

Human Dignity in a Technological Age

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Introduction

As I was composing this chapter, I sat at my desk multitasking as I often do in order to gather my thoughts, rest my brain, get unstuck, or just relax the synapses. There I was, bouncing between outliner, word processor, computer game, and buying bicycle parts, when it occurred to me that technology has made my life essentially different from the lives of even my most recent ancestors. In fact, it has made my life fundamentally different from what it was just twenty years ago.

I have always loved bikes and always wanted to tinker with them, but short of giving up my academic aspirations and going to work as an apprentice at a bike shop, I had little access to bicycle parts and the necessary repair and maintenance information to fulfill that vision. Today I have all this at my fingertips as I click a button to order parts that will transform my klutzy three-speed cruiser into a single-speed commuter. Technology has not only changed my bicycle, it has also genuinely transformed me by providing easy access to any and every bike part, a wealth of “how-to” and “do-it-yourself” information, as well as the blogged experiences of others trying to do the same thing with their bikes. In this case, technology has played a humanizing role supplying the tools for me to become a genuinely active producer of bikes, rather than merely a passive consumer.

Although not all encounters with new technologies can be characterized as positive, let alone successfully humanizing, enough of them must be in order to explain the enthusiastic demand for these products and services. However, the rapid and relentless advance of modern technology also poses myriad

challenges to the ways people conceive, perceive, and make sense of the world. Cutting-edge technologies are both pervasive and invasive; they touch every aspect of life whether one is aware of it or not. The spread of technology in modern Western societies raises questions not only about appropriate use, efficient application, and useable interface but also about technology's capacity to alter the ways people think about themselves and other humans.¹

Many argue that advanced technology is at a critical crossroad, where its power to alter the environment and one's very self is such that each new advance has a sort of ontological, or fundamental, potential to transform the definition of what it means to be a human living on this planet in the context of a community of humans and other living creatures.² Many also claim that as technology progresses further and as the definition of the self becomes more and more distinct from the relatively stable conceptions of humanity that have held sway for eons, the understanding of human dignity will likewise evolve.³ The key lies in the capacity to develop technologies that are both efficient and humanizing, effective and dignified.⁴ Some would claim that technologists focus more on the former than the latter and that questions about humanity and dignity will always require the attention of those creating and consuming the latest technological advances.

The Historical Roots of the Human Dignity Tradition

The belief that humans, by their very nature, are valuable in ways that are both quantitatively and qualitatively different from all other creatures has been a consistent theme since the dawn of Western philosophical and theological traditions.⁵ This conception of the human as uniquely valuable has formed the foundation for most ethical systems in Western culture and has undergirded

1. Oswald, Bayer. "Self-Creation? On the Dignity of Human Beings," *Modern Theology* 20, no. 2 (April 01, 2004): 286–87.

2. Similar arguments are being made in other academic disciplines. See David Gurnham, "The Mysteries of Human Dignity and the Brave New World of Human Cloning," *Social & Legal Studies* 14, no. 2 (June 2005): 197–214.

3. Others have recently made similar claims: Elaine Graham, "The 'End' of the Human or the End of the 'Human'? Human Dignity in Technological Perspective," in *God and Human Dignity* (Grand Rapids: William B. Eerdmans, 2006), 263–281; and Christoph Schwöbel, "Recovering Human Dignity," in *God and Human Dignity*, 44–58.

4. UNESCO has recently called on developers of advanced technologies to consider the impact of their creations on human dignity and human rights. "Reflections on the UNESCO Draft Declaration on Bioethics and Human Rights," *Developing World Bioethics* 5, no. 3 (September 2005): 197–209.

