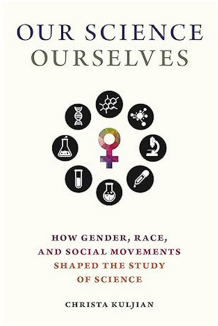
The people, movements and ideas that reshaped how science understands itself

BOOK TITLE:
Our Science, Ourselves: How Gender, Race, and Social Movements Shaped the Study of Science



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Christa Kuljian, currently a Research Associate at the Wits Institute for Social and Economic Research (WiSER), started her journey into the intersection of science and social justice in the early 1980s at Harvard, guided by her involvement in a course she pursued, 'Bio 109: Biology and Women's Issues', taught by Ruth Hubbard, Harvard's first tenured female biology professor. In that class, Kuljian was confronted with the realisation that science was not neutral but deeply influenced by societal biases, particularly through the ways male scientists historically framed gender and biology to uphold patriarchal norms.

This formative experience inspired Kuljian's book *Our Science, Ourselves: How Gender, Race, and Social Movements Shaped the Study of Science*. The book traces the emergence of feminist science studies, focusing on six trailblazing women – Ruth Hubbard, Rita Arditti, Evelyn Fox Keller, Evelynn Hammonds, Anne Fausto-Sterling and Banu Subramaniam – who together challenged biases in scientific institutions and research paradigms.

These women converged around Boston's robust academic and activist landscape during the 1970s to 1990s. Inspired by the women's movement and groups such as 'Science for the People', the 'Genes and Gender Collective' and the 'Combahee River Collective', they examined how gender, race, class and sexuality shaped both scientific knowledge and institutional practices. Kuljian diligently narrates how their insights have seeped into mainstream scientific disciplines, such as cell biology, developmental biology and science and technology studies, and continue to inspire new generations of researchers to question the past and to reexamine the practices of contemporary times.

Drawing from archival materials, journal articles and interviews, Kuljian paints these women's stories not just as intellectual breakthroughs but as deeply personal journeys. She highlights how scientific objectivity required deeply embodied critiques rooted in personal experiences of exclusion and systemic inequality. Kuljian's narrative documents their leadership in major critiques, from challenging E.O. Wilson's sociobiology in the 1970s to responding to Larry Summers's controversial comments 30 years later, and explores Nancy Hopkins's evolving role as a "reluctant feminist" author of the Massachusetts Institute of Technology's influential 1999 report on women in science.

Kuljian's own path intertwines with this history. Growing up in Boston, attending that pivotal course, then launching a career across continents – eventually settling in Johannesburg – Kuljian brings a unique blend of proximity and hindsight. Her previous work, *Darwin's Hunch* (Jacana Media, 2016), examined scientific racism in palaeoanthropology; *Our Science, Ourselves* builds on that foundation by centring the people, movements and ideas that reshaped how science understands itself.

Kuljian makes a broader case for intersectionality as essential to scientific progress, noting the inadequacy of early feminist critiques that failed to integrate race, class and sexuality. Figures like Dorothy Burnham, an African American microbiologist, helped highlight how scientific myths differently affected black women – pushing the movement toward a richer, more inclusive feminism.

Throughout, the book underscores how social movements and institutions co-created feminist science studies, and how these scholars operated not in isolation but in networks; through seminars, publications and activism, they challenged the presumed neutrality and authority of science.

Kuljian traces how these scientists worked to transform science from within, questioning assumptions about objectivity and neutrality while demonstrating how social and political contexts influence scientific knowledge production. This represents a continuation of Kuljian's broader interest in examining how social factors shape scientific understanding, as seen in her previous work *Darwin's Hunch*, which explored similar themes around race and science in the context of human origins research.

This book investigates the origins of feminist science studies in the USA, providing historical context for understanding how gender and racial critiques of science developed. This addresses contemporary questions about how scientific knowledge production is shaped by social identities and power structures.

