paradoxes* (1650) and *Deliramenta Catarrhi* (1650). Described as "the intellectual barometer" of his age,[15] Charleton himself was one of many Helmontian sympathisers in England, including Robert Boyle, George Starkey, Noah Biggs, John Webster, John French, George Thomson, Marchamont Nedham, and Francis Glisson. But not everyone was supportive of van Helmont's call for reform. Margaret Cavendish may have been a critic of Helmontian medicine from as early as the 1650s. She seems to have been familiar with Charleton's publications; in her *Worlds Olio* (1655), there are three essays that are strongly reminiscent of passages in Charleton's translations.[16] Though she does not explicitly attack van Helmont in this text,[17] she clearly supports Galen's theory of the humors.

In the mid-1660s, the controversy between Galenists and Helmontians was at its peak in England. In 1664, John Chandler's translation of the *Ortus* was reissued with some minor alterations as *Van Helmont's Workes*. Later in the same year, Marchamont Nedham's Helmontian manifesto, *Medela Medicinae* (licensed to print in September 1664), sparked a further pamphlet war on the topic of medical reform. And in the year of the Great Plague (1665-66), there were once again a number of polemical pieces on the subject of the relevance of chemistry to medicine.

Cavendish published her extended critique of van Helmont amidst this background of heightened conflict between Galenists and Helmontians. In the *Philosophical Letters,* she pays particular attention to van Helmont's views on the true causes of disease. In his study of van Helmont's philosophy, Walter Pagel attributes a number of highly influential chemical and medical innovations to van Helmont, including

his identification of gas as a distinct entity from air and water vapour, and his discoveries concerning the role of acid in stomach digestion. Pagel also singles out van Helmont's ontological conception of disease as a forerunner of our modern-day concept. Unlike the Aristotelian-Galenic tradition, van Helmont approaches diseases as individual and classifiable objects and not mere "humoral imbalances" in the body. In his view, the primary cause of disease is not an internal disruption in the patient's "complexion" (or mixture of humors), but rather something external to, or separate from, the patient. For van Helmont, every individual possesses an *archeus*, or a vital principle that acts as an internal efficient cause. The *archeus* is the "designer" responsible for all change and generation within an individual, and for regulating and directing an individual toward a certain end in accordance with a plan or an idea. A disease occurs when a foreign *archeus* enters into a given person and that person's *archeus* is unable to dispel the uninvited guest.[18]

Cavendish supports van Helmont's new ontological conception of disease. In her *Philosophical Letters* she says that "I am of his mind, that a disease is a real and corporeal being" (350) and she believes that physicians should be trained to specialize in one disease rather than attempt to master a diverse range of diseases. But Cavendish does not support van Helmont's theory of the causation of disease, and she dismisses his key idea of the *archeus*. For van Helmont, the *archeus* is essentially a spiritual principle that is capable of disposing matter to act in a certain way; it is not superadded to matter, but rather intermingled or fused with it such that spirit and matter together form an inseparable unit. As a materialist philosopher, Cavendish could not abide such a hybrid concept. She accuses van Helmont of "setting a mans brain on the rack; for who is able to

conceive all those *Chymaeras* and Fancies of the *Archeus, Ferment*, various *Ideas, Blas, Gas*, and many more which are neither something nor no-thing in Nature, but betwixt both" (238). She points out that "being not corporeal substances, I cannot imagine wherein their power should consist; for Nothing can do nothing" (239). Nature contains nothing "but what is substantially, really and corporeally existent" (242). It is impossible to conceive how van Helmont's spiritual agent, the *archeus,* could act in nature. In her opinion, "animate Matter … is the onely *Archeus* or Master-workman, that produces all things, creates all things, dissolves all things, and transforms all things" (350). According to Cavendish, van Helmont's biggest mistake is that "he makes such a mixture of Divinity, and natural Philosophy, that all his Philosophy is nothing but a meer Hotch-potch, spoiling one with the other" (248).

Cavendish is right to single out van Helmont as a deeply religious thinker. Like Paracelsus, van Helmont bases his chemical philosophy on a close, literal reading of the Bible, and he styles himself as a Christian philosopher pitted against the ancient "heathen" thinkers, Aristotle and Galen. On his own account, van Helmont decided to become a chemical physician following a divinely inspired dream or vision.[19] In her *Philosophical Letters*, Cavendish seizes upon the absurdity of such a position: if van Helmont's knowledge of the soul comes to him from "Dreams and Visions … therefore it is no wonder, if his opinions be somewhat strange and irregular" (324); "to judg anything by a Dream, is a sign of a weak judgment" (325).

