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## Self-Made Man

Review of *Babies by Design: The Ethics of Genetic Choice* by Ronald M. Green and *Enhancing Evolution: The Ethical Case for Making People Better* by John Harris

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Some time ago a bright young graduate student was driving me to a conference at a noted Midwestern university. He had a Ph.D. in molecular biology and was finishing his law degree, after which he planned to work for a biotechnology firm in the Philippines. I told him I supported human genetic and biomedical research, including stem cell research, but was concerned about the ways in which the results of this research could be misused. I asked him, "If it were possible to genetically engineer a human embryo to enhance some particular cognitive skill, would you support that?" He laughed, "Of course!" as if any other answer would be difficult to imagine. Then I asked how he would feel about a couple who wanted to create and genetically engineer an embryo to have *impaired* cognitive skill, perhaps because they thought people with simpler minds were happier. He thought a moment and said, "Well, that makes me uncomfortable, but I can't think of any good reason they shouldn't be allowed to do it."

A few months later I was having dinner with family friends. All were educated professionals, and, like me, liberal Democrats. We began discussing human cloning, and someone mentioned a noted bioethicist who believed that the parents of a deceased child should be allowed to create a clone of that child. My friends were curious: "Would the clone begin life at the age its original version died?" "How would you tell the clone about its origin?" Nobody appeared discomfited by or even aware of the words that seemed to come so naturally: *The Clone. It. Version.*

What many have called the Biotech Century is well upon us. Dolly the Sheep was cloned in 1996, the first human embryonic stem

cells were cultured in 1998, and the human genome was more or less sequenced by 2000. Biotech breakthroughs are now reported on practically an hourly basis. Many predict that biotechnology will be to the 21st century what electricity was to the 20th and steam was to the 19th—a primary driver of economic, technological and social change.

We are not prepared for this. Distinguished social and political leaders versed in political economy, international theory and the humanities blanch when words like "blastocyst" and "somatic cell nuclear transfer" appear on a printed page. Prize-winning scholars with six books under their belts warily scan *Genetics for Dummies*, but give up after trying to understand the difference between a nucleotide and a ribosome. Human clones and "designer babies" are still regarded by most as science fiction fantasies, or at least as somebody else's problem. But in truth they are neither.

The new human genetic technologies are among the two or three most consequential technologies ever developed. They have the potential for both great good and great harm. In the best case they could contribute to the prevention and cure of diseases that have afflicted humanity for millennia. In the worst case they could aid and abet the development of new eugenic practices that would corrode and then collapse the foundations of our common human nature.

Our common human nature evolved over millions of years but has been stable over the few thousand years during which modern human values, behaviors and institutions have developed. When we look into the eyes of another person, we know something *about* that person—indeed, an enormous

amount, far more than we realize—no matter how dissimilar we may otherwise be. Manipulating the foundations of human nature would change all this. If human minds start modifying the basic structures of the human mind—that is, if the agent of change becomes the object of change—there will no longer be a “there” there. We will have destabilized both the biological and social foundations of the human world.

The polarized nature of the debate over the new human biotechnologies has prevented us from fully appreciating and grappling with the challenges we face. The most vocal early opposition to human cloning, stem cell research and human genetic modification came from the Religious Right, and in reaction many liberals presumed that the progressive stance must therefore be one of uncritical embrace. Embryonic stem cell research, in particular, became a wedge issue in the culture wars, with Republicans equating it to murder and Democrats sponsoring state ballot initiatives enshrining it as a constitutional right.

Neither of these positions represent the views of most Americans. Surveys show that while Americans are willing to permit the carefully regulated use of human embryos for certain kinds of medical research, they recognize that clear lines need to be drawn to prevent a biogenetic tragedy of the commons in which seemingly desirable individual choices generate societal outcomes abhorrent to all. They want cures for diseases, but they’re not about to turn the genetic future of the human species over to commercial interests and celebrity scientists.