Kuljian explores how engaging with these critiques is often difficult, which speaks to ongoing contemporary challenges about implementing meaningful change in scientific institutions and practices. The contemporary relevance of her narrative lies in how the historical struggles documented in the book continue to resonate today: questions about who gets to do science, whose perspectives are valued, how research questions are framed, and how scientific institutions can become more inclusive and responsive to diverse voices and concerns. These remain pressing issues in current discussions about diversity in STEM, decolonising science, and addressing systemic inequalities in academic and research settings.

What about the historical arc of how women in science developed in South Africa?

Universities in South Africa gradually opened their doors to women in the early 20th century, but opportunities were rare and concentrated in a few disciplines (notably botany and ethnology). Ethel Mary Doidge, a mycologist, became the first woman to earn a doctorate in South Africa (DSc, 1914) – a signal that women could attain the highest scientific credentials despite pervasive barriers.[1]

During the 1940s to 1970s, female scientists worked largely in teaching and museum/herbarium roles, with only a handful breaking societies' glass ceilings (e.g. botanist Margaret Levyns, later a leading figure of the Royal Society of South Africa[2]).

Apartheid's racialised system sharply constrained black women's access to STEM training and posts; representation remained small and skewed by field. Although participation and output by women have risen steadily since the mid-2000s, including gains for black women, gender gaps persist across fields and seniority (notably in engineering/physical sciences and in leadership ranks).[3] Current debates focus on how grant-making and institutional practices can accelerate transformation, but the skewed trend is still noticeable in contemporary times.

I had the privilege of hosting Kuljian during an 'In conversation' webinar series hosted by the Academy of Science of South Africa (ASSAf) on 19 August 2025.[4] This gave ASSAf an opportunity to have an open discussion with Kuljian on the book and, being August, to also celebrate Women's Month. It was refreshing to hear her speak about how she had the idea to write the book, the stories of the six women, and to draw on some parallels in the South African history of women in science. However, the most revealing moment during this conversation was a discussion on Darwin's views on gender.

Charles Darwin (1809–1882) advanced the concept of evolution and the theory of selection – the latter linked with the concept of survival of the fittest. In his revolutionary book *The Descent of Man*[5], Darwin argued that men had achieved greater evolutionary advancement in intellectual and creative faculties than women, attributing this to sexual selection and men's broader opportunities for competition. For example, he wrote:

> *The chief distinction in the intellectual powers of the two sexes is shown by man's attaining to a higher eminence, in whatever he takes up, than can woman—whether requiring deep thought, reason, or imagination…*[5]

This reflects a hierarchical view of gender, in which women were seen as biologically destined for nurturing roles, and men for intellectual and creative achievements. Such views are today recognised as sexist.

However, Darwin also emphasised women's crucial role in sexual selection and in the moral progress of humanity, attributing refinement of emotions and sympathy to women. In that sense, he valued qualities associated with women, but still within a framework of gender essentialism that placed men at the top of an evolutionary hierarchy.

Of course, Darwin lived during the era of Victorian England, which was highly patriarchal, with limited rights for women in education, science and politics, and Darwin's views largely reflected the dominant assumptions of his social class. Darwin also corresponded respectfully with several female scientists, such as Mary Treat, a naturalist who studied carnivorous plants and insect behaviour. He valued her observations and cited her work in *Insectivorous Plants* (John Murray, 1875). This suggests that while his writings generalised about women's 'intellectual inferiority', in practice he could respect and engage seriously with women's scientific contributions.

The conversation underscored that science is deeply embedded within its social and political contexts. Through her scholarship, Christa Kuljian has illuminated how gender and race dynamics influence the pursuit and practice of science. Her reflections offer valuable insights for South Africa's ongoing efforts to foster a more inclusive and equitable scientific landscape.

The book offers an opportunity to reflect on where we have come from, the challenges of today, and how we can build a future based on respect, tolerance, collegiality and equality.

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