

Books & arts

Are women in research being led up the garden path?

A moving memoir of botany and motherhood explores the historical pressures on female scientists. **By Josie Glausiusz**

Nineteenth-century English suffragist Lydia Ernestine Becker, a lifelong advocate for women's right to vote, was also an accomplished botanist who discovered a peculiar hermaphrodite flower. She found that the female flowers of red campion, *Lychnis diurna* (now called *Silene dioica*), develop stamens – the pollen-producing male part of a flower – when infected with a fungus. She expounded on these ‘curious characteristics’ in correspondence with Charles Darwin, and published a paper on her findings in 1869 (L. Becker *J. Bot.* 7, 291–292; 1869).

“Becker’s research led her to consider that the seemingly fixed categories of male and female might not be as immutable as they first seemed,” notes evolutionary biologist Erin Zimmerman in her moving memoir of botany and motherhood, *Unrooted*. Becker concluded that girls and women were lagging behind only because they received less education than boys and men. Her ideas caused a backlash, and she was ridiculed by press critics – some even implied that she was a hermaphrodite herself.

Uncertainties in science and in life

In some ways, Becker’s story foreshadows that of Zimmerman. Women in science still struggle to succeed in academia in the face of ingrained sexism. In her book, Zimmerman describes her determination to pursue a career in her beloved field of botany. She travels from Montreal, Canada, to the Royal Botanic Gardens, Kew, in London, and then to the Guyanese rainforest, in search of a group of tropical trees and shrubs known as Dialiinae (now called Dialioideae) – one of the earliest evolutionary branches of the legume family. In Guyana, she encounters an enormous anaconda and a terrier-size spotted rodent called a labba (*Cuniculus paca*). She climbs part-way up 60-metre-tall trees, battling her dread of falling as well as angry insects.

Perhaps Zimmerman’s most powerful fear, however, is the difficulty of combining her career with motherhood. She tells her boyfriend



In *Unrooted*, botanist Erin Zimmerman shares her struggle to balance research and family.

Eric that she would “certainly not be having children”, and her concerns over parenthood are not unfounded. In the United States, 43% of women with full-time jobs in science leave the sector or take on part-time roles after having their first child (E. A. Cech and M. Blair-Loy *Proc. Natl Acad. Sci. USA* 116, 4182–4187; 2019). By contrast, only 23% of new fathers leave or reduce their hours.

The author experiences this herself, and she finds parallels between the obstacles faced by women in science and global threats

to plants. According to the 2023 State of the World’s Plants and Fungi report (see go.nature.com/3xardd7), 45% of all known flowering plant species are at risk of extinction – a percentage eerily similar to that of women leaving full-time research.

Zimmerman’s field is hardly secure: her PhD project involved carefully dissecting decades-old, dried plant specimens stored in herbaria and extracting DNA from the samples. These collections are important for assessing extinction risks, yet they are themselves under threat. “Old and venerable collections housing many priceless specimens look to some funding bodies like dusty old money pits,” she writes. In February, Duke University in Durham, North Carolina, announced the closure of its 100-year-old herbarium, which houses 825,000 specimens, saying that the collection had become “too expensive to maintain” (see go.nature.com/4cnbyjm).

Nevertheless, Zimmerman persisted.



Unrooted: Botany, Motherhood, and the Fight to Save an Old Science

Erin Zimmerman
Melville House (2024)

Books & arts

Her plants had become beloved children, absorbing her attention. Lists of specialized terms such as leaf shapes “read like an arcane spell book”: “Ovate. Lanceolate. Cordate. Falcate. Orbicular. Cuneate.” She draws plant specimens in meticulous detail, and these lovely illustrations dot the pages of her book.

But her devotion to her research becomes an obsession, isolating her. And as she plots her path, she realizes how tenuous her dream of tenure is: there are too few faculty positions.

A different future

Despite the pressures, Zimmerman manages to maintain a life outside the laboratory: soon after her doctoral defence – a moment she has dreamed of for years – she and Eric marry in the barn of her childhood home in Ontario. One month later, she discovers she is pregnant. In the middle of her pregnancy, she lands a postdoc position at a Canadian government agricultural facility.

This is where her personal and professional lives collide. Overworked, in pain, accused of having ‘brain fog’, dismissed for her concerns about working in a pesticide-sprayed greenhouse while pregnant and, later, longing for her infant daughter, Zimmerman decides to quit. She was appalled at her supervisor’s reaction: “he made it clear that he considered me to have been a terrible investment, and that he’d likely think twice the next time he interviewed a pregnant woman”.

