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Better Than Human: The Promise and Perils of Biomedical Enhancement, ALLEN BUCHANAN, Oxford University Press, 2017, paperback, 216 pp., £12.99, 9780190664046

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The use of biotechnologies to enhance human beings poses many complex and interesting ethical questions. *Better than Human* is a slimmed-down paperback edition of Allen Buchanan's *Beyond Humanity*[1] - the latter aimed at an academic audience of bioethicists and moral philosophers, and *Better than Human* written for a wider audience. It presents an engaging, friendly introduction to the ethics of biomedical enhancement (BME), while retaining and conveying the complexity of the ethical issues. In *Better than Human*, Buchanan defends an optimistic view about the potential of BME to make humans 'better than well' (p 173). The technological and ethical ground covered is extensive. He begins with the (perhaps) ethically less problematic use of cognitive enhancement drugs such as Ritalin (Chapter 1), then continues through cloning and the genetic enhancement of embryos (Chapters 3 and 4), and a look to a future of human-computer interface technologies and biomedical moral enhancement (Chapters 5 and 6). The book is a clarion call for the legitimisation and social, political and legal regulation of BME, in pursuit of human (better-than)-well-being.

A central feature of the book is Buchanan's rejection of extreme positions. He opposes 'BME exceptionalism' (p 124) and rejects a blanket anti-enhancement position. He makes the case that enhancement is not new, citing the agrarian revolution, literacy and computers as examples of non-biomedical human enhancements (p 24). BME is not so different, he says, from these other historic human enhancements to warrant a separate moral category. Nevertheless, he also warns against blind faith in BME, highlighting the risks of unintended deleterious consequences (Chapters 4-7). He argues, however, that these risks can be managed (Chapters 4-7). In emphasising the importance of social, political and legal institutions in the regulation of BME, and the role of institutions in protecting against potential BME-related injustices, Buchanan usefully broadens the scope of the ethical questions surrounding BME and, as I discuss below, opens up new potential solutions.

Chapters 1-4 are dedicated to rejecting a complete prohibition of BME. The two pillars of this argument are, first, that BME has the potential to further the human good, and second, that BME may be required simply to prevent deterioration in current levels of human well-being, in the face of threats such as serious environmental degradation. In Chapter 1 ('Breathless Optimism, Hysterical Loathing'), Buchanan reviews the main reasons why *biomedical* enhancements have provoked particular controversy, relative to other types of technological and bio-technological enhancements. BME is seen by some[2] as morally different and

[1] A Buchanan, *Beyond Humanity?: The Ethics of Biomedical Enhancement* (Oxford University Press, 2011).

[2] As examples of those who harbour such concerns, Buchanan cites 'bioconservatives' such as 'conservative guru [Francis] Fukuyama' (p 53) and President Bush's Council on Bioethics (p 58).

particularly worrisome because of concerns that it changes human biology, alters the human gene pool, could change or destroy human nature, and amounts to 'playing God'. These worries are dispatched in turn.

Regarding concerns about BME changing human biology or the human gene pool, Buchanan makes the simple but important point that only a small subset of BME involves genetic enhancement (p 18). Even then, the worry is unfounded because the gene pool is, and always has been, changing due to natural selection. In Chapter 2 ('Why Evolution Isn't Good Enough'), Buchanan dissects the arguments that 'natural is always best', and that intentionally changing the gene pool is always wrong. He makes a distinction between Unintentional Genetic Modification (UGM) – otherwise known as natural selection - and Intentional Genetic Modification (IGM) – the use of technologies such as BME. Using colourful examples of how nature and evolution often produce flawed outcomes, Buchanan argues that reproductive fitness and the human good are not necessarily the same, or even related to one another (pp 70-73). A powerful example of this is that 'Mother Nature neglects her elderly children' (pp 32-34). Since natural selection works on the basis of reproductive fitness, traits that damage the quality of life of older people are not necessarily filtered out. The effects of this are plain to see in the deteriorating health and quality of life of ageing populations around the world. Buchanan argues that if IGM could be used to correct what 'nature' has got wrong or neglected, then the human gene pool and the lives of individual humans could be significantly improved (Chapters 3-4).

Buchanan re-frames the objection about destroying human nature as a worry that the *good parts* of human nature will be destroyed since, he says, it is obvious that human nature is a mixed bag and could be subject to some improvements. In Chapter 3 ('Changing Human Nature?'), he suggests that this worry is grounded in an erroneous belief, which he calls the 'Extreme Connectedness Assumption' (pp 22-23). This assumption is that human nature is complex, in the sense that improving the bad parts risks inadvertently affecting the good parts. A more general version of this is the 'seamless web' argument – that the whole human organism is interconnected, and tinkering in one place could cause unpredictable (and possibly bad) ripple effects (p 80). While acknowledging that the risk of unintended deleterious consequences is a valid concern, Buchanan explains, in simple terms, why evidence from biology (in particular, the *modularity* of the human organism) contradicts the Extreme Connectedness Assumption and the seamless web argument (pp 82-84). On this basis, he rejects the objection from human nature.

In response to the Playing God objection, he argues that 'Don't play God' is merely a warning against hubris, or arrogance (p 48). It might be viewed as good advice but it applies to all technologies and does not constitute an argument against BME. In Chapter 4 ('Playing God, Responsibly'), Buchanan discusses how to temper hubris, and manage the risks of unintended consequences. He offers a set of 'Risk Reduction Rules of Thumb' (pp 96-98). These are seven precautionary principles formulated to reduce the risk of bad unintended biological consequences resulting from the genetic engineering of organisms - from crops to humans. They are designed as what Rawls calls counting principles,[3] such that the more of them that are satisfied, the more confident we can be that we are minimising risk. This part of the book has clear links

[3] J Rawls, *A Theory of Justice* (Harvard University Press 1971).

to environmental and health policy, and is an important contribution to the policy literature.

