

BECOMING VISIBLE: MARGARET CAVENDISH'S AND APHRA BEHN'S NEW WORLDS

Deborah Uman
St. John Fisher College, New York

ABSTRACT

The telescope and microscope are two of the most recognizable and long lasting emblems of the new scientific method that emerged in seventeenth-century Europe. Their value and reliability was a topic of great debate among seventeenth-century professional and amateur scientists. Margaret Cavendish, the Duchess of Newcastle and Aphra Behn both offered critiques of experimental science and its reliance on enhanced observation. Their opposition can be linked to their status as women who were frustrated by the limitations placed on women's education. Despite their informal educations, Cavendish and Behn contributed to the discourse of natural philosophy in many ways, including the creation of imaginative prose works which satirize the male-dominated profession while simultaneously demonstrating their desire to be full participants in the project of natural philosophy.

KEYWORDS: Natural philosophy, Experimental Science, Translation, Travel writing, Gender.

RESUMEN

El telescopio y el microscopio son dos de los emblemas más reconocibles y duraderos del nuevo método científico del siglo XVII. Su valor y precisión fueron tema de debate entre los científicos profesionales y amateurs de entonces. Tanto Margaret Cavendish, duquesa de Newcastle, como Aphra Behn fueron reticentes a admitir una ciencia experimental basada en la mera observación. Su oposición puede responder a las propias limitaciones impuestas a la formación de las mujeres. A pesar de lo informal de su trayectoria educativa, ambas contribuyeron al discurso de la filosofía natural en diversa manera presentando una sátira contra la profesión dominada por hombres, al tiempo que demuestran su deseo de participar plenamente en el proyecto de la filosofía natural.

PALABRAS CLAVE: Filosofía Natural, ciencia experimental, traducción, escritura de viaje, género.



The telescope and microscope are two of the most recognizable and long lasting emblems of the new scientific method that emerged in seventeenth-century Europe. While today both are accepted tools of the trade and widely accessible in classrooms, laboratories and museums (and perhaps soon the dollar store, as a folding paper microscope has recently been developed with production costs of under a buck), their value and reliability was a topic of great debate among seventeenth-century professional and amateur scientists. Revolutionary scientists such as Galileo and Robert Hooke felt compelled to publish works such as *The Starry Messenger* and *Micrographia* to describe the processes and results of using these visual technologies, both men writing in great detail and including pictures to help the reader “see” what the scientists were looking at through their magnifying lenses. Not everyone, however, was convinced. Margaret Cavendish, the Duchess of Newcastle, wrote her *Observations upon Experimental Philosophy* and its accompanying *Description of a New Blazing World* in direct opposition to Hooke’s tome, arguing that telescopes and microscopes offered distorted images and only looked at the surface of objects. Similarly, Dr. Baliardo, the object of Aphra Behn’s satire in her dramatic farce *The Emperor of the Moon*, appears on stage with “all manner of Mathematical Instruments, hanging at his Girdle” and requires his servant to lug about a telescope, “twenty (or more) Foot long” to feed his ridiculous obsession with observing the moon and spying on its inhabitants.

Although Cavendish and Behn were not the only critics of experimental science and its reliance on enhanced observation, it may not be coincidental that two women, both of whom were fascinated by the developing discipline of natural philosophy and also frustrated by the limitations placed on women’s education, articulated their opposition to this growing practice. When scientific observations and experiments were performed in the laboratory, access was restricted across class and gender lines, restrictions that were underscored by Cavendish’s hotly debated and highly dramatized visit to a Royal Society performance of experiments in the spring of 1667. As Jo Wallwork explains, Cavendish’s request to attend a demonstration led to great consternation among the all-male membership of the Royal Society. Even though they ultimately agreed, her visit forced her into the position of a spectator, who could watch but not participate, and it is little wonder, then, that she would develop her own philosophy that promotes conversation, experience, and imagination over experimentation (43-48).¹ We have no evidence that Behn was allowed into the anatomy theaters or laboratories. Though she had close relationships with numerous members of the Society, these friendships did not mean she had access to their places of scientific learning. Indeed, when she writes in thanks to Thomas Creech, whose translations of classical texts gave women access to scientific learning, her poetic praise is tinged with regret that she was unable to join future members of the Royal Society Ma at “sacred Wadham,” the Oxford College where Creech

¹ Peter Dear also comments on the exclusion of women from the Royal Society, pointing out that other options, such as salon culture, existed that were more welcoming to women (127).



studied with budding natural philosophers Thomas Sprat and Christopher Wren under the wardenship of John Wilkins.²

