Bioethics in the New Millennium: Ethical Challenges Ahead

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By any method of reckoning, we have entered an age of nearly unbridled biotechnological expansion. Futurists almost universally claim that the 21st century will be what Jeremy Rifkin has called "The Biotech Century." Richard Oliver, professor of business management at Vanderbilt University, has announced that "The Bioterials Age will complete the triumph of economics over politics, which was begun in the Information Age. It will unleash forces stronger than nationalism and more powerful than the combined armies of the world." To coin a word, Oliver's characterization of this new age sounds extraordinarily "Technopian," and the list of technologies which are of concern is daunting:

- The ability to clone humans.
- Pre-determination of the sex of children and their genetic make-up.
- Pharmacogenomics, which directs and tailors drugs to the genetic make-up of individual patients.
- Genetically-derived therapies for the prevention and cure of most cancers, heart disease, AIDS, and other diseases, including new strains of vaccine-resistant ones such as malaria.
- The ability to "program" out of human genes the propensities to contract various diseases and illnesses.
- Repair of damaged brain cells, spinal cords, and other diseased or damaged human tissues.
Animals that grow replacement organs for the 50 percent of humans who die before getting a transplant organ from a human donor.

A "smart mouse" that points the way to eliminating aging in humans.

Clearly, the future may reap great benefits from biotechnologies such as genetic engineering, cloning, cybernetics, nanotechnology, and a litany of other neologisms yet to be invented; but the future may also portend human tragedy, a loss of human dignity, and a world which is increasingly hostile to concerns which transcend the world of contemporary scientific research.

Are Christians even aware of these issues? Certainly some are. Does the Church have anything to say about biotechnology? If so, what? If not, why not? Can we afford not to speak to these issues? Can we afford to misspeak on these issues? These are sober questions for Christians who are witnesses to the dawn of the biotech age. These are issues which ought to cause us all to lay awake at night. They are issues which demand our most careful attention. And they are matters which will require a multi-disciplinary collaboration if we are to hope to get a hearing.

One of the challenges which we will increasingly face as new technologies arise is the determination of what it means to be human. In her volume, How We Became Posthuman, Katherine Hayles argues that mortal human beings are rapidly becoming an endangered species. And even if only a portion of robotics pioneer Hans Moravec's vision of the future is realized, human beings as we know them will have to fight for their own survival, but with an unlikely enemy. Says Moravec

Humans can be enhanced by both biological and hard robotic technologies. Such present-day examples as hormonal and genetic tuning of body growth and function, pacemakers, artificial hearts, powered artificial limbs, hearing aids, and night-vision devices are faint hints of future possibilities. Mind Children speculated on ways to preserve a person while replacing every part of body and brain with superior artificial substitutes. A biological human . . . could grow into something seriously dangerous once transformed into an unbounded superintelligent robot.

One may take these as the musings of a lunatic, but it should be noted that Moravec is founder of the world's largest robotics program at Carnegie Mellon University. He is not unintelligent! Even if he were, a lunatic with the world's largest erector set would be a formidable power. I can assure you that Bill Joy, co-founder of and chief scientist at Sun Microsystems, does not think these are ludicrous ideas. He writes of his own concern about the ethical challenges ahead in his article in WIRED magazine, "Why the Future Doesn't Need Us." And Joy does not discount the prognostications of Moravec at all. In fact, he laments the fact that they might prove to be right.