Instead Cavendish supports a materialist explanation for disease: the humoral pathology of the Galenists. She defends the Aristotelian-Galenic doctrine of elements and humors by saying that

> I think it too great a presumption in any man, to feign himself so much above the rest, as to accuse all others of ignorance, and that none but he alone hath the true knowledge of all things as infallible and undeniable, and that so many Learned, Wise and Ingenious Men in so many ages have been blinded with errors; for certainly, no particular Creature in Nature can have any exact or perfect knowledg of Natural things, and therefore opinions cannot be infallible truths, although they may seem probable; for how is it possible that a single finite Creature should know the numberless varieties and hidden actions of Nature? Wherefore your *Author* cannot say, that he hath demonstrated any thing, which could not be as much contradicted, and perhaps with more reason, then he hath brought proofs and demonstrations. And thus when he speaks of Elements, that there are not four in Nature, and that they cannot go together, or encounter, it may be his opinion; but others have brought many reasons to the contrary, and I think with more probability. (246)

Cavendish's argument rests on the premise that, as a finite part of infinite nature, human beings are incapable of obtaining a perfect or infallible knowledge of nature's works. In their explanations of natural phenomena, philosophers can only ever aspire to probable rather than certain hypotheses; and for this reason they must be wary of taking up dogmatic opinion. In future, new empirical evidence might reveal that their best hypotheses are in fact improbable or even false. Hence Cavendish says that

> I am very much troubled to see your *Authors* Works fill'd with so many spiteful reproaches and bitter taunts against the Schools of Physicians, condemning both

> their Theory and Practice; nay, that not onely the Modern Schools of Physicians, but also the two ancient and famous Physicians, *Galen*, and *Paracelsus*, must sufficiently suffer by him; especially *Galen*. (351)

She accuses van Helmont of having "too great presumption, reliance, and confidence in his own abilities, and extraordinary Gifts" (351).[20]

So while Cavendish might support one of van Helmont's most innovative ideas—the new ontological conception of disease—she is nevertheless a defender of the Aristotelian-Galenic tradition. Cavendish's reasons for opposing van Helmont do not boil down to mere blind adherence to ancient authority. She questions his scientific credentials because his arguments are tainted with religious and visionary ideas, and because she finds his spiritual principle of the *archeus* to be inconceivable. She challenges van Helmont because he does not observe a strict separation between reason and faith, and because (in her view) he is wrong to permit supernatural or incorporeal explanations of natural physiological occurrences. She supports the Galenic theory of disease because there is reason to think that this is more probable than van Helmont's new spiritualist theory. The new scientific ideals of probabilism and anti-dogmatism are called into battle to support the old guard rather than the new.

II

There is one part of Cavendish's challenge, however, that seems to be more in step with the modern rather than the ancient way of thinking: her criticisms of van Helmont's negative views about women. Recent scholars argue that there is an implicit feminism in Cavendish's philosophy of nature.[21] Some maintain that this feminism consists in Cavendish's challenge to the "masculine" mechanization of matter and motion, and her

own alternative "feminine" conception of nature.[22] Others challenge the view that Cavendish's philosophical writings have any obvious feminist content or feminist implications.[23] In the *Philosophical Letters*, however, there is a potential source of feminist sentiment that scholars have yet to remark upon. In her critique of van Helmont, Cavendish appeals to common reason and experience in defense of women; she denies that women are any more susceptible to madness and witchcraft than men; and she refutes van Helmont's ideas about women's role in creating birth marks and producing "monstrous" births. These ideas are recognizably feminist to the extent that they challenge negative stereotypes about women's intellectual and physical inferiority.

In putting forward such views, Cavendish makes strategic use of her chosen genre: a collection of letters to a female friend. Though it is never explicitly stated, the addressee of Cavendish's *Philosophical Letters* is obviously a fictional creation. Throughout the correspondence, Cavendish completely disregards the typical conventions of letter writing: her letters are undated and without location, she never exchanges any personal details or topical news, and the quantity of letters is unusually large. There are no published replies, and there is no external evidence that Cavendish ever enjoyed a friendship, let alone a correspondence, with a like-minded woman philosopher. The correspondence serves as a convenient rhetorical device. To begin with, Cavendish claims that her main motivation for writing against van Helmont is that her anonymous lady friend has requested her opinions—Cavendish herself does not initiate the critique. And with her friend in mind, Cavendish does not express her views in "an Artificial Way, as by Logical Argument or Mathematical Demonstrations" (3), but in a clear, natural, and accessible manner. Fortunately, her correspondent possesses a "solid

and wise Judgment" (245). Like Cavendish herself, she is thoughtful and inquisitive, and sometimes even critical; she is also "very studious … in the reading of Philosophical Works" (141). The letters seem to represent Cavendish's ideal of an intellectual exchange: they offer a free and liberal discussion of ideas, governed by a spirit of open inquiry, kind criticism, and sympathetic friendship. Though her correspondent might raise questions and criticisms, she always does so in the spirit of obtaining truth. Cavendish says "I am confident your *Ladiship* and I shall never disagree" (155), and "there being also such Sympathy betwixt your Ladiship and me, I think my self the happiest Creature for it, and shall make it my whole study to imitate your Ladiship, and conform all my actions to the rule and pattern of yours" (297). This female friendship has a small but significant role to play when it comes to Cavendish's criticisms of van Helmont's views about women.