In Chapters 5 and 6 Buchanan turns to other, non-biological worries about BME. In Chapter 5 ('Will the Rich get Biologically Richer?') he focuses on the argument that BME should be prohibited in the name of justice, because it could worsen unjust inequalities. He reiterates his earlier point that BME does not deserve a separate moral category, and that these are not morally unique or novel questions. Indeed, BME 'may never produce gaps as large as the ones that exist now as the result of the combined social-natural lottery we all participate in' (p 106). Buchanan does, however, take the worry seriously, arguing that inequality of access to BME would constitute injustice if it left people vulnerable to domination or exclusion. Nonetheless, he claims that arguments from justice are often based on incorrect assumptions. Many people assume that biomedical enhancements are zero-sum, personal goods; that they are expensive market goods; and that the role of government will merely be to regulate the market (p 113). Using illustrative examples, Buchanan explains that many enhancements will, in fact, be positive-sum and that governments will have good reasons to treat some as public, rather than personal, goods. They will have a particular interest in the development and diffusion of enhancements that increase economic productivity and reduce social costs (pp 120-129). It is the role of political and legal institutions to guard against the worsening of unjust inequalities.

In Chapter 6 ('Is Enhancement Corrupting?') Buchanan makes a brief foray into virtue ethics. He discusses Michael Sandel's objections to BME[4] - that the pursuit of BME is a sign of bad character because it betrays the vices of an under-appreciation of what we have, and the inappropriate pursuit of perfection and mastery (pp 135-143). Sandel is also concerned that BME undermines human agency and effort. Buchanan distills from these arguments a set of worries about the pursuit of BME: it could lead to what might be termed an "enhancement treadmill" or the never-ending pursuit of better; it could eliminate chance and spontaneity from human life; it could lead to humans treating our current selves as mere means to (better) future selves; and it could corrupt valuable social relationships with others by increasing the expression of vices such as disloyalty (pp 145-148). BME could also cause 'moral flabbiness' (p 158) by becoming a shortcut to achieving valuable ends, leading to the atrophy of moral powers. As Buchanan puts it, 'If you can take a pill to "achieve" some excellence, will it still be an excellence?' (p 158). He argues, however, that most of this is 'overheated rhetoric' (p 171), and that BME is at least as likely to make us morally better than worse. Imagine, for example, enhancements that augmented the natural biochemical processes associated with moral virtues like truthfulness, loyalty or empathy (pp 154-158). Additionally, these risks are not unique to BME. If they are conclusive arguments against BME then they must also be conclusive arguments against any enhancement, including, for example, the cognitive enhancement of children by teaching them to read. This is, of course, absurd. Nevertheless, he ends the chapter by conceding that while 'character concerns' are not conclusive arguments against BME, they should be taken seriously because 'there are lots of ways you can go wrong in pursuing enhancements and some of them have to do with character' (p 171).

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[4] M Sandel, *The Case Against Perfection: Ethics in an Age of Genetic Engineering* (Harvard University Press 2007).

In the final chapter ('The Enhancement Enterprise'), Buchanan sets out a positive approach to managing the 'lots of ways you can go wrong' and harnessing BME for the human good. The main thread of the argument is that BME already exists and it is, therefore, better to recognise new technologies and to develop the social, political and legal institutions necessary to regulate them. The alternative is to allow enhancement technologies to creep in 'through the back door' via, for example, the development of new treatments for medical conditions. Using the front door requires institutional innovation alongside technological innovation. Buchanan calls for modifications in intellectual property law that would ensure the rapid and equitable diffusion of beneficial technologies, along with a new international institution that would reward 'diffusion entrepreneurship' (p 127) and promote global justice in access to valuable BME. To decide which technologies are valuable and to draw difficult lines, such as the line between treatment and enhancement, there must be democratic debate. Buchanan concludes that 'The hardest work in the ethics of enhancement can begin once we've reached a consensus that biomedical enhancement can be a legitimate and even noble kind of activity' (p 182).

Overall, Buchanan makes a convincing case that 'sometimes there are good reasons to be better than well' (p 173). By firmly situating biomedical enhancements and their implications for human well-being in the wider social-political-legal context in which they are developed and used, Buchanan implicitly draws upon a long tradition in philosophy that conceptualises human well-being not solely as an individual attribute but, in part, a function of a person's environment.[5] As he clearly sets out, the scope of the ethical issues around BME is wider than potential deleterious biological consequences, and includes important questions about social, economic and political justice. These wider considerations about the socio-legal context of BME provide the foundation of the risk management strategies he proposes, in the shape of his set of precautionary principles (Chapter 4) and the institutional innovations outlined in the final chapter (discussed above). While he may not convince hard-line 'bioconservatives', his arguments are clear, well-structured and written in plain English with lots of everyday examples. As such, the book is an excellent introduction to the ethics of enhancement and would make good reading for those new to bioethics – undergraduates and policy-makers alike.

[5] An Aristotelian approach to well-being in its social and environmental context is found in the Capabilities Approach developed by Amaryta Sen and Martha Nussbaum: A Sen, *Commodities and Capabilities* (North Holland, 1985); M Nussbaum, *Women and Human Development: The Capabilities Approach* (Cambridge University Press, 2000).