Unfortunately, this majoritarian position has no organized lobby to match that of the Religious Right on the one hand, or the biotech industry and research community on the other. The press, for its part, reports the debate over these complex new issues as a simple extension of the abortion wars. Partisan political operatives playing to their bases have an interest in deepening and widening the divide rather than seeking to narrow it. Not surprisingly, the result has been a policy stalemate, a regulatory vacuum and an explosion of highly questionable, even reckless, human

genetic experiments and applications.

Last year a human-embryo broker in San Antonio, Texas, began offering custom-made embryos (“blue eyes, blond hair”) for purchase by infertile couples. Chartered jets are transporting young east European women to facilities in Cyprus to have their eggs extracted and shipped to fertility clinics throughout the world. Human genome scientist Craig Venter is preparing to announce the creation of the first truly synthetic life form, a bacterium created by assembling DNA nucleotides from scratch and archly named *Mycoplasma laboratorium*. It will be able to grow, mutate and reproduce. A Canadian firm is developing artificial human chromosomes that would allow novel genetic traits to be passed to one’s children but would restrict mating to couples who share the artificial chromosome. This is the biological definition of a separate species.

Two recent books make clear what’s at stake, albeit hardly in the way their authors intend. Ronald Green is Eunice and Julian Cohen Professor for the Study of Ethics and Human Values at Dartmouth College, and has served on assorted government and industry bioethics advisory boards. He is a forthright advocate of using genetic technology to enhance the human species. In *Babies by Design*, he argues that people everywhere and always have desired happiness, health, prosperity and a long life, for themselves and for their loved ones, and that if genetic engineering can help them achieve these ends, the burden of proof should be on those who say that such use should be constrained. Green catalogues the many traits we might want to genetically modify in ourselves and our children:

In a society where a pleasing physical appearance is one of the most valued human attributes, we can easily imagine physical attractiveness . . . high on the list of pure enhancements requested by parents in an age of prenatal genetic interventions. . . .

[W]e can also imagine that parents will be interested in influencing a child’s height and weight. . . . Why should parents who know that they carry genes

for shortness wait until after their child is born and then expose the child to a prolonged, painful, and costly series of [hormone] injections when they could correct the problem before birth?

Because it is so hard to change the behavioral or environmental conditions that drive obesity, we should not be surprised if some people eventually decide to use prenatal genetics to spare their children this burden in life. . . .

[G]iven the importance of academic performance and test achievement in the highly competitive societies of the developed world . . . safe, effective genetic enhancements of learning are likely to attract a clientele.

Green notes that parents may soon be able to use genetic technology to modify the color of their children’s skin. He acknowledges that parental choice may be compromised by prejudicial attitudes, but advises us not to worry because “there is an ebb and flow in social stereotypes. One black generation’s quest for ‘relaxed’ (long and straight) hair is replaced by another’s preference for an Afro look.”

Will relations between parents and children change for the worse if parents who genetically engineer their children come to hold heightened and channeled expectations of them? Not necessarily, says Green:

In a world where parental expectations are already overbearing, gene interventions may assist parents and children in matching their interests and realizing their dreams. By increasing the likelihood that the child may actually accomplish what the parent wants, gene intervention could reduce conflict between parent and child.

Now on a roll, Green ventures into political economy:

By directly enhancing a population’s cognitive skills it might be possible to accelerate economic advance. . . . [G]ene enhancements may be a useful supplement to whatever else is done, nationally or globally, to reduce inequalities and promote development.

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Green is careful to say that human genetic modification should not begin until it is judged to be safe. He also calls for measures to ensure that poor people have access to genetic enhancement technologies. He seeks to distinguish his consumer-friendly program of selective human breeding from eugenics, which he identifies as a state-sponsored, authoritarian practice. But provisos like these hardly address the critical questions at hand. Safety is always important, but technically safe procedures can still be socially pernicious. Green's endorsement of policies to ensure distributional genetic equity is made with no serious discussion of how this might practicably be done. And the fact that authoritarian eugenics is deplorable hardly implies that consumer eugenics is benign.