Like Paracelsus, van Helmont maintains in *Oriatrike* that, in addition to those diseases suffered by a man, a woman must suffer from further afflictions: "She is subject I say, unto so many Diseases as a Man, and doth again obey the same from the Being of her Womb" (609). Even when a woman is healthy, there is always the potential for her to succumb to the "fury" of her "mad, raging womb":

> For even as there is a ferment or a be-madding fury in the Spittle of a mad Dog; an Idea, I say, which a little after doth make him that is bitten, Mad: So in some Simples, there is a sealifying faculty of Madness, and sealed in some Excrements being detained, or bred in the raging Womb; a madness of fury there is in them, which doth either propagate the madness conceived, on the off-springs, or perseveres with barrenness unto the finishing of their radical Fury. (608).[24]

Van Helmont's opinions about women and their propensity toward madness are a natural extension of his spiritualist views about the causation of disease. Like any natural object, the womb possesses an *archeus* or a vital spiritual principle. The *archeus* of the womb does not influence the body by material means, such as exhalations and vapors, but through psychological ones, such as passion, fury, melancholy, and fear.[25] While the ancients blamed the womb for its influence on the lungs and throat in cases of asthma, van Helmont regards the womb as exerting a cruel tyranny over a woman's entire body. For this reason, the "remedies" of Galenic medicine are unhelpful to women. They do not require blood-letting, purging, cauterization, clysters, or issues; they require chemical treatments that will penetrate the blood and cleanse the body as a whole. The womb exerts such a strong influence because it gains control over a woman's mind: the womb "oftentimes reflects its fury on the very Powers of the mind … that it may boast of its absolute command over all things" (609). On this topic, van Helmont simply accepts the ancient view that, due to a difference in physiology, women possess weaker mental faculties than men and a greater propensity toward irrationality.[26] In a chapter titled "Of Things Conceived, or Conceptions", van Helmont says that the influence of the womb means that women

> do as it were inchant, and infatuate, and weaken themselves. For they stamp *Idea's* on themselves, whereby they no otherwise than as Witches driven about with a malignant Spirit of despair, are oftentimes governed, or are snatched away unto those things which otherwise they would not, and do bewail unto us their own, and unvoluntary madness. (607)

To support his case, van Helmont cites a tale from Plutarch in which all the virgins on the Island of Chios spontaneously take part in a mass suicide.

In a letter to her lady friend about van Helmont's claims, Cavendish says that "I cannot but take exception in the behalf of our Sex" (248). In a half-serious tone, she upbraids him for failing to mention instances of "bewitching ideas" in men:

> it appears that your *Author* has never been in Love, or else he would have found, that Men have as well Bewitching *Ideas* as Women, and that they are as hurtful to Men, as to Women. Neither can I be perswaded to believe, that men should not have as well Mad *Ideas* as Women; for to mention no other example … their Writings and Strange Opinions in Philosophy do sufficiently witness it. (244)

In Cavendish's view in her *Philosophical Letters*, van Helmont's dream-inspired philosophy confirms that men are susceptible to irrational ideas. She also points out that just as many men as women have committed suicide, if not more. On the basis of such evidence, she maintains that men are just as intellectually vulnerable as women when it comes to being enchanted, infatuated, or bewitched. Cavendish also rejects van Helmont's belief in witches, or men and women who act in confederacy with evil spirits and the devil. She says

> that there should be any such devillish Witchcraft, which is made by a Covenant and Agreement with the Devil, by whose power Men do enchaunt or bewitch other Creatures, I cannot readily believe. Certainly, I dare say, that many a good, old honest woman hath been condemned innocently, and suffered death wrongfully, by the sentence of some foolish and cruel Judges, merely upon this suspition of

> Witchcraft, when as really there hath been no such thing; for many things are done by slights or juggling Arts, wherein neither the Devil nor Witches are Actors. (298)

Cavendish does not oppose the existence of witches with explicitly feminist arguments, but she does highlight how philosophical views concerning women's inferior mental judgment—or their susceptibility to bewitchment—can have pernicious consequences for women in real life. She takes the side of those many "good, old honest women" who have been wrongly condemned of witchcraft.[27]

In his discussion on the causes of disease, van Helmont also maintains that a woman's imagination can have a powerful influence on the womb. On this topic, he once again follows Renaissance tradition: Paracelsus and others all argue that a woman's imagination has the power to generate birth marks and birth defects in her unborn child.[28] But this theory also fits with van Helmont's more general views about the central role of imagination in the causation of disease. According to van Helmont, the spiritual power of the imagination can translate into physical effects, such that if one has a morbid terror of the plague (for example), this can lead to one developing the disease itself. In the case of women, van Helmont's favorite example is of a woman who imprints the sign of a cherry on her foetus:

> To wit, let there be a Woman great with Child, which desires another Cherry, let her scratch her Forehead with her Finger; without doubt, the Young is signed in its Forehead with the Image of the Cherry, which afterwards doth every year wax

> green, white, yellow, and at length looks red, according to the tenour of the Trees. (*Oriatrike* 615)

Van Helmont attributes the cause of this birthmark to the "ideal entity" of the soul. All human beings have such ideal entities "lightly imprinted" on their understandings. But in a pregnant woman, the imagination is so greatly moved by her lust that these ideal entities can leave the understanding, travel throughout the body, and make an impression on the unborn foetus. On its journey, the ideal entity "assumes a middle Condition between Bodies and not Bodies" (786); it becomes like a light, "as if it were no longer a Body" and were tied "to no commands of Places, Times, or Dimensions" (786).