5. J. Prescott Johnson, "The Idea of Human Dignity in Classical and Christian Thought," *Journal of Thought* 6 (January 01, 1971): 23–37.

conceptions of social justice and human rights.⁶ All Western governments rely on this conception of the human to support their most important laws and democratic structures. In fact, it is hard to overestimate the importance of the notion that all persons share a dignity that is equal and inviolable. If some stroke of dark magic were to erase this concept from humanity's collective memory, it is not hard to imagine human existence devolving into the solitary, poor, nasty, brutish, and short state of war that Thomas Hobbes wrote about in *Leviathan*.⁷

Biblical and Theological Roots of Human Dignity

Western theories of human dignity have their theological origins in the creation stories of Genesis, which present the human as the climax of God's creative activity. In addition, Genesis affirms that humans are purposefully created to resemble God and that this semblance is rooted in the dominion humans have over the rest of creation.

Then God said: Let us make human beings in our image, after our likeness. Let them have dominion over the fish of the sea, the birds of the air, the tame animals, and the wild animals, and all the creatures that crawl on the earth.

God created mankind in his image;
in the image of God he created them;
male and female he created them.

God blessed them and God said to them: Be fertile and multiply; fill the earth and subdue it. Have dominion over the fish of the sea, the birds of the air, and all the living things that crawl on the earth. (Genesis 1:26–28)

The second chapter of Genesis begins the long scriptural exposé of the dimensions of human nature, explicating both the glorious and the dangerous elements of what God has bestowed on this special creature. Humans have choice and the power to guide their own destinies, but these characteristics carry with them the potential to choose foolishly and the capacity to inflict great evil.⁸

6. Martin A. Bertman, "The Theoretical Instability and Practical Progress of Human Rights." *International Journal of Human Rights* 8, no. 1 (Spring 2004): 99.

7. Thomas Hobbes, *Leviathan*, edited with introduction by J. C. A. Gaskin (New York: Oxford University Press, 1996), 84.

8. Oswald Bayer more fully explores the negative side of this will to create in his article, which attempts to theologically unpack the human impulse to "self-create" in the age of advanced genetic technologies. Oswald Bayer, "Self-Creation? On the Dignity of Human Beings," *Modern Theology* 20, no. 2 (April 2004): 275–90.

It is because of this frightening potential for evil that Christians believe God sent Jesus in order to redeem humanity from the grip of sinfulness. Jesus reminds his followers that every hair on their heads has been counted and that the God who cares about all living creatures cares for humans more than any other creature (Matthew 6:25–34). Jesus reinforces the notion of human dignity by taking a special interest in the poor and explicitly choosing to live, preach, and minister to the poor rather than associate with social peers and the upper classes. Many Christians believe that Jesus’ preferential association with the poor highlights the truth that it is human nature and not wealth or social status that gives humans value in the eyes of God (Mark 9:33–37). This interpretation sees Jesus as opting for those who have no wealth or status because the poor represent humanity stripped of the artificial and superficial value placed on humans by social structures. The poor represent naked humanity—both literally and figuratively.

From these and other scriptural seeds springs Christian theological anthropology. When viewed from the context of the entire witness of the creative event, Christian theologians have concluded that, in a special way and unlike other creatures, “human persons are willed by God: they are imprinted with God’s image.”⁹ Each human carries the spark of the divine, which endows persons with dignity, purpose, and grace. It also entitles every person to treatment befitting this unique status. The belief that the human is a sacred being, who uniquely represents the divine, demands a response of reverence by those who hold this belief. The same reverence is expected when a believer encounters an icon or celebrates a sacrament. Every person is deserving of reverence; treating humans as anything less than, or other than, an image of the divine is a type of desecration of this singularly sacred symbol.

Philosophical Roots of Human Dignity

Although the Bible provides a powerful witness to the Christian notion of human dignity, theology is not the only source for this fundamental moral insight. Numerous philosophers over the centuries have established their ethical systems on the foundation of the special and immeasurable value of human life. One obvious relative of human dignity theory is Immanuel Kant’s categorical imperative, which he defined in his *Groundwork of the Metaphysics of Morals*. Kant bases his ethical theory on the idea that the moral justification for an action lies in whether it could be tolerated by all other rational creatures in all other conceivable settings. In other words, one has to act in