Despite their informal educations, Cavendish and Behn were fascinated by the field of natural philosophy and contributed to it in many ways, including the creation of imaginative prose works, the aforementioned *Blazing World* by Cavendish and Behn's translation of Bernard le Bovier de Fontenelle's *Entretiens sur La Pluralité des Mondes*, which she retitled *The Discovery of New Worlds*. This work features a conversation between an unnamed speaker and his curious female student, Madam the Marquise, about the potential for life on the moon and other planets. It also begins with a meandering preface, "An Essay on Translated Prose," in which Behn justifies her use of the vernacular, offers a theory of translation, and weighs the merits of Copernican and Ptolemaic principles. Modelled on contemporary travel narratives, both real and imagined, *The Blazing World* and *The Discovery of New Worlds* follow several trends in scientific writing. In describing for the reader what most are unable to see firsthand, travel literature was increasingly linked with the work of scientists during the seventeenth century. As Judy Hayden puts it, "language, science, observation, and literary discourse merge in the early modern travel narrative," a connection that Francis Bacon himself highlighted in his *Advancement of Learning* (8).³ While the Royal Society sought to regularize travel narratives into a specific format with the hopes of establishing the credibility of such reports (Hayden 8), the challenge of this attempt mirrors the complaints directed towards reliance on telescopes and microscopes; both question the premise that objective, direct observation is possible and worthwhile in the pursuit of truth.

By turning to fiction, Cavendish and Behn lay no claim to fact, but instead try to depict the search for truth. Their works satirize the male-dominated profession while simultaneously demonstrating their desire to be full participants in the project of natural philosophy. Moreover, these fictional worlds serve as invitations to other women, similarly excluded from sites of formal scientific education and experimentation, to learn about contemporary debates about the nature of the universe and to imagine themselves as active participants in conversations on these topics. What Cavendish's and Behn's audiences can see is limited neither by their eyesight nor the available technology. At the same time, both writers make themselves prominent and visible as authors, using their forays into natural philosophy as part of their self-fashioning project to acquire lasting praise and fame.

Within the last twenty years, Margaret Cavendish's scientific writings have drawn significant critical attention, and we no longer need to make the point that no one takes her seriously; however, during her lifetime and long after, she was

² Behn's poem to Thomas Creech is, "To the Unknown Daphnis on his excellent Translation of *Lucrece*." For more, see my *Women as Translators in Early Modern England* (105-106).

³ Anne Thell notes that Cavendish recognized the power of travel writing and also understood "the new scientific investment in the form" (18).





generally viewed as somewhat ridiculous.⁴ Her skepticism towards both empirical methodologies and the mechanistic theories espoused by the likes of Thomas Hobbes and Rene Descartes has been well documented;⁵ her ambivalent and classist views about the place of women (other than herself) within the social hierarchy are the recent subject of much debate. Linking the two concepts, Lisa Sarasohn interprets Cavendish's skepticism about methodology as an assault on traditional authority and a "weapon in her battle for the recognition of female intellectual quality," arguing that Cavendish understood natural philosophy more generally as providing room for the reappraisal of the role of women (289-90). For Sarasohn, Cavendish's emphasis on the natural versus the mechanical view of science can be linked to a belief in gendered expectations, but she points out that Cavendish, who believed men and women were created as equal, focused on the social conditioning that leads to women's inferiority (295-98). In contrast, Jaqueline Broad sees Cavendish holding on to more traditional scientific theories, particularly the Galenic view of women's natural, physical inferiority; however, such a belief did not stop Cavendish from refuting claims that pregnant women caused deformities in their offspring and appealing to "common reason and experience in defense of women" (49). Eve Keller sees in both Cavendish's critique of experimental science and its claims to certainty and her commitment to organic materialism the emergence of a "proto-feminist critique" of male-dominated epistemological practices (451), a conclusion that Deborah Boyle finds flawed. Noting that Cavendish is not necessarily opposed to mechanist theory, Boyle argues that while Cavendish does distinguish her work from that of male scientists such as Hobbes and Descartes, she still finds the practice of observation valuable when done correctly and her concern with microscopes and telescopes is that they may misrepresent nature and give only surface information about the objects under scrutiny (204-206). For Boyle, then, the only aspect of Cavendish's efforts that might warrant the feminist label is her advocacy for "women's involvement" (223) in scientific exploration, based on her confirmed belief that "the study of natural philosophy could benefit women" (226).

Such advocacy is visible in Cavendish's frequent expressions of frustration with women's limited educational opportunities such as in the prefatory material that accompanied her *Observations upon Experimental Philosophy*. In her address to the reader, Cavendish uses conventional humility, though she does this in such a way to make clear that her shortcomings are the result of unequal treatment, writing "But that I am not versed in learning, nobody, I hope, will blame me for it, since it is sufficiently known, that our sex being not suffered to be instructed in schools and universities, cannot be bred up to it" (11). She then proceeds to detail the difficulties

⁴ For a discussion of the critical reception of Cavendish's work, both in her own day and in the twentieth century, see Eileen O'Niell's introduction to Cavendish's *Observations Upon Experimental Philosophy*.

⁵ See for example, Denise Tillery, "English Them in the Easiest Manner You Can": Margaret Cavendish on the Discourse and Practice of Natural Philosophy," and Sarah Hutton, "In Dialogue with Thomas Hobbes: Margaret Cavendish's Natural Philosophy."

she had reading other authors' philosophical works because of their "hard words and expressions," describing herself as needing assistance with the difficult vocabulary and arguing that such authors would be better off writing in Latin if they are only going to use the "hardest words and expressions which none but scholars are able to understand" (12). With this unapologetic defense, Cavendish strategically exposes the hypocrisy of the Royal Society, which claims a dedication to openness and accessibility and yet maintains a tight hold on its distribution of knowledge and information, and she contrasts her own style as truly democratic, promising that even though she now understands such challenging expressions, she shuns "them as much in my writings as is possible for me to do, and all this, that they may be the better understood by all, learned as well as unlearned; by those that are professed philosophers as well as those that are none" (12).