Cavendish rejects the claim that the strong desires and imaginations of women are responsible for birth marks in their children. First, she dismisses van Helmont's suggestion that ideal entities operate in pregnant women, and that these entities print "a Cherry on the Child, by a strong Idea of the Mother" (*Philosophical Letters* 335). She says that

> this Ideal Entity or servant of the Soul, hath troubled my brain more, then his Mistress the Soul herself; for I could not, nor cannot as yet conceive, how he might be able to be the Jack of all offices, and do Journies and travel from one part of the body to another, being no body nor substance himself, nor tyed to any place, time and dimensions. (335)

Cavendish dismisses the notion of an "ideal entity" for the same reason she dismisses the idea of an *archeus*—because she cannot "conceive any thing that is beyond Matter, or a

Body" (359). But she also appeals to common empirical evidence about women and children. In a letter against van Helmont's spiritual conception of "ideas", she says

> And as for the *Figure of a Cherry*, which your *Author* makes so frequent a repetition of, made by a longing Woman on her Child [*Ch.* "Of the Ideas of Diseases"]; I dare say that there have been millions of Women, which have longed for some or other thing, and have not been satisfied with their desires, and yet their Children have never had on their bodies the prints or marks of those things they longed for: but because some such figures are sometimes made by the irregular motions of animate Matter, would this be a sufficient proof, that all Conceptions, Ideas and Images have the like effects, after the same manner, by piercing or penetrating each other, and sealing or printing such or such a figure upon the body of the Child? (277)

Cavendish concedes that there may sometimes be an association between two events: a woman may long for a cherry, and this longing may sometimes be followed by another event, the appearance of a cherry birthmark on the child. But this does not amount to an argument that such physical effects in the child are caused by "Conceptions, Ideas and Images" in the mother. All we can affirm in the case of a woman's desire and a child's birthmark is an occasional association, not a causal connection. Elsewhere Cavendish makes this point more explicit. In a passage on van Helmont's view that the flavor of wine is always an effect of the vine, or that a child's traits are always the effect of the parents, she says "so they are apt to take the Fiddle for the hot Bricks, as if the Fiddle did make the Ass dance, when as it was the hot Bricks that did it; for several effects may proceed from one cause, and one effect from several causes" (297). A regular association

of two events does not always add up to a cause and effect relationship in which one event necessarily follows another. It might appear as though women's imaginations cause irregularities in their children—or that the fiddle causes the ass to dance—but in fact the true cause is something else altogether.

Along similar lines, Cavendish rejects the claim that the strong imaginations of women are responsible for monstrous births. In *Oriatrike*, van Helmont recounts a story about a pregnant woman whose "inordinate Appetites" made her determined to witness a beheading at the marketplace. Shortly after the spectacle, the woman was surprised by "a travaile pain" and "she brought forth a mature Infant with a bloody Neck, whose Head no where appeared" (601). Cavendish says

> your *Author* rehearses some strange examples of Child-bearing Women, who having seen terrible and cruel sights, as Executions of Malefactors, and dismembring of their bodies, have brought forth monstrous births, without heads, hand, arms, leggs, &c. according to the objects they had seen. I must confess, *Madam*, that all Creatures are not always formed perfect; for Nature works irregularly sometimes, wherefore a Child may be born defective in some member or other, or have double members instead of one, and so may other animal Creatures; but this is nevertheless natural, although irregular to us. (390-91)

Cavendish puts forward a rival materialist explanation for "monstrous births" or children born with deformities—the "irregular motions" of nature. Unlike van Helmont (and the ancient authors to whom he is indebted), she is reluctant to blame birth defects on the inordinate lusts of pregnant women, or on some other psychological failing of the sex. To

boost the plausibility of her materialist hypothesis, she appeals to the experiences of women themselves, observing that

> to have a Child born perfect in the womb, and the lost member to be taken off there, and so brought forth defective, as your *Author* mentions, cannot enter my belief; neither can your *Author* himself give any reason, but he makes onely a bare relation of it; for certainly, if it was true, that the member was chopt, rent or pluckt off the whole body of the Child, it could not have been done without a violent shock or motion of the Mother, which I am confident would never have been able to endure it; for such a great alteration in her body would of necessity, besides the death of the Child, have cause a total dissolution of her own animal parts, by altering the natural animal motions: But, as I said above, those births are caused by irregular motions, and are not frequent and ordinary; for if upon every strange sight, and cruel object, a Child-bearing-women should produce such effects, Monsters would be more frequent then they are. (390-91)

If there were a true causal relationship between a woman's desires and a child's birth defects, then we would see more monsters in nature than there are; but we do not.

In sum, Cavendish challenges those prejudices about women that van Helmont inherits without criticism from his predecessors. She rejects the idea that the womb makes women more susceptible to madness, infatuation, and bewitchment than men; and she opposes the view that a woman's imagination is causally responsible for birthmarks and birth defects in her child. In light of these points, it is apparent that Cavendish's choice of genre plays a strategic role in her argument. To begin with, the correspondence provides a friendly forum in which to challenge received prejudices about women, and to

"take exception in the behalf of *our* Sex."[29] Furthermore, by continually praising the intelligence and wisdom of her correspondent, Cavendish provides the reader with an apt counterexample to van Helmont's generalizations about the madness and irrationality of women. Tellingly, in her letter against van Helmont's claim that women are vulnerable to bewitching ideas, Cavendish leaves the final word to the "solid and wise Judgment" of her female correspondent.