9. John Paul II, *Centesimus annus* (1991), http://www.vatican.va/holy_father/john_paul_ii/encyclicals/documents/hf_jp-ii_enc_01051991_centesimus-annus_en.html.

such a way that the maxim of one's action could be made into a universal law of nature.¹⁰ In his second formulation of the categorical imperative, Kant affirms that people should always treat other rational creatures as ends unto themselves and never merely as a means to an end.¹¹ Using precise philosophical language, Kant makes essentially the same point about the dignity of human life as the Genesis narratives, that is, "every human person has an inherent worth from the very fact that they are rational creatures."¹²

In the twentieth century, the existential philosopher Gabriel Marcel took up the cause of human dignity. Marcel distinguishes between those people who are "available," or aware of the full human presence of others, and those who are "unavailable," or not fully present to the humanity of others. The *unavailable* person reduces other people to "examples" or "cases" rather than seeing them as whole and unique individuals. In the *unavailable* state, other selves are encountered as objects—as a "He" or a "She" or even an "It."

The other, in so far as he is other, only exists for me in so far as I am open to him [sic], in so far as he is a Thou. But I am only open to him in so far as I cease to form a circle with myself, inside which I somehow place the other, or rather his idea; for inside this circle, the other becomes the idea of the other, and the idea of the other is no longer the other *qua* other, but the other *qua* related to me. . . .¹³

Encountering the other person as a "Him" or "Her" means treating that person, not as a presence, but as absence. According to Marcel, treating the other as a "He" or "She" rather than a "Thou," renders one incapable of seeing oneself as a "Thou," and in deprecating the other, one deprecates oneself.

The *available* person, on the other hand, encounters another self in his or her full subjectivity—as a "Thou." Marcel writes, "If, on the contrary, I treat the other as 'Thou', I treat him [sic] and apprehend him *qua* freedom. I apprehend him *qua* freedom because he *is* also freedom and not only nature."¹⁴ This *available* person "cannot think in terms of *cases*; in its eyes there are no cases at

10. Immanuel Kant, *Groundwork for the Metaphysics of Morals*, ed. Lara Denis (Toronto, ON: Broadview Press, 2005), 81.

11. *Ibid.*, 87. "Now I say: the human being and in general every rational being exists as an end unto itself, not merely as a means to be arbitrarily used by this or that will, but in all his actions, whether they concern himself or other rational beings, must be always regarded at the same time as an end."

12. Paul Borowski, "Manager-Employee Relationships: Informed by Kant's Categorical Imperative or Dilbert's Business Principle," *Journal of Business Ethics* 17 (15) (November 1998): 1626–27.

13. Gabriel Marcel, *Being and Having*, Trans. Katharine Farrer. (Westminster, UK: Dacre Press, 1949), 107.

14. *Ibid.*, 106–107.

all.”¹⁵ Persons who are *available* to others have an entirely different experience of their place in the world in that they acknowledge their interdependence with other people. Relationships between *available* people are characterized by presence rather than absence; in the communication and communion between persons, they somehow transcend the physical gulf between them without merging into an amalgam of some kind. According to Marcel, “It should be obvious at once that a being of this sort is not an autonomous whole, is not in [the] expressive English phrase, self-contained; on the contrary such a being is open and exposed, as unlike as can be to a compact impenetrable mass.”¹⁶ To be *available* to the other is to be present to and for the other, to put one’s resources at the other’s disposal, and to be an open and permeable character. In the words of Catholic social teaching (CST), Marcel’s *available* person recognizes the human dignity of others.