Cavendish concludes this section of her address with a more subtle swipe at the "professed philosophers," condemning them not just for being elitists with their language but also dishonest. In promising that she will not put on airs in her writing to appear more learned than she is, Cavendish also agrees not to "deceive the world" nor to depict herself as a "mountebank in learning." Although the deception she promises to avoid is that of self-presentation, her comments about not obscuring her opinions and rendering "them more intricate instead of clearing and explaining them" (12) point to the ways in which complex language can serve as a disguise for a paucity of ideas and knowledge.⁶ For Cavendish, the importance of philosophic writings lies within. It is the ideas that count, not the surface appearance, and she asks her readers to excuse her writing errors and "express their wisdom in preferring the kernel before the shells" (12). This focus on what lies beneath the surface is central to Cavendish's distrust of Hooke's microscope and the experimental philosophy he practices, a distrust that is central to her *Observations* and evident too in her more fanciful accompaniment, *The Blazing World*.

Much of the first part of *The Blazing World* depicts conversations between the human-turned-Empress and the various hybrid creatures whom she encourages to study and specialize within the arts and sciences. The narrator explains that the bear-men are the Empresses' experimental philosophers, and as such they use telescopes to add to the knowledge presented by the astronomer bird-men. Immediately the telescopes cause confusion and discord:

But these telescopes caused more differences and divisions amongst them than ever they had before, for some said they perceived that the sun stood still and the earth did move about it; others were of opinion that they both did move. Some counted more stars than others; some discovered new stars never seen before. (268)

⁶ Tillery offers a useful reading of these prefatory comments, explaining that Cavendish depicts this private tutoring session as a substitute for the formal education that she is excluded from and also is arguing for women's inclusion in the scientific realm (272).



The bear-men's quarrels lead the Empress to demand that they all go "to the very end of the Pole that was joined to the world she came from" to try to see any stars in it, but again they cannot agree on what they have observed and continue their arguments. Finally, the Empress "began to grow angry at their telescopes," and demands that the bear-men break them and imitate the behavior of the bird-men, who earlier had conversed and debated with her, presenting their experiential perceptions and even disagreeing with each other, but without the dramatic conflict that marks the bear-men's debates. The Empress's complaint that the bear-men's telescopes "are false informers and instead of discovering the truth, delude your senses" echoes Cavendish's critiques in her *Observations* in which she speaks of telescopes and microscopes as "deluding glasses" ("To His Grace, the Duke of Newcastle") that may identify spots on the sun or moon or locate a new star, but offer "no great benefit or advantage" to man ("The Preface to the Ensuing Treatise" 9). By creating a utopian romance and focusing on what the readers can only see in their imagination, Cavendish bypasses the challenges she feels are caused by a reliance on telescopes. As Elizabeth Spiller points out, constructing her natural philosophy as a fiction solves the problem expressed by Galileo himself of the limits of observation (210). In writing *The Blazing World*, Cavendish offers "a defensive response to the technology and scientific methodology exemplified by the telescope" and presents the act of reading as a radical alternative to the limiting practices within the scientific field (Spiller 218).

Missing from the Empress's and Cavendish's complaints is any discussion of gender specificity when it comes to the use or misuse of these lenses, though her imagined world is one with clear gendered distinctions that eventually provides a model for liberating practices within the field of natural philosophy. Though not fully human, all of the hybrid creatures are clearly male. The women are not distinguished by specific animal traits, but all are described as having "quick wits, subtle conceptions, clear understandings and solid judgements" (289) and become devout converts to the Empress' religion. They are inspired by her excellent preaching but do not participate in active conversations with her as the male scientists do. Not until the arrival of her scribe, the fictional Duchess of Newcastle, does the Empress engage in philosophic discussion with another woman. Indeed, the shift that occurs after the Empress decides she wants to make her own Cabala and brings the Duchess of Newcastle to the *Blazing World* functions as a remedy to the male-dominated universe. As intellectual equals, they discuss the nature of the Empress' Cabala and become Platonic lovers, "although they were both females" (308). The Duchess recommends creating a "poetical or Romancical Cabala, wherein you may use metaphors, allegories, similitudes etc. and interpret them as you please" (308) and later asks how she too can become an "empress of a world" (309), a dream she can accomplish best, not by conquering a world, but by creating one. The emphasis on imagination and literary creation demonstrates what Marguerite Corporaal refers to as "the function of the term 'fancy' in Cavendish's writing on science." (150). Corporaal understands Cavendish's objective here as bringing together the two seemingly opposite realms of rational, experimental science and fanciful, literary production, so that she might make up for her inadequate preparation in natural



philosophy and challenge “dominant gender constructions,” all the while creating “the impression that she will not claim further rights for herself as a woman or the female sex in general” (150-154). Similarly, Lisa Walters reads this moment as offering an alternative to the Royal society’s emphasis on vision and experiment, an alternative where “original thought trump[s] learned authority” and women’s imagination provides a “more inclusive understanding of knowledge” (391).