In the late seventeenth century, theories about the strong imaginations of pregnant women continued to be popular, and much medical literature of the time continued to reinforce negative stereotypes about women and their inferior intellectual status (the works of Nicolas Malebranche chief among them). By dismissing such theories, Cavendish was ahead of her time. More than sixty years after the *Philosophical Letters*, James Blondel presented a detailed refutation of the birth defects theory in *The Strength of Imagination in Pregnant Women Examined* (1727). Like Cavendish, Blondel points to the fact that many pregnant women are "disturbed by strange Desires, and odd Passions" and yet their children are born without defects.[30] And he also argues that it is unnecessary to have recourse to "*imaginary* Causes, when Marks and Deformities can be accounted for, in a natural Way."[31]

III

Nevertheless, before we applaud the presence of "modern feminist sentiment" in Cavendish's work, we should bear in mind that Cavendish supports the Galenic theory of the humors. Against van Helmont, Cavendish says that "I can see no reason, why Nature should not make several humors, as well as several Elements, Vegetables, Minerals, Animals, and other Creatures; and that in several parts of the body, and many several

ways" (364). She says "Truly, *Madam*, I should not be of such a mind, as to oppose the Schools herein so eargerly [sic] as your *Author* doth" (364). According to Galen's humoral theory, women are inferior to men on account of their physiology: women are cold and moist, whereas men are hot and dry; and because of their coldness and moistness, women are prone to imbalances in their humors. Women are especially vulnerable to "the vapours", a medical condition in which exhalations in the stomach or spleen rise up into the head, condense upon the skull, and thereby produce a mental imbalance in the brain. Although men were also thought to suffer from the vapors, a stereotypical association between women and the vapors can be found in the literature of the time. Underscoring their gendered nature, the vapors are also known as "Fits of the Mother" or "Hysterick fits." In her *Grounds of Natural Philosophy* (1668), Cavendish writes that "those Diseases that are named the *Fits of the Muther,* the *Spleen*, the *Scurvy*" are common "especially amongst the Females."[32]

In the *Philosophical Letters*, Cavendish does not explicitly endorse the Galenic theory of sex difference, but in a preface to the *Worlds Olio* she openly subscribes to such a view. She says that "It cannot be expected I should write so wisely or wittily as Men, being of the Effeminate Sex, whose Brains Nature hath mix'd with the coldest and softest Elements."[33] And she affirms that there is a natural difference between masculine and feminine brains, and that nature has given men clearer understandings than women. Cavendish thus supports rather than rejects a medical theory that promotes the idea that women are physically and intellectually inferior to men. We should therefore be wary of making any definite pronouncements on the feminist nature of Cavendish's critique of van Helmont.

To complicate matters further, it is not clear that van Helmont's philosophy is thoroughly misogynistic in tendency. In his rejection of Galenic pathology and medicine, van Helmont actually paints himself as a champion of women. He opposes the doctrine of the vapors because anatomical evidence reveals that the brain is nourished by only a few slender veins, and that there is simply no passage or channel whereby a vapor might enter. It is thus impossible for vapors to fume up from the stomach into the brain. Van Helmont condemns the traditional Galenic treatments for humoral imbalances, such as phlebotomy (blood-letting), cauterization, issues, clysters, evacuations, and purgings. He says that the schools have not fully understood "the Disease of the Womb", and they have therefore failed to heal their female patients:

> Ah cruel wickedness, that would pacifie the furious or mad raging Womb, by a phantastical or imaginatory revulsion! Vain are the counsels, and helps of Physicians, which are adminstred without a knowing of the immediate Causes: For they know not how to apply a finger in the easing of the Malady, and they leave the whole burden on the Womens Shoulders, until they being strangled, do voluntarily give of or die, or by a strong fortune do return unto themselves, the circle of fury being measured or passed over. Frequent Visiters the while, do exhaust their Purses and Strength. (613)

Van Helmont also criticizes Galenic physicians for prescribing an impossibly strict diet, and then blaming a woman's continuing ill health on her failure to stick to their prescriptions. He appeals to Jesus that he "have pity on Physitians, that hereafter they may take a meet care of the more harmeless, and miserable Sex, and may search after due Remedies" (613). In his own work of Helmontian medicine, *Medela Medicinae*,

Marchamont Nedham also presents himself as a rescuer of women from the horrors of Galenic medicine. He says

> I might next insist on several Diseases of the Female Sex, grown more severe than they were in the days of their great Grandames, who, could they now rise out of their Graves again, would wonder to see the miserable state of poor Women, and the tyranny of these distempers which were in their time less frequent, and more calm and curable.[34]

By contrast, Cavendish is a strong supporter of traditional Galenic remedies.[35] Despite the lack of empirical evidence, she affirms that the vapors are anatomically possible: "for Nature's works are too curious and intricate for any particular Creature to find them out, which is the cause that Anatomists and Chymists are so oft mistaken in natural causes and effects; for certainly, they sometimes believe great Errors for great Truths."[36]

Cavendish's commentary on van Helmont thus presents several paradoxes to the modern reader. On the one hand, she supports van Helmont's new ontological conception of disease, but on the other she defends the old theory of humoral imbalances. She rejects van Helmont's spiritualist concepts of the *archeus* and the ideal entity, but she does so only in order to uphold an ancient materialist tradition, the Aristotelian-Galenic theory of elements and humors. She is an advocate of the new probabilism and anti-dogmatism in science, but she turns these modern ideals against the chemical reformers in order to defend the old Scholastic way of thinking. And finally, Cavendish rejects the view that women's physiology makes them susceptible to madness and irrationality; and she dismisses the theory that the strong imaginations of pregnant women are responsible for

birthmarks and birth defects in their young. Yet, at the same time, she supports the Galenic theory of the humors—a theory that also promotes the physical and intellectual inferiority of women compared to men.