Certainly, we must re-establish what, exactly, it means to be human. If being human is all about the brain, then supercomputers might be able to contain all the information in the brain and thus be designated as "human." The biblical text, however, puts forth different criteria for humanhood. According to Scripture, being human means being the offspring of human parents. Furthermore, beings which are human are not so because they possess certain functional capacities like reason, volition and self-awareness, which can be gained or lost. Humanness is neither gained nor lost; it either is or it is not. Human beings are either imagers of God, or they are not human
beings. Imagers of God are either human beings, or they are not imagers of God. The mistake some of our systematic theologians have made, in my estimation, is in unpacking the imago Dei in terms of functional capacities. This is doubly deadly. First, it is contrary to biblical revelation. The passages that speak to the image of God (e.g., Genesis 1:27, 5:1, 9:6) never divide the imago Dei into constituent parts. Second, as soon as one delineates a list of functions, capacities, or activities which are necessary for humanness, one capitulates to those who want to say that some humans do not have lives worth living. We have been there before. It smells like smoke and it is right from the pit.

The implications of the question of what it means to be human are huge. They span nearly every biotechnology, including cybernetics and transgenics. A related question raised anew in the biotech era is the question of what it means to be a "good" human. Of focus here are not matters of personal ethics, but the complex ethical dilemmas raised by eugenics. The completion of the map of the human genome brings ever closer the possibility of using this potentially wonderful technology as a weapon against the genetically undesirable and as a greenhouse for the genetically desirable. The eugenics movement in the 1920's took the shape of the "fitter family" contests in the nation's heartland. In these contests, prizes were awarded to the families with the "best genes." The "best heredity" was awarded to families having the purest lineage, heartiest stock, and fewest mental or physical disabilities. One such contest brochure read: "The time has come when the science of human husbandry must be developed, based on principles now followed by scientific agriculture, if the better elements of our civilization are to dominate or even survive." In other words, we practice eugenics for our livestock, why not for our children? With the human genome fully mapped, we are now closer than ever to creating "better humans through biology." In fact, it is already happening.

In 1993, a New York Times article reported that 11% of Americans would abort a fetus whose genome was predisposed to obesity. About four out of five said they would abort a fetus who would grow up with a disability. And 43% of respondents to a March of Dimes poll said they would engage in genetic engineering simply to enhance their children's looks or intelligence. In 1994, Singapore rewarded college graduates for allegedly producing children with a greater array of social benefits than non-graduates who produced children. And in 2000, "optimal" college women at universities across America were being solicited for their eggs to the tune of $80,000. This brings us to our next challenging question: Shall we commodify the human body?

The term "commodification" is used to refer to the application of economic modes of valuation to items which traditionally have been the objects of non-economic modes of valuation. Commodification is based upon two assumptions of market value: (1) "that there exists some scale into which every value inhering in a good can be translated" and (2) "that this scale is money." That is, commodification entails that all modes of valuation are commensurate with economic valuation.

Margaret Jane Radin, professor of law at Stanford University, has done seminal work on commodification theory. She denies that all values or modes of valuation are commensurable with market values. In fact, the burden of her work is to demonstrate that some forms of commodification are clearly wrong. For instance, a market in babies is immoral in Radin's view. When a baby is bought and sold in the marketplace (i.e., becomes a commodity) her personal traits or attributes (sex, eye color, I.Q., predicted height, etc.) also become commodified.
Furthermore, according to Radin, commodification of the infant is ipso facto a form of commodification of the future person (e.g., the academic, the homemaker, the career woman, etc.) the baby will become.

In 1980, the United States Supreme Court upheld the patenting of organic life. In 1986, the U. S. Patent and Trademark Office issued 37 patents on genes. Incyte Pharmaceuticals holds about 500 gene patents (the largest private holdings in the nation) and Celera Genomics, the firm that helped map the human genome, recently applied for patents on 7,000 SNPS (bits of genes). Since patents are limited monopoly rights to control the sales, use, and manufacture of the genes or any products made from those genes, patenting is commodification, pure and simple. Economic values are not commensurate with the way we ought to value human genes. They are God's donation to us all. They are not to be the objects of private, commercial biotechnology.

In addition to questions about humanhood and commodification of the human body, many other questions will be posed by the new biotech century. Grappling with these matters will be a truly daunting task and the stakes are extraordinarily high. However, our confession is that God has not left us without sufficient revelation which may be applied to matters such as those before us.

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