Both Cavendish and her husband celebrate this notion of learning through imaginative exploration in their introductions to *The Blazing World* while also highlighting Cavendish’s authoritative role. In his praise poem, William, the Duke of Newcastle, compares his wife to Columbus and finds she is superior. She has not merely found a world, but her “creating fancy thought it fit/ To make your world of nothing but pure wit. / Your blazing world beyond the starts mounts higher, / Enlightens all with a celestial fire.” Cavendish herself discusses her decision to add to her philosophical observations a “piece of fancy,” which she defines as a “voluntary creation or production of the mind” (252) and describes as “romancical” (using the same adjective later mentioned by her doppelganger to characterize the Empress’s Cabala). Like her husband, Cavendish underscores her originality, pointing out that her new world is not like Lucian’s “or the Frenchman’s world in the moon” (252) before her final rhetorical move of including her audience in this endeavor.⁷ At the end of her address to the reader, Cavendish specifies a female and noble audience, with whom she would share her imagined “rocks of diamonds” and gives a final nod to the creative powers of all her readers, concluding, “I have made a world of my own, for which nobody, I hope, will blame me, since it is in everyone’s power to do the like” (253). In this moment Cavendish achieves seemingly contradictory objectives. She reinforces her hierarchical vision of society and imagines herself as the pinnacle of that hierarchy —she is, after all, “Margaret the First”— while simultaneously demonstrating a democratizing intent to invite other women to participate in scientific conversations.⁸

Despite Cavendish’s emphasis on her inventiveness and her insistence that she does not base her work on that of other authors, we can see many links between her original works and the translations produced by Aphra Behn.⁹ In Behn’s preface

⁷ Here Cavendish is referring to Cyrano De Bergerac’s *Histoire comique contenant les états et empires de la lune* (1657) an important predecessor for Fontenelle’s work that I will discuss shortly. Isabelle Clairhout and Sandro Jung call this emphasis on originality and authorial self-fashioning a “survival strategy in a constant struggle against erasure” (732). Despite her claims for originality, Cavendish borrowed heavily from others, as Sarasohn points out (293-294); thus we can understand her work as linked to the work of translators such as Aphra Behn.

⁸ Dear rightly points out that *The Blazing World* imagines not just a hierarchical society but also a hierarchical “transfer of knowledge” in which the Empress gains her power from her husband just as Cavendish did. He concludes that the Empress ultimately maintains “the fundamental gender order of Cavendish’s own world, one that the duchess showed no real interest in challenging” (141).

⁹ Behn and Cavendish have only just recently been discussed together as addressing similar concerns and themes in their writing. In *Utopian Negotiations: Aphra Behn and Margaret Cavendish*, Oddvar Holmesland does just that, noting in his introduction some of the many connections between





to her translation of Fontenelle's *Entretiens sur La Pluralité des Mondes*, she begins by comparing herself to Cicero who, "when he undertook to put Matters of Philosophy into Latin" instead of Greek justified his endeavors by explaining that "those who were not Philosophers would be tempted to the Reading of it, by the Facility they Would find in its being in the Latin tongue" (87). In translating into English a work concerned with astronomy, Behn makes the subject of natural philosophy accessible to those with limited education as Cavendish promises to do with her avoidance of difficult language and expressions. Also like Cavendish, Behn uses her preface to highlight women's limited education, which she then connects, not to their difficulties with hard vocabulary but rather their inability to read Latin. Additionally, she uses translation as her excuse for entering into scientific discourse. She is "only" translating the words of a reputable male author, and it is Fontenelle's depiction of a female speaker that serves as implicit permission for Tyler to serve as his amanuensis. Some of Behn's scientific education may indeed have come from translating Fontenelle's treatise, which is staged as a dialogue between an unnamed speaker and his curious student, Madam the Marquiese. The Marquiese is much like how Cavendish describes herself as needing instruction from a male mentor. Seeing this connection, Violetta Trofimova suggests that Behn was deliberately following in Cavendish's footsteps and reads the Marquiese as a "new example for a woman interested in science" who is witty and intelligent, but not as eccentric or ridiculous as the Duchess (91-92). Like Cavendish, the Marquiese is curious about the potential for life on the moon and other planets, and although this fictional conversation does not depict any trips to these new worlds, it does exhibit numerous tropes of travel writing. Without being able to observe any extraterrestrial beings, Fontenelle's speaker relies on the principle of resemblance to speculate about the likelihood of life on other planets, and he makes frequent analogies comparing possible aliens to natives of the so-called New World, reflecting much of the imperialistic beliefs and practices that often went hand in hand with both scientific and geographic discoveries. In subtly changing the title to *The Discovery of New Worlds*, Behn highlights this connection, and reminds us of her own interest in the discovery of earthly new worlds evident in works such as *Oroonoko* and *The Widdow Ranter*.¹⁰ Like Cavendish, she uses her works to help her audience see what the telescope cannot show them and imagine their creative potential; like Cavendish, Behn also makes her authority visible, but often at the expense of her translated subjects.