Many scholars have highlighted the inconsistencies and incoherencies in Cavendish's natural philosophy. With her views on medicine and disease, we are confronted with yet another set of contradictory beliefs. But rather than dismiss Cavendish as a muddled or unsystematic thinker, it is important to acknowledge that, by holding such conflicting positions, she is in keeping rather than out of step with the bulk of her contemporaries. If we look carefully at canonical figures of the period, such as Robert Boyle and Isaac Newton, we can see that their writings do not make a definite break with the old way of thinking either. In the case of Boyle, his mechanical philosophy is discussed side-by-side with ancient alchemical concepts, and his new experimental science is developed in tandem with theological assumptions about God's relationship to the natural world.[37] In light of such complexities (in Boyle and others), scholars have called for a "rethinking of the scientific revolution" in the period from roughly 1500 to 1700.[38] It is argued that, contrary to popular opinion, there was never a decisive rupture between the scholastic past and the new modern era in the scientific literature of the seventeenth century. Cavendish is not a canonical figure, but her writings do tell us something about the nature of intellectual change in the period that witnessed the so-called revolution. Her natural philosophy provides evidence of a change of thinking in her time, but not one that led in a direct, linear path to our present-day scientific and feminist concerns. She is receptive to modern ways of thinking, but at the same time reluctant to abandon an ancient conceptual framework (Galenic medicine)

until a more probable or plausible hypothesis presents itself. We should not think any less of Cavendish for this conservative stance. In her opinion, Helmontian chemical medicine was simply not a proven alternative. Without the benefit of hindsight, and given the available evidence in mid seventeenth-century England, many of us would probably come to the same conclusion.

On the topic of Cavendish's natural philosophy and feminism, Deborah Boyle advises that "future scholarship should abandon trying to make [Cavendish] out to be a protofeminist, and should focus instead on explicating and evaluating her arguments on their own terms."[39] I agree that it is unrealistic to expect Cavendish to resemble a modern feminist any more than we might expect Robert Boyle to resemble a modern scientist. But it would be hasty to stop searching for feminist themes in Cavendish's philosophical writings. For one thing, Cavendish's natural philosophy offers a unique insight into the often-difficult relationship between women and the emergence of science in the early modern period. In the *Philosophical Letters,* Cavendish demonstrates that, in a time when women were excluded from universities, coffee-houses, scientific institutions, and public collaborative enterprises, a woman could still envisage herself engaging in natural philosophy as part of a female "republic of letters." If we incorporate Cavendish's work into the standard histories of science for the period, then we are forced to revise the view that natural philosophy was an exclusively male endeavor that was avowedly male-biased in terms of content. Her book is a reminder that when an early modern reformer of medicine simply reiterated ancient prejudices about women's minds, a woman philosopher was there to take exception on behalf of her sex.[40]

[1] Mary Evelyn to Ralph Bohun [April 1667]; in John Evelyn, *Diary and Correspondence of John Evelyn*, edited by William Bray, 4 vols. (London: H. Colburn, 1857), vol. IV, 9.

[2] Mary Evelyn to Ralph Bohun [April 1667]; in Evelyn, *Diary and Correspondence,* vol. IV, 9.

[3] See Frances Harris, "Living in the Neighbourhood of Science: Mary Evelyn, Margaret Cavendish and the Greshamites," in *Women, Science and Medicine 1500-1700*, edited by Lynette Hunter and Sarah Hutton (Stroud: Sutton, 1997), 198-217 (esp. 200).

[4] See Susan James, "The Philosophical Innovations of Margaret Cavendish," *British Journal for the History of Philosophy* 7.2 (1999): 219-244.

[5] See Jacqueline Broad, "Margaret Cavendish and Joseph Glanvill: Science, Religion, and Witchcraft," *Studies in History and Philosophy of Science* 38.3 (2007): 493-505.

[6] See Stephen Clucas, "Variation, Irregularity and Probabilism: Margaret Cavendish and Natural Philosophy as Rhetoric," in *A Princely Brave Woman: Essays on Margaret Cavendish, Duchess of Newcastle,* edited by Stephen Clucas (Aldershot: Ashgate, 2003), 199-209. Clucas describes Cavendish as a "matchless representative of some of the most forward-thinking philosophy of her day" (207).

[7] See Sarah Hutton, "In Dialogue with Thomas Hobbes: Margaret Cavendish's Natural Philosophy," *Women's Writing* 4.3 (1997): 421-32.

[8] Margaret Cavendish, the Duchess of Newcastle, *Philosophical Letters: Or, Modest Reflections Upon some Opinions in Natural Philosophy, Maintained By several Famous and Learned Authors of this Age, Expressed by way of Letters: By the Thrice Noble,*

Illustrious, and Excellent Princess, The Lady Marchioness of Newcastle (London: privately published, 1664).

