

In Search of “Better Humans” and a Brave New World

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Despite the seemingly disparate nature of many of the challenges facing us today in the 21st century, a common focus does in fact remain and continues to demand an answer: what does it mean to be human? Developments in emerging technologies are leading to very great increases in our power over matter, including our human nature itself. This article highlights some of the key issues surrounding human dignity in the ‘biotech century’ before proceeding to identify some of the key questions raised by emerging technologies which require our attention should we wish to avoid sliding into a ‘Brave New World’.

Introduction

Those of us who take our starting-point within the Judeo-Christian tradition confront the moral and political agenda of the twenty-first century with our loyalties and energies pulled in many directions. We see fundamental assaults on human rights and dignity that are essentially new versions of ancient challenges – including slavery, poverty, terror, crime, prejudice and autocracy. We see the distinctive challenges arising from the social reconstruction of such concepts as sexuality, family and community that are the hallmarks of an emerging if disorderly post-Christian culture, and concomitant changes in our assumptions about the taking of life in abortion and euthanasia.

The seemingly disparate character of these issues is, of course, misleading. They all share a common focus in the implications of the question: what does it mean to be human? How should we treat human beings? For at the fulcrum of every human culture lies a set of assumptions about human nature – what it means to be a member of the tribe. These assumptions are typically unstated because they are self-evident to members of the group and therefore almost invisible in their common life. They are made evident as we become aware that they are in dispute; that the culture is unsure of its assumptions; and that it is in the process of changing them.

And it is in this context that a ‘third wave’ of challenges to our assumptions about human nature is set to break, driven by emerging technologies of which biotechnology is the most evident. While we may not yet discern their final implications, these challenges seem set to dwarf every current social and political question. They are not chiefly concerned with assaults on humans, or even the reconstruction of the human community and its values. They cut to the quick of our anthropology: their focus is the fundamental relationship between technology and human being, between our manipulative capabilities and our own selves. It was this recognition that drove C.S. Lewis, back in the dark days of 1943, to write his prophetic essay on *The Abolition of Man*, perhaps the most penetrating statement yet made of the greatest question that will confront the twenty-first century.

Lewis argues that while technology is said to extend the power of the human race, ‘what we call Man’s power over Nature turns out to be a power exercised by some men over other men with Nature as its instrument.’ There can be no ‘increase in power on Man’s side. Each new power won *by* Man is a power *over* Man as well’.¹ Each advance leaves him weaker as well as stronger. By taking to ourselves the power

to determine who we shall be, we turn ourselves into creatures of our own design, artifacts of our own manufacture.

Human dignity and the 'biotech century'

Developments in the life sciences and their application in biotechnology (literally the technology of life) have for a generation gripped the imagination of both scientists and public alike, with their hope of widespread cures for inherited and degenerative diseases. Just as antibiotics have, in our culture and within the lifetimes of parents and grandparents, made death by infectious disease largely a thing of the past, so the future of medicine is keyed to advances in genomics, cell biology, and nanomedicine. Indeed, it is no longer possible to isolate biotechnology from those other, increasingly related, disciplines and fields that are commonly referred to as 'emerging technologies'. Chief among them is nanotechnology which involves the manipulation of matter's most basic building blocks – atoms and molecules. Strictly speaking, nanotechnology is not a technology but rather a size – the nano-scale which atoms and molecules operate at, hence why the term 'nanoscience' can also be used. To give some indication of the scale involved, a nanometre is one billionth of a metre and a human hair roughly 100,000 nanometres wide.

Nanotechnology is more than just another new technology but rather heralds a 'rebound revolution' which is causing us to rethink what we consider science and technology to be. Technology forecasters point to nanotechnology as the key driver behind the 'convergence' (together with biotechnology, information technology and, more controversially, cognitive science) of emerging technologies, presenting us with the prospect of the increasingly rapid growth of our human power over nature in all of its forms, and including human nature itself. We are speeding up an exponential curve, and while observers draw its slope and our place on it in different ways, there is no doubt that the compounding character of our knowledge and its application through emerging technologies gets faster every day.