Behn's attitude towards the telescope is most explicit in her farce, *The Emperor of the Moon*, which I mention above. Both Judy Hayden and Al Coppola have discussed Behn's satire of the scientific "virtuoso," whose obsession with looking at

the two women. As I do, Holmesland recognizes the authorial self-fashioning that is central to their careers, seeing evidence of this project in their utopian works such as *The Blazing World* and *Oroonoko*.

¹⁰ Notably, Karen Bloom Gevirtz looks at *Oroonoko* as a text interested in the natural world that builds on Behn's knowledge of natural philosophy. She points out that the novel is concerned with questions of experimentation and knowledge of the self and argues that it finally shows the impossibility of objective, impartial observation (85-98).

the moon makes him blind to what really matters in the world.¹¹ She offers a more complex approach to the topic of scientific observation in *The Discovery of New Worlds*, in which the narrator and the Marquise study the moon unaided. Their initial conversation focuses on the ways in which natural philosophy must fill the gap between what we can observe and what we want to know. In their first night's conversation, the narrator goes on at length to explain this concept to his pupil:

All philosophy is grounded on two Principles, that of a passionate thirst of knowledge of the Mind, and the weakness of the Organs of the Body; for if the Eye-sight were in perfection, you could as easily discern there were Worlds in the Stars, as that there are Stars: On the other hand, if you were less curious and desirous of knowledge, you would be indifferent, whether it were so or not, which indeed comes all to the same purpose; but we would gladly know more than we see, and there's the difficulty: for if we could see well and truly what we see, we should know enough; but we see most Objects quite otherwise than they are; so that the true Philosophers spend their time in not believing what they see, and in endeavouring to guess at the knowledge of what they see not. (96)

In his rather convoluted way, the narrator suggests that our limited ability to see is more than compensated by our imaginative abilities as well as our attempts to figure out the truth based on what we can see. He continues this discussion with an elaborate opera analogy, comparing philosophers to engineers who know how all the behind-the-scenes “Ropes, Pullies, Wheels and Weights” work to convey the spectacle and then bemoaning his impression that philosophy has “become very Mechanical” (98). On the one hand, he suggests such a mechanical view pales in comparison to a “more sublime *Idea* of the Universe,” but on the other, he worries that most people have a mistaken admiration of Nature because they see it as a “kind of Miracle” (98). The Marquise responds with an analogy of her own, and her response that she “esteem[s] it more since I knew it is so like a Watch” and finds Nature all the more admirable because it “moves upon Principles and Things that are so very easie and simple” (98) seems to offer a palatable middle ground, an understanding of scientific properties based on reason and common experience. She also suggests that such an understanding is possible for all who put their mind to it.

Despite her elevated class status and the narrator's perspective that she understands the universe better than “most People,” the Marquise, with her common sense approach and experience-based reasoning, functions as a kind of every woman and stand-in for Fontenelle's and Behn's audiences. As such, her portrait can be vexing at times. Following the exchange about observation, the narrator embarks upon an explanation of the movement of the planets showing the Marquise how Copernicus used a similar combination of observation and

¹¹ Coppola suggests that the play seeks to curb “misplaced spectatorship and enthusiastic credulity,” which had implications far beyond the field of natural philosophy (484). Holmesland also discusses the play and again observes the satire on what he calls “optical empiricism” (214).



experience to develop his theory that the earth and other planets rotate around the sun. The narrator continues to use analogies and promises, so as not to frighten his female student, and to “soften” his explanation. His frequent patronizing attitude towards the Marquiese is part of what Judy Hayden speculates would have been infuriating for Behn when translating Fontenelle’s work (2015, 178).¹² However, Behn offsets this unflattering view of women in her prefatory “Essay on Translated Prose,” in which she offers herself as an independent thinker capable of mathematical and scientific calculations.¹³ Behn criticizes Fontenelle depiction of the Marquiese, saying he must create a complete fabrication in order to depict a woman of such limited learning and intellect, whom he makes “say a great many very silly things, tho’ sometimes she makes Observations so learned, that the greatest Philosophers in Europe could make no better” (77). She also offers her own comparison of the Ptolemaic and Copernican models as part of a discussion of why the Bible should not be invoked in scientific debates. For example, Behn challenges the claim of Father Tacquet, a French Jesuit and mathematician who argued that only the Copernican model can support the passage in Joshua 10.12 in which the sun and moon are said to stand still at Joshua’s command so the Israelites would have enough light to guide them:

If the Sun did not move, according to the System of Ptolemy, where was the necessity of the Moon’s standing still? For if the Moon had gone on her Course, where was the Loss or Disorder in Nature? She having, as I demonstrated before, so little Light, being so very near her Change, would have recovered her Loss at the next appearance of the Sun, and the Earth could have suffered nothing by the Accident; whereas the Earth moving at the same time, in an Annual and Diurnal Course, according to the System of Copernicus, would have occasioned such Disorder and Confusion in Nature, that nothing less than two or three new Miracles, all as great as the first could have set the World in Order again: The regular Ebbings and Flowings of the Sea must have been interrupted, as also the Appearing of the Sun in the Horizon, besides many other Inconveniences in Nature; as, the Eclipses of the Sun and Moon, which are now so regular, that an Astronomer could tell you to a Minute, what Eclipses will be for thousands of Years to come, both of Sun and Moon; when, and in what Climates they will be visible, and how long they will last, how many Degrees and Digits of those two great Luminaries will be obscured. (83-84)

The knowledge required to formulate these claims gives a taste of the intellectual virtuosity on display in Behn’s preface, a display that contradicts Fontenelle’s

¹² In drawing a connection between *The Emperor of the Moon* and *The Plurality of Worlds*, Hayden argues that Behn ridicules the concept of life on other planets just as she satirizes Dr. Baliardo’s obsession with the possibility of life on the moon. While I agree that Behn may not have agreed with everything in Fontenelle’s work, I do not see evidence that she seeks to undermine the premise of the entire project.

¹³ Hayden notes that in Fontenelle’s work, the Marquiese hesitates to do math (178).



narrator's view of women and highlights the success of Behn's own self-education and self-fashioning project.

Behn's prefatory display is quite different from Cavendish's description of the difficulties she had reading scientific texts, but like Cavendish, Behn also considers the potential for fancy as a contrast to the experimental methods of the new science. On the third night of *The Discovery*, the conversation turns to technological innovations. Although they are discussing the possibility of life on the moon and other planets, the narrator doesn't mention telescopes. Instead, he draws a comparison between new worlds in space to what one might see using "the late invention of Glasses call'd Microscopes" (134), which illuminates worlds heretofore unseen and unimagined. Unlike Cavendish's critique, the narrator's discussion of microscopes is full of wonder and delight as he describes the "thousands of small living Creatures" living in certain liquids and characterizes a tree leaf as "a little World inhabited by such invisible little Worms" who see the leaf as a vast environment with "hills and Valleys upon it." For the Marquise, who is similarly enchanted by this idea, the potential of microscopes and other worlds fuels her imagination even as it suggests her limitations. As in *The Blazing World*, the concept of "fancy" emerges but instead of viewing imagination as creative and limitless, the Marquise initially asks how one's imagination can comprehend the variety of nature, to which the narrator responds, "let us be satisfied with our Eyes" (135). By the end of the conversation, however, the Marquise is not satisfied with her eyes, and her belief in the creative potential of her imagination seems to have increased. She tells her teacher that she can represent in her mind the "odd Characters and Customs for these inhabitants of the other Planets. Nay more, I am forming extravagant shapes and figures for 'em: I can describe 'em to you; for I fansie I see 'em here" (137). Without dismissing the value of the microscope, Behn's translation still places value on the female imagination to understand the natural world.

Although I have suggested above that the Marquise represents a kind of egalitarian "every woman," a Eurocentric worldview quickly emerges in *The Discovery of New Worlds* as a whole, when she and her teacher imagine inhabitants of these extra-terrestrial new worlds in comparison to the natives of the "new" worlds on earth, reflecting the conflagration of imperialist beliefs and practices and scientific and geographic discoveries. Their conversation is full of racist views that are somewhat, but not completely, ameliorated in Behn's translation, and we can see that here too Behn relies on her sense of personal and national superiority as part of her authorial self-fashioning. For instance, in an early discussion about the possibility that men live on the moon, the speaker talks of men traveling to the Americas and finding the inhabitants there "to be hardly Men, but rather a kind of Brute in Humane shape, and that not perfect there" (121). He imagines it would be similar should explorer encounter men and women on the moon and then goes on for almost twenty more lines, repeating and elaborating his point that the inhabitants of the moon, like those of other earthly worlds, could not possibly be as rational and wise as Europeans. Meanwhile, the Marquise barely gets a word in edgewise. When she finally does, her comment seems, in comparison, not only more concise but more compassionate than her instructor's; "We are then secure enough... that the Inhabitants of the



Moon will never guess what we are; but I wish we could attain to the knowledge of them; for I must confess it makes me uneasie to think there are Inhabitants in the Moon, and yet I cannot so much as fansie what kind of Creatures they are” (121). In a later conversation about the inhabitants of Mercury, the speaker suggests they must be mad for their proximity to the sun, and he compares them to “our *Negroes*,” who “they never think, and are void of all Reflection, and they only act by Chance, and by the suddain Impulses” (138). Despite his reliance on the scientific method of observation and hypothesis, the speaker’s racism —his surety of European cultural superiority— is unmistakable in this analogy. In a comparison of Behn’s translation to Fontenelle’s original text, Line Cottagnies suggests that Behn makes the narrator more forceful and assertive in his racial attacks while using her preface to distance “herself from Fontenelle’s most contentious hypotheses” (22). It is true that in the preface, significantly during her characterization of French as overly ornate, Behn offers a model of racial relativism that may serve as an antidote to the distastefulness of her translated narrator’s disdain for the natives of Africa; “I do not say this so much to condemn the French, as to praise our own Mother-Tongue, for what we think a Deformity, they may think a Perfection; as the Negroes of Guinney think us as ugly as we think them” (76). Her somewhat more palatable view is echoed by the Marquiese, who in a debate with her teacher, champions women of brown or dark complexion despite her own fair skin.