[9] Jan Baptista van Helmont, *Oriatrike, or, Physick refined. The common errors therein refuted, and the whole art reformed & rectified: being a new rise and progress of phylosophy and medicine for the destruction of diseases and prolongation of life. Written by that most learned, famous, profound, and acute philosopher, and chymical physitian, John Baptista Van Helmont … now faithfully rendered into English, in tendency to a common good, and the increase of true science; by J.C. sometime of M.H. Oxon* (London: Printed for Lodowick Loyd, and are to be sold at his shop next the Castle in Cornhill, 1662); and Jan Baptista van Helmont, *Ortus Medicinae. Id est, initia physicae inaudita. Progressus medicinae novus, in morborum ultionem, ad vitam longam* (Amsterdam: Ludovicum Elzevirium, 1648). Cavendish says that she read her authors only "as I found them printed, in my native Language" (sig. B1v); she could read neither Latin nor French.

[10] Several scholars mention Cavendish's critique of van Helmont in passing. Susan James suggests that Cavendish's own "patterning" theory of perception may be indebted to van Helmont (see James, "Philosophical Innovations," 232-33).

[11] Cavendish, *Philosophical Letters*, 384.

[12] On Van Helmont, see Walter Pagel, *Joan Baptista Van Helmont: Reformer of Science and Medicine*, Cambridge Monographs on the History of Medicine (Cambridge: Cambridge University Press, 1982); and H. Stanley Redgrove and I.M.L. Redgrove, *Joannes Baptista Van Helmont: Alchemist, Physician and Philosopher* (London: William Rider and Son, 1922). On his impact on English science, see Antonio

Clericuzio, "From Van Helmont to Boyle. A Study of the Transmission of Helmontian Chemical and Medical Theories in Seventeenth-Century England," *The British Journal for the History of* Science 26.3 (1993): 303-334. On early modern science and medicine, see Allen G. Debus, *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries*, 2 vols. (New York: Science History Publications, 1977); and Charles Webster, *The Great Instauration*: *Science, Medicine and Reform 1626-1660* (New York: Holmes & Meier Publishers, 1975).

[13] Allen G. Debus, "Chemists, Physicians, and Changing Perspectives on the Scientific Revolution," *Isis* 89.1 (1998): 74.

[14] See Clericuzio, "From van Helmont to Boyle"; Webster, *Great Instauration*; Jeremy Boss, "Helmont, Glisson, and the Doctrine of the Common Reservoir in the Seventeenth-Century Revolution in Physiology," *The British Journal for the History of Science* 16.3 (1983): 261-72; and Anna Marie Roos, *The Salt of the Earth: Natural Philosophy, Medicine, and Chymistry in England, 1650-1750* (Leiden and Boston: Brill, 2007).

[15] Webster, *Great Instauration*, 278.

[16] See Margaret Cavendish, the Duchess of Newcastle, "Of Heat and Cold," "Diseases of the Spring Summer, Autumn and Winter," "Of Coughs," in *The Worlds Olio. Written By the Right Honorable, the Lady Margaret Newcastle* (London: J. Martin and J. Allestrye, 1655), 183, 187, and 193-94. For these references, I am extremely grateful to Liam Semler. On Cavendish's early engagement with Charleton's works, see Liam Semler, "Margaret Cavendish and Walter Charleton," in *Early Modern Women Testing Ideas,* edited by Paul Salzman (Aldershot: Ashgate, forthcoming).

[17] Cavendish does challenge Paracelsus's idea of the "little Man," and criticizes the chemist's efforts to make Nature's "Originals another way than she hath made them" (Cavendish, *Worlds Olio*, 176). Recent scholars identify misogynistic tendencies in Paracelsus's theory of the homunculus; see William R. Newman, "Alchemy, Domination, and Gender," in *A House Built in Sand: Exposing Postmodernist Myths about Science*, edited by Noretta Koertge (New York and Oxford: Oxford University Press, 1998), 216-26.

[18] On van Helmont's conception of disease, see Pagel, *Joan Baptista Van Helmont*, 141-198; and Guido Giglioni, *Immaginazione e Malattia. Saggio su Jan Baptiste van Helmont* (Milan: FrancoAngeli, 2000).

[19] Van Helmont, *Oriatrike*, 14.

[20] Cavendish, *Philosophical Letters*, 351. Cavendish continues her critique of van Helmont's presumption in her later works. In *Oriatrike,* van Helmont sometimes takes a humble stance and affirms that "the *Art* of *Chymistry*" can only ever be "*Nature's Emulating Ape,* and *her Chamber-Maid*" (quoted in Cavendish, *Philosophical Letters*, 283). But elsewhere he affirms that chemistry can become "the Mistress of Nature" (ibid.). In Cavendish's view, chemistry cannot be both the Chamber-maid and the Mistress; "Nature is the onely Mistress and cause of all" (Cavendish, *Philosophical Letters*, 284). In her *Observations upon Experimental Philosophy* (1666), Cavendish repeats these points against van Helmont. In a chapter on "Artificial Effects," she says that "art is like an emulating ape and will produce such figures as nature produces, but it doth not, nor cannot go the same way to work as nature doth." See Margaret Cavendish, the Duchess of Newcastle, *Observations upon Experimental Philosophy*, edited by

Eileen O'Neill, Cambridge Texts in the History of Philosophy (Cambridge: Cambridge University Press, 2001), 198. In a later chapter "Of Chemistry," she says that "though art, like an emulating ape, strives to imitate nature, yet it is so far from producing natural figures, that at the best it rather produces monsters instead of natural effects" (Cavendish, *Observations,* 240). Accordingly, in her *Blazing World,* a fictional piece appended to the *Observations*, Cavendish depicts chemists as "ape-men." See Margaret Cavendish, the Duchess of Newcastle, *The Description of a New World, Called The Blazing World,* in *Political Writings*, edited by Susan James, Cambridge Texts in the History of Political Thought (Cambridge: Cambridge University Press, 2003), 39-42.

