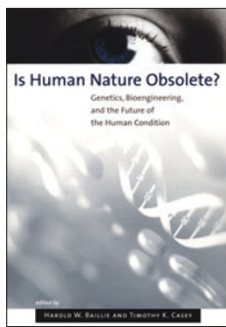## Biotechnology and humanity

Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human Condition

Edited by Harold W. Baillie & Timothy K. Casey

Reviewed by Michael A Goldman

The Human Genome Project created a cottage industry in bioethics: a plethora of books, workshops, conferences and research projects designed to help us cope with the radical shift in our understanding of what it means to be human and our frightening ability to alter that humanity. This volume compiles 14 papers resulting from a spring 2001 conference at the University of Scranton (Pennsylvania, USA) sponsored by the Northeast Regional Cancer Institute and the U.S. Department of Energy.

The essays were directed at two questions: "(1) does genetic engineering of humans require a new understanding of what it means to be human, and (2) does what we already know suggest that there should be (and can be) effective limits on what can be done?" Editors Harold W. Baillie and Timothy K. Casey met their objective in bringing in a diversity of opinions; however, I would have enjoyed seeing the view of at least one scientist. I did not expect, nor did I get, an answer to either of the questions posed.

Mark Sagoff starts off with a quote from genomics leader Eric Lander suggesting that we shouldn't manipulate the genome, as this is contrary to nature. What follows is Sagoff's analysis of that statement and an argument that "we have to build up the concepts, intuitions, and arguments needed to distinguish legitimate from illegitimate uses of this, as any, important new technology." Now that we can change our inheritance, Sagoff concludes, we have some responsibility for that inheritance. Sagoff stands nearly alone in the book, both in his technology-friendly conclusions and in the clarity of his reasoning.

The film *Gattaca* and Simon Mawer's novel *Mendel's Dwarf* are mentioned more than once in this volume. Both have been under-appreciated both as entertainment and as educational tools. The thorough academic retelling of the stories doesn't leave much room for surprise. Though many view *Gattaca* as a frightening look at a future in which you can't make it unless your parents were smart enough to select the best embryos for their progeny, Jean Bethke Elshtain sees it as a demonstration of one individual's triumph over

The author is in the Department of Biology at San Francisco State University, San Francisco, California, USA.
e-mail: goldman@sfsu.edu

his genetic 'fate'. She is concerned that in our quest to perfect the human, we will deprive the disabled of their right to live a full life, giving in to what may be fleeting cultural views of what it means to be normal.

Bernard E. Rollin's article stands apart as a keen introduction to Aristotelian thought and its relevance to genetic engineering of humans. Unlike most of the articles in this book, this one has only five notes: three references to Aristotle, one comment and one reference to Rollin's own book *The Frankenstein Syndrome*.

Rollin begins with a straightforward introduction to Aristotle and the concept of the human telos, or nature. But, Rollin points out, the human telos is not simple. We see all different sorts of behaviors and preferences. However, we can refer to some sort of ideal nature as the telos we should not alter. If we tamper with our natural desire for freedom, or our ability to reason, then we have changed the human telos in a meaningful, and arguably unacceptable, way. Rollin offers a few examples. We shouldn't engineer any person who would be a danger to society. He notes that it wouldn't be desirable to engineer someone to live forever and that "it is wrong to genetically engineer traits in people that would radically separate them from the companionship of other humans," mentioning underwater life as an example. But Rollin continues that "correcting genetic diseases at the genomic rather than somatic level" might be "obligatory given the technical ability to accomplish this at an acceptably minimal level of risk." However, he does recognize the difficulty in defining what really constitutes a disease. Although in some cases this is self-evident, in others we are making a value judgment. His example is obesity, which is not in itself a clear disease, but can lead to disease. The use of actuarial tables to define a specific body-mass index as a disease state assumes that everyone agrees that longevity is desirable, whereas Rollin observes that one "could after all choose to be obese, consume more and tastier food, and enjoy a shorter life." The medical community, he says, shouldn't have carte blanche to define disease for us, but the public must be educated in the issues.

In the final chapter, Langdon Winner tells us that technological change is upon us and irresistible. "In light of these bleak, seemingly overwrought warnings from decades ago," he says, "it is astonishing to see that in our time, the nightmare of the philosophers is now widely embraced as a fascinating, plausible, desirable, and perhaps even necessary project in biotechnology and information technology." But Winner cites as his evidence of this powerful advance of technology, and shift in attitudes, some of the most extreme views put forward by Greg Stock, Lee Silver and James D. Watson, quoting Watson's contention that "if scientists don't play god, who will?"

The book generally addresses an audience of professional ethicists and philosophers rather than the general reader, or the scientist on a casual foray into bioethics. The prose is generally dense and at times almost impenetrable. Some authors present their stock-in-trade analysis of the human condition, tacking on genetics and biotechnology as a kind of an afterthought. Nonetheless, this volume represents a valuable compendium, a few chapters from which might spark intense conversation in the science or ethics classroom, or at the local coffee shop.