Subtly, however, Behn’s preface also suggests her belief in her superiority to inhabitants of the new world and in that way she may be more like Fontenelle’s than she first appears. These sentiments are evident in Behn’s rather strained explanation of why it is most difficult to translate from the French. To make her point, she offers a history of language in which she focuses on European countries on relatively equal political footing. Her discussion of the origins of modern languages recognizes the trend of conquering nations imposing their languages on vanquished peoples:

The Italian, as it is nearest the Latin, is also nearest the English: For its mixture being composed of Latin, and the Language of the Goths, Vandals, and other Northern Nations, who over-ran the Roman Empire, and conquer’d its Language with its Provinces... the Spanish is next of kin to the English, for almost the same Reason: Because the Goths and Vandals having over-run Africk, and kept Possession of it for some hundred of Years, where mixing with the Moors, no doubt, gave them a great Tincture of their Tongue. (73-74)

By including this narrative in an essay on translation, Behn suggests a connection between military conquest and translation, and presents an early view of translation as a kind of “ethnographic violence” (Venuti 41). Behn recognizes the relationship of language and power in the imperialist encounter and her historical account anticipates the work of post-colonialist translation theorists, such as Ngugiwa Thiongo, who argues that when nations meet as oppressor and oppressed, “the oppressor nation uses language as a means of entrenching itself in the oppressed nation” (31). But Behn does not lament this history of violent and linguistic conquest; rather she describes it as a necessary step in the development of



early modern European languages. When she later refers specifically to conquered peoples of the new world, her focus on the appearance of the “Negroes of Guiney” signals her interest not in the language of the Africans of Guinea but in their bodies. Despite her politically correct reminder that beauty is simply a question of standards and perspective, Behn’s insight into the imperialist history of translation and her off-the-cuff dismissal of the linguistic or intellectual abilities of Africans suggest that she may not be as sympathetic towards the conquered inhabitants of the new world as some of us would wish. Instead, Behn manipulates nationalist and colonialist discourses to create a hierarchy that replaces or supplements the gender hierarchy and allows a literate Englishwoman to occupy a higher literary status than she otherwise would.¹⁴

In a 2004 dissertation on women scientists, Michelle Healy plays with Lawrence Venuti’s formulation of the invisible translator by naming her project *The Cachet of the “Invisible Translator.”* Healy’s main point is to explore how women, including AphraBehn, contributed to the early dissemination of scientific works, using both the perceived secondary status of translation as well as their prominence as writers to make translated texts visible.¹⁵ In Healy’s formulation, the translator still remains largely invisible, and yet Behn’s career is marked by a desire for visibility, and, I would argue, her turn towards translation, of materials scientific and not, is part of her authorial self-fashioning trajectory.¹⁶ We see a similar impulse in the writings of Margaret Cavendish, whose desire for recognition and praise has been oft remarked upon.¹⁷ Both women’s interest in being seen goes hand-in-hand with their exploration of what it is possible to see. Their scrutiny of technological developments, their entry into scientific discourse, and their fascination with the discovery and creation of new worlds suggest that for at least a handful of seventeenth-century women, the field of natural philosophy provided access to a public intellectual space even as it created barriers to entry. To overcome such barriers, Cavendish and Behn focus on what women can know through unassisted vision combined with common sense, and they help their readers see further, not by looking through telescopes or microscopes but through reading, writing and imagination.

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¹⁴ Cavendish’s ideas about race have been discussed in relation to the multi-colored inhabitants of her *Blazing World*. See for example, Cristina Malcolmson, *Studies of Skin Color in the Early Royal Society*.

¹⁵ Healy’s title alludes to Lawrence Venuti’s *The Translator’s Invisibility: A History of Translation*, a foundational text in translation studies.

¹⁶ I discuss more fully how I understand translation as central to Behn’s self-fashioning project in my chapter on her in *Women Translators in Renaissance England*.

¹⁷ Holmesland offers a useful summary of commentary on Cavendish’s desire fame, pointing out that critics often takes Cavendish to task for such a “patriarchal” desire (86-87).