Human Dignity in Catholic Social Teaching

Catholic social teaching develops the philosophical and theological perspectives on human dignity together. Because of the historical circumstances within which these documents were drafted, the theory of human dignity was developed in relation to philosophical concepts about the dignity of human labor. The earliest documents of this tradition develop the theology of the *imago dei*¹⁷ (image of God) in the context of neo-Thomistic natural law philosophy.¹⁸ Humans not only are iconic representations of the divine, but also their work is analogous to God’s creative activity. When a person mixes his or her labor with raw physical material to create a product, then “on it he leaves impressed, as it were, a kind of image of his person” (*Rerum novarum*, no. 15). Thomistic philosophy establishes personal ownership of property either through “occupancy” or by means of labor. Using this philosophical foundation, the Church claimed that dispossessed laborers, like early industrial factory workers, had been robbed of their dignity precisely because they did not enjoy the full fruits of their labor. CST affirmed that the role of the government consisted in

15. Gabriel Marcel, *The Philosophy of Existentialism*, Trans. Many Harari (New York: Carol Publishing Group, 1995), 41.

16. Gabriel Marcel, *The Mystery of Being*, vol.1, *Reflection and Mystery*, Trans. G. S. Fraser (London: The Harvill Press, 1951), 145.

17. *Imago dei*, is a Latin phrase that can be found in a passage in the book of Genesis in which God creates humans in the image of the divine. It is used to highlight the belief that humans stand out as exceptional elements in the created world. This exceptional status is the foundation for treating all humans, no matter their social standing, as equal and uniquely valuable in the eyes of the Divine Creator.

18. Neo-Thomism, a distilled version of Thomas Aquinas’s philosophy, was developed by the Catholic Church in order to make Aquinas’s thought accessible to people with ordinary intelligence. This simplified Thomism was used to train and prepare clergy after the Council of Trent in 1565.

restoring the rights and property of the laborer without negating the property rights of the owner of capital.

Nowhere is the union of the philosophical and theological perspectives on human dignity clearer than in the social encyclicals of Pope John Paul II. In the 1981 encyclical *Laborem exercens* (On Human Work), John Paul II combines traditional creation theology with the personalist philosophy of Max Scheler, which informed his own teaching and writing as a professor of moral theology and social ethics.¹⁹ The encyclical is an extended theological and philosophical reflection on what he calls the objective and subjective meaning of work. For John Paul II, work attains its fullest meaning not in its objective sense, that is, not in the work done and the products produced, but rather in the subjective sense, that is, in the persons who do the work and the humanization that results from the doing of the work. “As a person, man is therefore the subject of work. As a person he works, he performs various actions belonging to the work process; independently of their objective content, these actions must all serve to realize his humanity, to fulfill the calling to be a person that is his by reason of his very humanity” (*LE*, no. 6).

Modern Applications to the Business Setting: Emerging Technological Challenges to Human Dignity

In his article, “Why the Future Doesn’t Need Us,” Bill Joy, computer guru and cofounder of Sun Microsystems, takes on futurists who imagine only utopian results from the ongoing development of certain powerful technologies. Joy sees just the opposite. He fears these technologies could just as easily lead to a dystopian or even disastrous future.²⁰ He claims that the power of emerging technologies has the potential to be exponentially more lethal than any technology humanity has encountered before—even nuclear energy. Joy fears that certain emerging technologies present humankind with a Pandora’s box brimming with temptations that could lead to dire consequences in spite of the best of intentions. After spelling out in detail the various ways that robotics, nanotechnology, and genetics could doom humanity, Joy concludes that technologists and the businesses that produce cutting-edge products must embrace an ethic of relinquishment, refusing to pursue certain lines of inquiry because these have the potential to inflict such enormous harm.

19. See the official biography of Pope John Paul II at the Vatican website, http://www.vatican.va/news_services/press/documentazione/documents/santopadre_biografie/giovanni_paolo_ii_biografia_prepontificato_en.html.

20. Bill Joy, “Why the Future Doesn’t Need Us,” *Wired* 8.04 (April 2000), <http://www.wired.com/wired/archive/8.04/joy.html>.

Many people found Joy's "new Luddite"²¹ reasoning compelling. He was, after all, the last person one would expect to propose that businesses and engineers freeze development on some of the most promising technological advances. If one of the world's leading names in technology speaks out against the trajectory of this industry, then the rest of the less technically inclined population had better sit up and take notice. Indeed there are dangerous technologies that have the potential to destroy and even obliterate, but some technologies go even further toward eclipsing existing notions of human dignity, even when they do no physical harm.

