

Jamie Metzl

## Hacking Darwin: Genetic Engineering and the Future of Humanity

Naperville, IL: Sourcebooks, 2019, 352 pp.

Jamie Metzl is a geopolitical expert and science fiction writer. He is the author of a book on the Cambodian genocide and three novels. *Hacking Darwin* is his first non-fiction book dealing with the topic of human genetic enhancement.

The book is aimed at very large public and requires no background knowledge in genetics. It is also very broad in its scope: Metzl outlines not only basic information on these technologies but also reflections on their ethical and geopolitical implications.

Metzl describes the work of Mendel, IVF, and preimplantation genetic testing (PGT), and he explains what DNA is; he tackles the relationship between genes and traits (which is far more complex than “1 gene → 1 trait”), the resort to artificial intelligence to treat genetic information, and advances in precision medicine; sperm banks; genetic engineering technologies such as ZFN and CRISPR-Cas9, and the so-called “three-parent babies”; He Jiankui’s experiments and synthetic biology; and the biomedical extension of human life, including with diet changes and chemical substances.

The author points out that genetic technologies can be used to predict, and select for, a wide variety of traits, including height, intelligence, and health. His excellence in communicating science is exemplified by the fictitious dialogue he inserts in his chapter 3, in which he imagines what a fertility clinic might offer in 2035 (see pp. 47–54). Metzl also presents and praises the pioneering work of Stephen Hsu on the prediction of complex traits (see p. 58). His section on human intelligence is quite accurate, but not without flaws and not always clear. After summarizing the history

of IQ tests, he vaguely claims: “For many critics, however, IQ remains self-validating, inaccurate, disrespectful of difference, racially and socioeconomically biased, dangerous, and overall, highly questionable” (p. 61). Since much of the criticism of IQ tests has been ill-advised, politically motivated, or both<sup>1</sup>, Metzl should have at least separated the wheat from the chaff. A bit further, Metzl writes that the two co-authors of the book *The Bell Curve*, Richard Herrnstein and Charles Murray, “were in many ways flawed messengers making some scurrilous policy recommendations” (p. 62). This criticism is far too vague to be constructive. That being said, Metzl deserves much praise for telling the public an important and unpopular conclusion: “we will increasingly be able to decode the genetic components of even our most intimate, complex, and human traits with growing accuracy” (p. 65).

Those who advocate genetic enhancement are sometimes accused of being eugenicists. Metzl’s reply is sensible: “That there probably is an element of eugenics in decisions being made today on the future of human genetic engineering should push us to be careful and driven by positive values, but the spectre of past abuses should not be a death sentence for this potentially life-affirming technology or the people it could help” (p. 176).

*Hacking Darwin* is probably more technology-oriented than most books on the ethics of genetic enhancement. Referring again to the work of Stephen Hsu, Metzl describes iterative embryo selection and evokes the possibility of having embryos with IQs of 1000 (p. 87), as well as some far more futuristic technologies, e.g. the ability “to digitize and disembodify our brain function” (p. 162). Here, I need to point out that Metzl’s support of life-extending technologies is not motivated by purely hedonistic purposes: “Perhaps the best investment we can make in our immortality is to have a child, write a book, help save the environment, or contribute positively to our communities and cultures. To make more of that possible, why not do all we can to extend our healthy lives as much as our biology and technology can allow?” (p. 162).

Metzl also dedicates much space to geopolitical aspects. He points out that ideological and cultural differences between countries will play a major role, with the United States initially oriented toward the domination of nature and then, from the 1970s, the protection of nature (see p. 192), while the People’s Republic of China heavily favoured industrialisation under Mao but now has leaders that “have made cleaning up China’s environment a priority” (p. 194). Metzl also points out the catastrophic results of the European Union’s ban on GMOs, which “forced many African and Asian governments depending on those export markets for their economic well-

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<sup>1</sup> Rindermann, Heiner (2018), *Cognitive Capitalism: Human Capital and the Wealth of Nations*, Cambridge: Cambridge University Press, 57–63.

being to themselves restrict planting genetically modified crops” (p. 203), thereby preventing the use of technologies that could “help minimize the impact of droughts that can cause thousands of death” (p. 203). Another aspect of the geopolitics of genetic enhancement, perhaps even more worrisome, is the risk of arms races between countries; this risk implies a serious ethical dilemma for the countries that are reluctant to use enhancement technologies but run the risk of losing their competitiveness (see pp. 242–246). Ultimately, Metzl thinks genetic engineering technologies must be regulated by international treaties, as nuclear weapons are (see chapter 11). An important task will be to reduce the gap between the scientists and everyone else: “Today’s mismatch between what the science can and will soon be able to achieve and how poorly people understand and are prepared for it is creating an extremely dangerous public tinderbox that must be addressed, first and foremost, through public education and engagement” (p. 262).

*Hacking Darwin* will comfort those who might have lost hope in popular science books. While avoiding strong personal statements, Metzl makes many good points throughout the book, e.g. about the necessity of not letting the past prevent the use of helpful technologies, the value of IQ tests, and how genetic testing will help us to predict IQ and other complex traits with increasing accuracy. Metzl addresses many different issues, and one may hope that the basic information he gives will encourage the readers to keep learning about genetics. Because *Hacking Darwin* is accessible and not divisive, it is precisely the kind of work that can help to reduce the knowledge gap between scientists and the wider public.

**Julien Delhez**