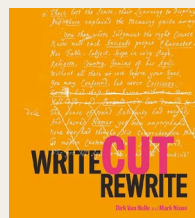
This moment of misogyny leads Zimmerman to reconsider the landscape of science. Women are often derided for their reproductive choices, yet men have children, too. The highly praised Darwin, for example, had ten children with his cousin, Emma Wedgwood. Men who have become scientific heroes often dedicated all their waking hours to their research, while women – including their wives or, in the case of wealthy men, nannies – raised their children.

To slow “the haemorrhage of women” from the hyper-competitive world of research, we need better policies, Zimmerman writes. These should include protected parental leave, flexibility for new mothers to work from home, designated breast-pumping spaces (rather than the mildewed shower stall Zimmerman was forced to use) and childcare facilities at conferences, so that women don’t miss out on networking and hiring opportunities.

After departing from research, Zimmerman switched to science journalism, for which we should be grateful, for she writes beautifully. In some ways, her decision echoes Becker’s, who published her 1864 book *Botany for Novices* under just her initials (L.E.B.) and then left the field to dedicate herself to women’s activism. Now, 160 years later, Zimmerman can tell her story, under her full name. That’s progress.

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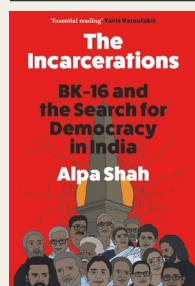
Books in brief



Write Cut Rewrite

Dirk Van Hulle & Mark Nixon *Bodleian Library Publishing* (2024)

The Bodleian Library in Oxford, UK, stores draft manuscripts, including one of philosopher Ludwig Wittgenstein’s *Tractatus Logico-Philosophicus* (1921). The last line translates to “Whereof one cannot speak, thereof one must be silent”, followed by his handwritten “Schluss!” (‘The End!’). Another, ‘The Mole & the Water Rat’ by writer Kenneth Grahame, was published as *The Wind in the Willows* (1908). Both are illustrated in this varied book about how authors compose and revise, by historian Dirk Van Hulle and literature researcher Mark Nixon.



The Incarcerations

Alpa Shah *William Collins* (2024)

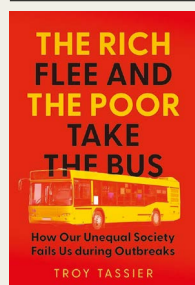
India is a democracy, but between 2018 and 2020, its government imprisoned, so far without trial, 16 Indian academics, lawyers, poets and journalists, notable for defending human rights. It accused them – on fraudulent evidence – of being Maoist terrorists plotting to kill Indian Prime Minister Narendra Modi. The case is a “bellwether for the collapse of democracy in India”, argues anthropologist Alpa Shah, in her deeply researched and frequently shocking account of how Hindu nationalism has created “an Indian form of fascism”.



Wild Woman

Philippa Forrester *Bloomsbury Wildlife* (2024)

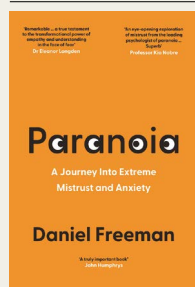
A prime-time TV presenter and producer of science documentaries, Philippa Forrester holds degrees in English literature and ecology. In 2015, she moved from the United Kingdom to Wyoming, where she encountered wolves, grizzly bears and moose, before returning home. In this personal and readable account of women working in nature over several centuries, Forrester calls herself “a hybrid of scientist and storyteller”, belonging to no “wild” female archetype – neither a practical “nurturer” nor a spiritual “crazy crone”.



The Rich Flee and the Poor Take the Bus

Troy Tassier *Johns Hopkins Univ. Press* (2024)

An adage in epidemiology states that, if you’ve seen one epidemic, you’ve seen one epidemic. However, argues economist Troy Tassier in his thoughtful history, in almost every epidemic, the rich escape and survive while the poor stay and suffer. Take the London plague of 1625 – the wealthy fled, food prices soared and the poor starved, until eventually King Charles I taxed the rich refugees. To avoid future epidemic catastrophes, nations must support “universal access to high-quality health care” and “living wages for all workers”.



Paranoia

Daniel Freeman *William Collins* (2024)

There needs to be a public discussion about trust, argues Daniel Freeman, the world’s leading paranoia researcher: on both “the forces that undermine it, and the measures we can take to restore it”. Some 1–3% of the population have severe paranoia. Such mistrust might be why conspiracy theories flourished during the COVID-19 pandemic. But there is hope, Freeman concludes, if world leaders work together, as US president Ronald Reagan and Soviet leader Mikhail Gorbachev did during the cold war. **Andrew Robinson**

Correction

The quotation about Zimmerman's supervisor has been updated to reflect the wording in the published version of the book.