

RUHA BENJAMIN, *People's Science: Bodies and Rights on the Stem Cell Frontier*. Stanford, CA: Stanford University Press, 2013. Pp. xv + 249. ISBN 978-0-8047-8297-5. £17.99 (paperback). doi:10.1017/S0007087415000230

Some of the most pressing questions for science today start not with 'Can ...?', but 'How ...?' How can we ensure that research improves the lives of the entire population, not just the ruling elite? How do new biotechnologies affect our conception of normality, disability and disease? How can we practise biology without excluding the voices, or exploiting the bodies, of oppressed groups? Ruha Benjamin's excellent book focuses on such questions, taking as a case study the controversial passage of Proposition 71, a state bill that made conducting stem cell research in California a Constitutional right, and which guaranteed funding – over \$3 billion of public money – for stem cell research over a decade.

Benjamin helpfully provides the historical and social context to frame Proposition 71. In 2001, the Bush administration severely restricted federal funding for research on new stem cell lines, triggering several states to consider initiatives to work around these constraints. Proposition 71 was part of this reaction. Proponents (including celebrities, venture capitalists and biotechnology companies) poured \$35 million dollars into the 'Yes on 71' campaign, which sold itself as a fight between visionary scientific humanitarianism and befuddled pro-life conservatism, but Benjamin gives voice to other groups – disability rights campaigners, feminists, black activists – who all had good reasons to problematize the bill.

Benjamin begins by introducing the two arms of the new stem cell infrastructure created by Proposition 71: the California Institute for Regenerative Medicine (CIRM), which provides grants for research, and the Independent Citizen's Oversight Committee (ICOC), which oversees the CIRM, promoting ethical practice. The tension between these two contrasting pressures – on the one hand the desire to expedite 'breakthroughs' and improve clinical treatments, on the other the need to proceed responsibly after careful critique – recur throughout the book. This conflict is synopsized by the backward-looking Sankofa bird, a Ghanaian symbol of fruitful reflection that Benjamin conjures to remind us to 'critically engage histories of domination and subordination in order to produce knowledge that is committed to not simply biomedical consumption ... but an ongoing process ... of social liberation' (p. 24).

In the first chapter, she splits the concept of personhood into two halves: *demos* describes people as social citizens who ought to be allowed to participate actively as research decision-makers; *bios* refers to people as biological bodies who must be recruited as research subjects. Ordinary Californians were rallied to get behind the bill, but Benjamin suggests that, rather than being genuinely engaged, they were strategically enlisted for their signatures – on ballot paper to boost 'yes' votes, and on consent forms to expand the pool of research volunteers.

Chapter 2 debates whether the promise of stem cell cures for debilitating conditions undermines sufferers of those diseases. A focus on curing, rather than coping, suggests that disabilities are innately undesirable and ignores years of activism by the vari-abled community. Benjamin reminds us that many disability rights activists see their conditions as 'not impairment but an identity ... requiring protection, recognition, and cultivation' (p. 56). In short, the stem cell paradigm focuses more on *consumer* rights (the right to use biology to transform our bodies) than on *civil* rights.

Embryonic stem cell research depends on the ready supply of foetuses, and Chapter 3 asks whether we should pay women for their eggs. After all, every other member of the research chain is remunerated for their contributions, so why not egg donors? Whilst some feminists see egg donation as an altruistic benefaction that can facilitate women's health research, others view it as an act of labour by commodified women who expose their bodies to the risks of ovarian hyperstimulation – and so deserving of pay. Benjamin neatly describes the racialized polarity of egg donation in America today, whereby the eggs of young, white, middle-class women are highly sought-after, and thus attract up to \$30,000 in the private sector, whilst other

women using IVF often have to resort to donating surplus eggs to research institutions, which cannot compensate donors. Further, because of 'the racialization of poverty' (p. 89) in the USA, we see the difficulty of attracting 'non-white' donors (to generate genetically heterogeneous stem cell lines relevant to 'non-white' patients) given requirements to protect economically vulnerable women from coercive financial incentives.

Chapter 4 then tackles the issue of race head-on. Proposition 71 could not have passed without having 'minority' voters on board, given the high proportion of people of colour in California. But were these ethnic groups sold a lie? Certainly it was disingenuous for the 'Yes on Prop. 71' campaign to suggest that their health hinged on yet-to-be-discovered stem cell treatments, when the health disparities between white and non-white Americans originate from structural, and not biological, factors. Even in cases of race-specific genetic diseases, it seems, black bodies are wanted more as tissue donors than as patients; African Americans with sickle cell disease are actively recruited to donate umbilical cord blood for use in stem cell transplantation, but only 6 per cent of eligible black sufferers get treated by this technique themselves.

The fifth chapter explores why African Americans 'underutilize' available treatments and their reluctance to participate in clinical trials – is it a case of involuntary exclusion, or an active rejection of hospital medicine? Isolated historic abuses (e.g. Tuskegee) are surely discouraging, but we must not ignore what John M. Johnson and Andrew Melnikov call the 'wisdom of distrust' (quoted at p. 138); that is, the understandable suspicion of Western science by communities whose lives are continually under siege more broadly from widespread, institutionalized, racism.

Despite these problems, Proposition 71 was approved on 2 November 2004, leading the journal *Nature* to declare, 'the dream has come true'. But whose dream? Chapter 6 informs us that, in the same month that Proposition 71 was passed, Proposition 72 (a bill to extend health care provision to under-insured citizens) was narrowly defeated – at a time when 20 per cent of Californians had no health insurance whatsoever. These contrasting election results reveal how a populist rhetoric was coopted for an elitist agenda, and tells us something of the inflated promises that were sold to Californians regarding the potential of stem cell research to deliver near-term cures to transform their social condition – promises that remain to be fulfilled.

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JED Z. BUCHWALD and ROBERT FOX (eds.), *The Oxford Handbook of the History of Physics*. Oxford: Oxford University Press, 2013. Pp. ix + 945. ISBN 978-0-19-969625-3. £95.00 (hardback). doi:10.1017/S0007087415000242

I have seldom struggled so much writing a review. *The Oxford Handbook of the History of Physics*, edited by Jed Z. Buchwald and Robert Fox, is a rare specimen. In their very short introduction, the editors express their intent to explore the complex history of physics, and therefore present a wide diversity of studies that aim to do justice to modern historiography. In a sense they have managed to do so: the handbook contains a number of excellent studies all focusing on one or more key aspects of how physics developed in the previous centuries. Some papers focus on particular theories, others on instruments and devices, formalisms, or key concepts. There are noteworthy essays by John A. Schuster on Cartesian physics, Niccolò Guicciardini on the mathematization of natural philosophy, and Sandro Caparrini and Craig Fraser on the development of mechanics in the eighteenth century. Other worthwhile readings include Hasok Chang's concise history of thermodynamics, and Suman Seth's excellent treatment of the early days of quantum physics. The editors' own contributions to this volume are fine examples of the current state of the historiography of electromagnetism.

However, there is also much wrong with this book. One would expect a handbook of the history of physics to include, well, the history of physics. For some reason the book omits everything that