WORKS CITED

- BEHN, Aphra. *A Discovery of New Worlds* (1688). Trans. Bernard le Bovier de Fontenelle *Entretiens sur La Pluralité des Mondes*, with "Essay on Translated Prose." *The Works of Aphra Behn*. Vol. 4. Ed. Janet Todd. London: William Pickering, 1996. 71-165. Print.
- . *The Emperor of the Moon*. *The Works of Aphra Behn*. Vol. 7. Ed. Janet Todd. London: William Pickering, 1996. 153-207. Print.
- BOYLE, Deborah. "Margaret Cavendish's Nonfeminist Natural Philosophy." *Configurations* 12.2 (2004): 195-227. Print.
- BROAD, Jaqueline. "Cavendish, van Helmont, and the Mad Raging Womb." *Hayden* 47-63. Print.
- CAVENDISH, Margaret. *Observations Upon Experimental Philosophy* (1668). Ed. Eileen O'Niell. Cambridge: Cambridge UP, 2001. Print.
- . *The Blazing World* (1666). *An Anthology of Seventeenth-Century Fiction*. Ed. Paul Salzman. Oxford: Oxford UP, 1991. 249-349. Print.
- CLAIRHOUT, Isabelle and JUNG, Sandro. "Cavendish's Body of Knowledge." *English Studies* 92.7 (2011): 729-43. Print.
- COPPOLA, Al. "Retraining the Virtuoso's Gaze: Behn's *Emperor of the Moon*, the Royal Society, and the Spectacle of Science and Politics." *Eighteenth-Century Studies* 41. 4 (2008): 481-506. Print.
- CORPORAAL, Marguerite. "My Mind a Busy Fool': Margaret Cavendish's Reflections on Science." *In-Between: Essays and Studies in Literary Criticism* 9.1-2 (2000): 147-60. Print.
- COTTEGNIES, Line. "The Translator as Critic: Aphra Behn's Translation of Fontenelle's *Discovery of New Worlds* (1688)." *Restoration* 27 (2003): 22-38. Print.
- DEAR, Peter. "A Philosophical Duchess: Understanding Margaret Cavendish and the Royal Society." *Science, Literature and Rhetoric in Early Modern England*. Ed. Juliet Cummins, and David Burchell. Aldershot: Ashgate, 2007, 125-42. Print.
- GEVIRTZ, Karen Bloom. "Behn and the Scientific Self." *Hayden* 85-98. Print.
- HAYDEN, Judy A. "Harlequin Science: Aphra Behn's *Emperor of the Moon* and *The Plurality of Worlds*." *English* 64. 246 (2015): 167-182. Print.
- . "Intersections and Cross-Fertilization." *Travel Narratives, the New Science, and Literary Discourse, 1569-1750*. Ed. Judy A. Hayden. Aldershot: Ashgate, 2012. 1-21. Print.
- ed. *The New Science and Women's Literary Discourse*. New York: Palgrave MacMillan, 2011. Print.
- HEALY, Michelle. *The Cachet of the "Invisible Translator": Englishwomen Translating Science, 1650-1850*. Dissertation. U of Ottawa, 2004. Print.
- HOLMESLAND, Oddvar. *Utopian Negotiations: Aphra Behn and Margaret Cavendish*. Syracuse: Syracuse UP, 2013. Print.
- HUTTON, Sarah. "In dialogue with Thomas Hobbes: Margaret Cavendish's Natural Philosophy." *Women's Writing* 4.3 (1997): 421-32. Print.
- KELLER, Eve. "Producing petty gods: Margaret Cavendish's critique of experimental science." *ELH* 64.2 (1997): 447-71. Print.
- MALCOLMSON, Cristina. *Studies of Skin Color in the Early Royal Society*. Aldershot: Ashgate, 2013. Print.
- NGUGI, Wa Thiongo. *Moving the Centre: The Struggle for Cultural Freedoms*. Portsmouth, N.H.: Heinemann, 1993. Print.



- SARASOHN, Lisa T. "A Science turned upside down: Feminism and the Natural Philosophy of Margaret Cavendish." *Huntington Library Quarterly* 47.4 (1984): 289-307. Print.
- SPILLER, Elizabeth. "Reading through Galileo's telescope: Margaret Cavendish and the experience of reading." *Renaissance Quarterly* 53.1 (2000): 192-221. Print.
- THELL, Ann. "[A]s lightly as two thoughts': Motion, Materialism, and Cavendish's *Blazing World*." *Configurations* 23.1 (2015): 1-33.
- TILLERY, Denise. "English them in the easiest manner you can': Margaret Cavendish on the discourse and practice of Natural Philosophy." *Rhetoric Review* 26.3 (2007): 268-85. Print.
- TROFIMOVA, Violetta. "Crossing the Boundaries: Aprha Behn and John Wilkins Popularizing the 'New Science'." *Revista Canaria de Estudios Ingleses* 50 (2005): 87-100. Print.
- UMAN, Deborah. *Women as Translators in Early Modern England*. Newark, DE: U of Delaware P, 2012. Print.
- VENUTI, Lawrence. *The Translator's Invisibility: A History of Translation*. New York: Routledge, 1995. Print.
- . *The Scandals of Translation: Towards an Ethics of Difference*. New York: Routledge, 1998. Print.
- WALLWORK, Jo. "Disruptive Behavior in the Making of Science: Cavendish and the Community of Seventeenth-Century Science." *Early Modern Englishwomen Testing Ideas*. Eds. Jo Wallwork, and Paul Salzman, Aldershot: Ashate, 2011. 41-53. Print.
- WALTERS, Lisa. "Optics and Authorship in Margaret Cavendish's *Observations* and *The Blazing World*." *Viator* 45.3 (2014): 413-431. Print.