The question we face is what to do with the extraordinary new powers that we are taking to ourselves. We have high hopes of cures for terrible

diseases. Whatever the scientific merit or ethical status of research on embryonic stem cells, so-called 'adult' stem cells from cord blood and many parts of the body are curing dozens of intractable diseases in clinical trials all round the globe. The US National Cancer Institute, accused by some of undue optimism, claims that by 2015 (just five years from now) death and serious suffering from cancer will be a thing of the past² – thanks chiefly to the application of nanomedicine. Advances in this area could lead to self assembling, self replicating nano devices³ which could be implantable into the human body and could help to detect and destroy cancerous cells, infections, as well as repair genetic mutation and deliver precisely targeted drug therapy. Current research already points to the very real possibility of this being achieved.⁴ The future is bright with the prospect of our using these new technologies to turn the tables on cancer, degenerative diseases, and inherited genetic disorders.

A Brave New World?

The very essence of technology is to make things that allow us to do more than we could without them. In many respects Christians should not fear technological progress since technology is not inherently bad. Under the covenantal obligations we are still to adhere to today, stewardship of our created world requires some form of technology if we are to exercise dominion and '*Be fruitful and increase in number; fill the earth and subdue it.*'⁵ We would therefore argue that we need to embrace a future in which emerging technologies greatly extend our human capacity to manipulate the natural order. However, proportionate restraint and limitation must be placed upon the exercise of these new powers in order to ensure that they aid us in our quest to be human and do not become the occasion for our subverting our humanity and sliding into the Brave New World order – in which humans come from a designer hatchery and eat 'soma' so they keep feeling happy. Since Aldous Huxley's day, we have come a long way in the direction of this troubling blend of eugenic artificial reproduction and what has come to be called cosmetic neurology. The 'pro-human' cause presents as the great question of the twenty-first century, as we confront the rapid development of emerging technologies and their offer of powers to aid or undermine our humanness at the most fundamental level.

Key questions raised by emerging technologies

Several sets of questions should be on our minds as we consider our response to these technologies. They intersect but offer different standpoints from which to view and critique both the technologies themselves and the ethical, legal and social implications which ensue. A future that is both pro-technology and pro-human will depend on their answers.

1. Commodification

As our powers extend over our own bodies and the bodies of others, and technologies lead to products and processes, questions of intellectual property will occupy centre-stage. A case in point: in the United States there was a recent debate over whether human embryos could be patented. The biotechnology industry, through its trade group BIO, argued that genetically-engineered human embryos were appropriate subjects of patent claims.

2. Eugenics

Growing pressure has been seen for the eugenic uses of in vitro fertilization. This is being called for not simply to screen out embryos with genetic diseases, but even to select the sex of babies on merely social grounds. As genetic interventions become possible, where will the line be drawn? Hair and eye colour? Propensity to baldness or obesity? Any technically accessible genetic factor that could affect gifting and temperament? And within society, the corresponding pressure for genetic discrimination – in employment and insurance, especially – must be radically resisted.

3. Enhancement

Whether through genetics or nanotechnology and cybernetics, it is likely that we shall see the development of 'enhancements', especially in cognition, in effect blending human nature and machine nature through such means as the implanting of brain chips for memory, skills, or communication. The logic of such developments is far-reaching. While they would begin incrementally and through dual-use devices with genuine medical applications (for example, for stroke victims), they would have longer-term impact through compounding both the intelligence and the wealth of a small segment of society. They could lead finally to a new feudalism in which power of all kinds is concentrated in the

hands of 'enhanced' persons. In his notorious essay, 'Why the Future doesn't need us', technology guru Bill Joy proffered alternative scenarios of doom: either unintended disaster or intentional enhancement will ensure the end of human nature as we know it.⁶ We should also note the steady growth of 'transhumanism', a network of science-fiction enthusiasts and outlandish thinkers who consider human enhancement as positively desirable and simply the acceleration of evolutionary development, something fundamentally natural to all human beings. As the name suggests, transhumanists advocate embracing any form of technology which allows us to live longer, be stronger and smarter in order to cross over (*trans-*) to a far better and far superior 'post-human future'. They have recently begun to move from the fringes of society into mainstream contexts, and are pressing the idea of radical 'enhancement'.

