

## Book Review

### Genes, Cells and Brains: The Promethean Promises of the New Biology

Hilary Rose and Steven Rose (Verso, 2012)

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For many years, medicine has seemed to be on the cusp of transformation. We, the expectant public, have been assured - by politicians, leader writers and sundry spokesmen - that advances in understanding of the human genome will revolutionise the treatment and prevention of disease. In particular, the Human Genome Project and the advent of stem cell research were feted as the vanguard of a new era of personalised regenerative therapeutics. The reality, as experienced in everyday clinical medicine, could be seen as rather underwhelming. Cord transection still equals devastating disability; you can't yet clean up your genome and replace your defective BRCA2 gene.

Hilary and Steven Rose, the joint authors of this book, are a social scientist and neuroscientist respectively, and a married couple. What they have been debating over the kitchen table is a sceptical analysis of the more hubristic claims of the genetics movement. They start by targeting a pervasive myth; as they put it, "Modern science's claim to reason, rationality and objectivity has long sought to exclude love, responsibility and indeed all moral sentiment. Faced with ethical problems associated with its research, science's institutional response has been to wash its hands: science, it claims, is neutral." The Roses' ambition is to relocate the science of genetics firmly in its social context, and to delineate the relationships between science, money, and power. The interests of societies and individuals do not necessarily overlap with the interests of business and governments, but it is often in the interests of the latter to obscure this fact.

Genetics has a grubby track record the authors argue, going right back to the intertwining of eugenic and evolutionary theories in the late nineteenth century. One of the strongest themes

in the book concerns the tensions between researchers and their social responsibility. The development of a robust ethical framework was imperative following the revelations of the catastrophic inhumanity of Nazi science at the post-war Nuremberg trials, which led to the Helsinki Declaration on medical research ethics. Building the consensus required to codify a form of "universal" moral imperatives was made possible by the extremity of the horrors that had necessitated the changes. Over time, those high ideals have slipped and been subverted by motives of pragmatism and profit. The Roses discuss several examples of manifest neglect of the principles of Helsinki, such as the (non-) treatment of American citizens with syphilis in the Tuskegee scandal, exposed in the mid-1970s, which showed how, while the Nazi abuses were at the far end of a spectrum, some unconscionable acts continued to be committed in democratic societies long after the Helsinki declaration.

The criticisms the book levels at science today, and 'Big Pharma' in particular, are against more insidious abuses of trust. They do not expose any contemporary ethical nightmares to rival Tuskegee, but they do aim to draw attention to major flaws in the current relationship between 'us' - the genetic raw material - and 'them' - neo-liberal multinational companies using the compliant media and political classes to maximise their market share, and, particularly egregiously, using patent law to stifle basic research. The most successfully deployed arguments are against the under-representation of ethnic minorities in genetic population studies, the ambiguous women's status in human embryonic stem cell research as a source of raw materials (leading to accusations of 'mining' the female body), and the unhealthy relationship between politicians and pharmaceutical companies, for example in

Iceland, where the population was proffered up for genetic analysis with cursory concern for individual informed consent.

The authors are less convincing when they decry the lack of progress in turning the advances in genetics into tangible clinical benefits. The unforeseen complexity of human genetics is hardly the fault of the scientists. Given that we are encoded by far fewer genes than originally predicted, a mere twenty thousand genes all told, and that it seems most diseases are caused by complex gene interactions, combined with environmental and epigenetic factors, rather than single simple genetic errors of transcription, it seems churlish to attack the scientists for lack of progress when the time scale remains astonishingly short in real terms.

The authors try to use the example of Huntington's disease to belittle the achievements of genetics.

The underlying genetic mechanism of Huntington's disease is ostensibly understood; what remains lacking is an actual treatment for the condition. Now, it may well be that research resources are diverted away from rare conditions like Huntington's to maximise profits from potential therapeutic options for common chronic conditions such as diabetes or obesity. But to suggest that the genetics project is a failure, while it is so plainly a work-in-progress which is opening up whole new landscapes for investigation, is like writing off a book as a flawed enterprise after reading only the first chapter. That is not something I would recommend doing with this particular book; it deserves to be heard out. Its weaknesses – an occasionally strident tone, and a tendency to create straw men – are counterbalanced by the authors' sincerity and breadth of experience. If you have a benign attitude towards that new orthodoxy, ineluctable scientific progress, you should seek out this invigorating book.