[21] See, for example, Lisa T. Sarasohn, "A Science Turned Upside Down: Feminism and the Natural Philosophy of Margaret Cavendish," *Huntington Library Quarterly* 47.4 (1984): 289-307; John Rogers, *The Matter of Revolution: Science, Poetry and Politics in the Age of Milton* (Ithaca and London: Cornell University Press, 1996); and Eve Keller, "Producing Petty Gods: Margaret Cavendish's Critique of Experimental Science," *English Literary History* 64.2 (1997): 447-71.

[22] Keller, "Producing Petty Gods."

[23] Eric Lewis, "The Legacy of Margaret Cavendish," *Perspectives on Science* 9.3 (2001): 341-65 (esp. 345); and Deborah Boyle, "Margaret Cavendish's Nonfeminist Natural Philosophy," *Configurations* 12.2 (2004): 195-227.

[24] In this essay, van Helmont also acknowledges a debt to Plato's *Timaeus*, and to the Platonic view that the womb is "a furious living Creature."

[25] On this subject, see Pagel, *Joan Baptista van Helmont*, 171-73.

[26] On this topic, see Ian Maclean, *The Renaissance Notion of Woman: A Study in the Fortunes of Scholasticism and Medical Science in European Intellectual Life*, Cambridge Monographs in the History of Medicine (Cambridge: Cambridge University Press, 1980); and Nancy Tuana, *The Less Noble Sex: Scientific, Religious, and Philosophical Concepts of Woman's Nature* (Bloomington: Indiana University Press, 1993).

[27] Cavendish repeatedly condemns van Helmont's belief in witches. In an essay "Of the Magnetick Cure of Wounds," van Helmont suggests that a witch might kill a man or a horse by means of certain "Spiritual Rays" that depart from her spirit and "strangle the vital spirit" of her chosen victim (van Helmont, *Oriatrike*, 782). Cavendish says that "I cannot understand what your *Author* means, by the departing of spiritual rays from the Witch into Man, or any other animal, which she intends to kill or hurt; nor how Spirits wander about in the Air, and have their mansions there; for men may talk as well of impossibilities, as of such things which are not composed of Natural Matter" (Cavendish, *Philosophical Letters,* 300).

[28] See Maclean, *Renaissance Notion of Woman*, 41.

[29] Cavendish*, Philosophical Letters,* 243; my italics.

[30] [James Blondel], *The Strength of Imagination in Pregnant Women Examin'd: And the Opinion that Marks and Deformities In Children arise from thence, Demonstrated to be a Vulgar Error. By a Member of the College of Physicians, London* (London: J. Peele, 1727), 11.

[31] Blondel, *Strength of Imagination*, 94.

[32] Margaret Cavendish, the Duchess of Newcastle, *Grounds of Natural Philosophy: Divided into Thirteen Parts: With an Appendix containing Five Parts*, with an introduction by Colette V. Michael, facsimile reprint of 1668 edition (West Cornwall, CT: Locust Hill Press, 1996), 151.

[33] Cavendish, "The Preface to the Reader," *Worlds Olio*, sig. A4r.

[34] M[archamont] N[edham], *Medela Medicinae. A Plea For the Free Profession, and a Renovation of the Art of Physick, Out of the Noblest and Most Authentick Writers* (London: Richard Lownds, 1665), 33.

[35] See Cavendish, *Philosophical Letters*, 366-84. Cavendish does offer a brief qualification, however: "I do verily believe, that some of Chymical medicines do, in some desperate cases, many times produce more powerful and sudden effects then the medicines of Galenists, and therefore I do not absolutely condemn the art of Fire" (Cavendish, *Philosophical Letters,* 286).

[36] Cavendish, *Philosophical Letters*, 367-8. For the most comprehensive statement of Cavendish's theory of the humors, see Cavendish, *Grounds of Natural Philosophy*, 104-61 (esp. 107); and for her theory of the elements, see 181-219.

[37] See, for example, the essays in Michael Hunter (ed.), *Robert Boyle Reconsidered* (Cambridge: Cambridge University Press, 1994).

[38] On this topic, see Margaret J. Osler, "The Canonical Imperative: Rethinking the Scientific Revolution," in *Rethinking the Scientific Revolution*, edited by Margaret J. Osler (Cambridge: Cambridge University Press, 2000), 3-22. On the gender implications of the scientific revolution, see Margaret J. Osler, "The Gender of Nature and the Nature of Gender in Early Modern Natural Philosophy," in *Men, Women, and the Birthing of*

Modern Science, edited by Judith P. Zinsser (DeKalb, IL: Northern Illinois University Press, 2005) 71-85.

[39] Boyle, "Cavendish's Nonfeminist Natural Philosophy," 227.

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