One key area of concern, noted in the High-Level Expert Group report from the European Commission, lies in respect of cognitive science.⁷ Concerns may perhaps be most starkly illustrated with reference to the prospect of the 'pursuit of happiness' by means of cognitive 'enhancements' that involve the manipulation of perception and memory, whether through neuro-pharmacology (including what has been termed 'cosmetic neurology' and 'smart drugs') or cognitive prostheses. Smart drugs help to amplify the activity of dopamine, a chemical in the brain which helps to transmit information to and from different parts of the brain. In particular, dopamine can help to make everyday tasks become more interesting and more rewarding. Whilst cognitive enhancers have been used in adults suffering from Alzheimer's disease in order to relieve suffering, more controversial has been the application of cognitive enhancers in young children and adolescents. Drugs such as Ritalin are being commonly used to treat children suffering from Attention-Deficit Hyperactivity Disorder (ADHD), a condition which 4-10% of children worldwide suffer from.⁸ In this instance, concerns have been expressed over whether the use of such drugs moves beyond merely effective therapy to becoming a form of social control. Moreover, in 2009 the UK Home Office asked the Advisory Council on the Misuse of Drugs to see how this 'rapidly evolving field' should be regulated amidst

fears from medical experts that the range of drugs available could fuel an over-competitive society when used by the healthy.⁹

Conclusion

Developments in emerging technologies are leading to very great increases in our power over matter, including our human nature itself. A robust approach to these questions will enable us to welcome emerging technologies with their extraordinary capacity to enhance not human nature but our capacity to be human, that we may better fulfil our humanness. Of course, every application of every new technology will be presented to us as yet another wonderful benefit for human beings that will make life better and easier. The Brave New World question that must always be asked is, at what cost? Lewis's essay on *The Abolition of Man* opens with a potent quotation from John Bunyan's *Pilgrim's Progress*, which provides a stark reminder for us all: 'It came burning hot into my mind, whatever he said and however he flattered, when he got me home to his house, he would sell me for a slave'.¹⁰

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1. C. S. Lewis, *The Abolition of Man* (Glasgow: Collins, 1978), p. 35-36.
 2. M. Miller, '2015: A Target Date for Eliminating Suffering and Death Due to Cancer', *Benchmarks* 3.2 (May 16 2003).
 3. This idea was popularised by Eric Drexler in his 'grey goo' scenario: nanomachines running out of control, destroying humankind and the planet with the result that everything turns into 'grey goo'.
 4. McGill University, 'DNA nanotechnology breakthrough offers promising applications in medicine', 17 March 2010, http://www.mcgill.ca/newsroom/news/item/?item_id=115523 [accessed 11 October 2010]
 5. Genesis 1:28 (New International Version)
 6. B. Joy, 'Why the Future Doesn't Need Us', *WIRED*, 8.04 April 2000, <http://www.wired.com/wired/archive/8.04/joy.html> [accessed 11th October 2010]
 7. *Foresighting the New Technology Wave: Converging Technologies – Shaping the Future of European Societies*, HLEG Report, at 12.
 8. B. Sahakian and S. Morein-Zamir, 'Professor's little helper', *Nature* 450 (20/27 December, 2007), <http://www.nature.com/nature/journal/v450/n7173/full/4501157a.html> [accessed 11 October 2010]
 9. A. Travis, 'Government watchdog considers ban on IQ booster drugs', *The Guardian* (28th July 2009), <http://www.guardian.co.uk/politics/2009/jul/28/watchdog-intelligence-performance-psychoactive-drugs> [accessed 11 October 2010]
 10. Quoted in C. S. Lewis, *The Abolition of Man* (Glasgow: Collins, 1978), p. 34

For further reading:

- Charles Colson & Nigel M. de S. Cameron, eds., *Human Dignity in the Biotech Century*, InterVarsity, 2004.
- Celia Deane-Drummond and Peter Manley Scott, eds., *Future Perfect? God, Medicine, and Human Identity*, T & T Clark, 2006.
- Frances Fukuyama, *Our Posthuman Future*, Profile Books, 2002.
- Joel Garreau, *Radical Evolution: The Promise and Peril of Enhancing Our Minds, Our Bodies -- and What It Means to Be Human*, Broadway Books, 2006.
- Peter Moore, *Enhancing Me: The Hope and the Hype of Human Enhancement*, Wiley & Sons, 2008.

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