Green is a model of nuance and restraint compared with University of Manchester bioethicist John Harris, a member of the United Kingdom's Human Genetics Advisory Committee and of the ethics committee of the British Medical Association. In *Enhancing Evolution*, he reprises most of Green's arguments but then raises the stakes.

Harris argues that humanity has been evolving biologically for millennia, and that those who believe we should forego the opportunity to evolve further through the use of genetic technology are "making a fetish of a particular evolutionary stage." He is aware that many fear the prospect of a high-tech eugenic arms race in which even those parents who oppose genetically modifying their children will feel compelled to do so. However, he says, "I defend [enhancements] because they are good for people, not because they confer advantages on some but not on others. I am therefore uninterested in any collective action problems that result from their use for positional advantage . . . ."

As the eugenic arms race accelerates, with genetically engineered children genetically engineering their children, and with single-gene insertions superseded by chro-

mosomal gene arrays, where does it stop? At what point do we cease to be human? Harris is unperturbed: "It is difficult, for me at least, to see any powerful principled reasons to remain human if we can create creatures, or evolve into creatures, fundamentally 'better' than ourselves."

Harris continues by arguing that the genetic enhancement of the human species is a public good, since those who might choose to remain genetically unmodified will benefit from the economic, social and cultural vitality that an increasingly genetically engineered citizenry will impart. He reasons that just as we compel citizens to ensure that their children are educated and vaccinated, so might we compel people to have children who are genetically enhanced. He acknowledges that a period of experimentation will be required in order to perfect such procedures. Accordingly, he says, people are obligated to serve as research subjects for genetic experiments when needed. This includes children, because,

If children are moral agents, and most of them (except very young infants) are, then they have both obligations and rights, and it will be difficult to find any obligations that are more basic than the obligation to help others in need. There is therefore little doubt that children share the obligation argued for in this chapter: to participate in medical research.

Harris realizes that these proposals are at odds with the 1964 Declaration of Helsinki, which, together with the Nuremberg Code adopted following the Nazi doctor atrocities, impose constraints on human experimentation that have been honored worldwide by medical researchers for nearly a half century. Harris thus proposes that "a new principle of research ethics" be added to the Helsinki Declaration, and offers this language:

Biomedical research involving human subjects cannot legitimately be neglected, and is therefore both permissible

and mandatory, where the importance of the objective is great and the risks to and the possibility of exploitation of fully informed and consenting subjects is small.

It is tempting to dismiss Green and Harris as academic shock-jocks looking to build an audience however they might, but this would be a mistake. They are committed partisans in what they believe, correctly, is a world-historical contest over the shape of the human future. And they are hardly alone. Ten years ago Princeton embryologist Lee Silver, in his book *Remaking Eden: How Genetic Engineering and Cloning Will Transform the Human Family* (1998), celebrated a world in which genetic technology would inevitably lead to the creation of genetic human castes, the "GenRich" and the "Naturals." A steady stream of books promoting the techno-eugenic future soon followed and has not abated: Gregory Stock's *Redesigning Humans: Our Inevitable Genetic Future* (2002); Nicolas Agar's *Liberal Eugenics: In Defence of Human Enhancement* (2004); Simon Young's *Designer Evolution: A Transhumanist Manifesto* (2006); and many more.

The neo-eugenic vision is resonating with many in the upper strata of the professions and the cognitariat. The dust jacket of Harris' book displays glowing endorsements from the director of the Harvard Medical School Division of Medical Ethics and the chief bioethicist at the National Institutes of Health Clinical Center. *The Economist* has editorialized in support of allowing parents to genetically modify their children. Leaders of the World Transhumanist Association, which advocates the use of genetic technology to create a post-human species, have been invited to advise the European Commission, the American Association for the Advancement of Science and the liberal Center for American Progress.

