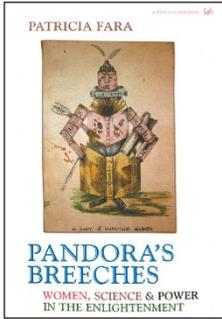


Who really wore the pants?



Pandora's Breeches: Women, Science & Power in the Enlightenment

by Patricia Fara

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Reviewed by Londa Schiebinger

In 1792 some smoldering breeches stuffed with straw were found crammed into the lavatory ceiling in the British House of Commons. These incendiary breeches symbolized the radicalism threatening to march across the channel from revolutionary France, where women, in claiming their civic rights, often donned trousers. Those hoping to stanch the tide called for an end to Pandoras in breeches—those women who, in claiming a place in public and professional life, threatened to loose pandemonium on European civilization. But—as this delightful book by Patricia Fara, a fellow at Clare College, Cambridge, reveals—Pandora's box had already been breached. Fara details the lives, tribulations and triumphs of woman physicists, chemists, astronomers, philosophers and botanists working in England, France and Germany in the Age of Enlightenment.

Fara gives new definition to people who have been airbrushed out of history by providing biographies of nine prominent women scientists of the seventeenth and eighteenth centuries. She offers context and perspective by pairing those women with the great men whose intellectual lives intertwined with their own. Some of these pairs were husband and wife, others were lovers, still others brother and sister, but some were merely intellectual contemporaries whose work developed through mutual efforts. Fara's point is that without the contributions of the women she discusses, European science would have been other than it was.

Fara begins with a triad of aristocratic women—Elisabeth of Bohemia, Anne Conway and Émilie du Châtelet—whom she pairs with René Descartes, Gottfried Leibniz and Sir Isaac Newton, respectively. Descartes, the sixteenth-century father of modern philosophy, was influenced by two women: Queen Christina of Sweden—the masculine intellectual—who, along with the rigors of her tutorials, is often blamed for his death; and Elisabeth of Bohemia. The 24-year-old Elisabeth met the 46-year-old philosopher in 1642. In principle, Descartes endorsed female education, and his epistemological divorce of mind from body suggested that traditional allegations about female failings of body no longer implied feminine failings of spirit: all minds were created (at least potentially) equal. At first, Descartes took on the role of teacher, but

Elisabeth soon developed her own ideas and subjected Descartes's philosophical musings to intense scrutiny. Fara details how Descartes redefined key concepts and took up new arguments in response to Elisabeth's relentless critiques. Descartes's *Passions of the Soul*, in particular, emerged from a series of letters written to Elisabeth.

Gabrielle-Émilie Le Tonnelier de Breteuil, marquise du Châtelet, a noble Frenchwoman, is probably best known as a mistress of Voltaire, an advocate of Newtonian physics. The relationship, however, was more complex than that: Voltaire received sanctuary at Cirey-sur-Blaise, du Châtelet's country estate, and her influence at the court of the French king was no small matter, with warrants out for Voltaire's arrest following the publication of his *Lettres philosophiques*. For her part, du Châtelet received entrée into intellectual circles through the prestige of Voltaire's literary reputation. Through these connections, du Châtelet nourished her interest in newtonianism. Her translation of Newton's *Principia mathematica* with her commentary, published after her death, was long the standard French translation of that work. The influence of noble women, however, was undercut by the social upheavals in Europe that led in 1789 to revolution in France. As Voltaire wrote of du Châtelet, she was “a great man whose only fault was being a woman”.

Fara's second section, “Domestic Science”, treats scientific partnerships based in family relationships. Whereas today only 6% of German astronomers are women, in 1700, 14% were. I have described this previously by the perpetuation of guild traditions. Wives were of such import to production that every guildmaster was required by law to have one. As was characteristic of wives who served scientific men, Elisabetha Hevelius married deliberately “an old peevish gentleman” but a pre-eminent astronomer in order to assure her place in astronomy. She, along with Maria Margarethe Winckelmann, is perhaps the best example of a wife who served as chief assistant to an astronomer husband. The very different structure of the workplace—seventeenth-century observatories were typically in homes, not part of universities—allowed wives comprehensive scientific roles. For 27 years Elisabetha Hevelius collaborated with her husband, observing the heavens in the cold of night by his side. After his death, she edited and published their joint work, *Prodromus astronomiae*, a catalogue of 1,888 stars and their positions.

By the end of the eighteenth century, the place and power of guildswomen had waned and with it women's place in astronomy. Caroline Herschel, who assisted her famous astronomical brother William, served not in the style of a spunky guildswoman, but as an assistant tucked away in an increasingly privatized domestic space that would relegate women to scientific obscurity during much of the nineteenth century. Although widely recognized for her discovery of eight comets and three nebulae, and for her *Catalogue of Stars*, published by the Royal Society, Caroline did not set her own scientific agenda but served her brother and added her talents to further his career.

In addition to these stories, Patricia Fara's eloquent pen records the lives of Anne Conway and Gottfried Leibniz, Jane and John Dee, Maria Paulze and Antoine Lavoisier, Priscilla Wakefield and Carl Linnaeus, and Mary Shelley and the creation of her imagination, Victor Frankenstein. In addition to drawing together the finest scholarship of the past 15 years on women in Enlightenment science, Fara regales the reader with fine illustrations that wonderfully capture the spirit of a spirited age.

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