Can this really be happening? Yes. The neo-eugenics project is being introduced

onto the world stage at a moment when conditions have created a receptive audience for it. Many see the continued spread of technology, free markets and globalization as a largely unproblematic success story, and biotechnology is understood as an integral part of the high-tech, globalizing world-to-come. Young people are now two generations removed from the catastrophic course that real, existing eugenics took in the early and mid-20th century. On balance, libertarian values appear to be in the ascendancy over communitarian values. The suggestion that countries can or should constrain the production and purchase of anything that anyone might desire, be it designer jeans or designer genes, appears to many to be a non-starter.

If we are to offer an alternative to the simplistic and polarized ways in which the new human biotechnologies are now being understood, leadership rooted in the broad mainstream of American and world politics needs to step up to the plate. Fortunately, this has begun. George Annas, chair of Boston University's Department of Health Law and co-founder of the human rights group Global Lawyers and Physicians, and Chicago-Kent College of Law professor Lori Andrews, who once chaired the U.S. Human Genome Project's ethics committee, have called for a global treaty banning "species-altering" applications of human genetic engineering. Pro-choice leaders such as Judy Norsigian, who co-authored the classic women's health book *Our Bodies, Ourselves*, have made it clear that one can support a woman's right to end an unwanted pregnancy and still firmly oppose the genetic modification of the human species.

In *Our Post-Human Future: Consequences of the Biotechnology Revolution* (2002), Francis Fukuyama argued that clear lines can be drawn distinguishing acceptable from unacceptable human biotechnologies. In 2006 Fukuyama and co-author

Franco Furger prepared *Beyond Bioethics: A Proposal for Modernizing the Regulation of Human Biotechnologies*, in which they present a comprehensive package of biotech policies for the United States.

Bill McKibben, whose book *The End of Nature* (1989) first brought the issue of global warming to popular attention, argued in *Enough: Staying Human in an Engineered Age* (2003) that human genetic engineering presents as great a challenge to the human future as does climate change. In *Better Than Well: American Medicine Meets the American Dream* (2003), University of Minnesota bioethicist and physician Carl Elliott called attention to the many non-genetic biotech enhancements now paving the way for more radical procedures to come. Most recently, Harvard University professor of government Michael Sandel argued in *The Case against Perfection: Ethics in the Age of Genetic Engineering* (2007) that high-tech eugenic parenting would lead us to regard our children, and by extension all people, as artifacts designed to conform to the preferences of others, and would undermine "three key features of our moral landscape: humility, responsibility and solidarity."

Despite their support for policies that reflect such perspectives, many Americans tend to be skeptical about the ability of governments to devise and implement them. They're surprised, then, to learn that many countries have already adopted human biotech policies that draw the right lines in just the right ways. The landmark 1997 *Convention on Biomedicine and Human Rights*, signed by 34 European countries, permits stem cell research and genetic selection for disease conditions, but prohibits reproductive cloning, inheritable genetic modification, genetic modification for enhancement purposes and social sex selection. Key countries outside Europe, including Japan, Brazil, South

Africa, Turkey and Canada, have adopted similar policies. And six of the G-8 countries have banned "designer babies" and reproductive cloning.

Success stories like these prove our ability to regulate human biotechnology, but there is a hitch: To be effective, at least a minimal set of regulations needs to be universal. If 190 of the world's 193 countries adopt exemplary policies but the remaining three decide to offer themselves as portals to the post-human future, we've got a problem. If these countries are small, this may be a small problem. But what if they are China, Russia and the United States?

If we are to forestall a descent into a techno-eugenic human future of the sort that so captivates Green, Harris and their colleagues, we need to declare and build support for a compelling, majoritarian position on the new human biotechnologies. We will need a bipartisan initiative bringing together influential social and political leaders, enlightened secular and religious conservatives, the morally serious communitarian Left, religious leaders from many faiths rooted in the great traditions of moral inquiry, scientists who appreciate the wider societal context of their work, and biotech industry leaders who understand where markets have their place and where they don't. We will need regulations, laws and treaties at domestic and international levels that preclude dangerous applications of the new human biotechnologies in order that the many benign and beneficent applications can be developed in good faith and full confidence. It is difficult to imagine a greater or more urgent challenge.

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