For some, something about Joy's recommendation to relinquish technological development did not seem right from either a moral or a philosophical perspective. First, relinquishment as a strategy runs headlong into the essential curiosity of human nature. Resisting the impulse to know and investigate does not seem to be a drive that can be repressed indefinitely. Repressing this impulse also raises the question of how to impose and police this ethic globally across an immense geographical expanse as well as the myriad of cultures that might not accept its logic. More importantly, would an ethic of relinquishment harm the contemporary understanding of human agency²² and, in turn, ideas about human dignity? Relinquishment seems to assume ubiquitous incompetence or, even worse, a tendency toward evil in human nature. Is humanity such a blundering horde? Is it so inclined toward its own destruction? Does humanity not trust itself with this powerfully important task?

In the end, Joy's thesis seems to be informed by some of the same concerns voiced by the original Luddites—that humans are meddling in matters beyond their limited understanding and metaphorically "playing God."²³ What John Caiazza calls "techno-secularism," which includes "an ethical vision that focuses on healthful living, self-fulfillment, and avoiding the struggles of human life and the inevitability of death," also informs Joy's perspective.²⁴

21. The original Luddites were factory workers in early nineteenth-century Britain who demonstrated their opposition to being displaced by new industrial machinery by attacking the factories and destroying the machines. Since that brief outburst of violence, the term *Luddite* has been used to describe anyone who reflexively opposes new technologies, especially those who raise fears that the new technology will destroy a way of life and usher in a dystopia of one sort or another.

22. Human agency is important here because Joy's argument might lead one to conclude that humans cannot be trusted to behave in ways that will result in human flourishing. An ethic of relinquishment could be used to conclude that humans do not have the capacity to be responsible for their own destiny—this would constitute an abandonment of the idea of human agency and that humans should have control of their own future.

23. For a more thorough critique of this perspective see Cynthia S. W. Crysdale, "Playing God? Moral Agency in an Emergent World," *Journal of the Society of Christian Ethics* 23, no. 2 (June 2003): 243–259.

24. John C. Caiazza, "Athens, Jerusalem, and the arrival of techno-secularism," *Zygon* 40, no. 1 (March 2005): 9.

It attempts to supplant the abstract, reflective, and noninstrumental answers offered by the more reflective disciplines of science,²⁵ philosophy, and religion with the magical mindset of the technological fix or, from Joy's perspective, the technological disaster. Whether one envisions technological utopia or dystopia, the theory informing those conclusions remains the same: technology magically transforms the world, leaving humans either blissfully happy or facing miserable decay in its wake.

Science, philosophy, and religion tend to be critical of the totalistic claims of techno-secularism.²⁶ The common assumption that improvements in wealth and technology inexorably lead to better, happier lives has been questioned by philosophy and religion for eons. Now the sciences are providing polling data that supports these less empirical assertions²⁷ and calling into question the assumption on the part of futurists that advances in technology could lead to some prospective Eden or, for that matter, a destiny marked only by perdition and anguish. The reflective disciplines recognize that happiness is a complex human condition and that the excitement induced by technological advances simply proves too fleeting to deliver on the promise of true and lasting satisfaction. Religion and philosophy have long held that happiness can be found in a life well lived, which often has more to do with establishing and nurturing right relationships than access to wealth or technology. As Barbara Strassberg points out in her essay, "Magic, Religion, Science, Technology, and Ethics in the Postmodern World," technology will have an important, but not a solitary, or singularly deterministic role to play in the way human society shapes its future.²⁸

Moral dilemmas abound in the production and application of modern technologies, and some technological fields do not seem to offer a clear-cut ethical path forward. Like Joy's article, the following section of this chapter will examine three broad technological categories, evaluating their trajectories according to the standards set by the ideal of human dignity. It will assess challenges and threats to key aspects of human dignity theory and explore possible alternative

25. Science is included among the group of reflective disciplines because of the increasingly abstract nature of some of the inquiries of scientific theoreticians. For a more complete discussion of the increasingly close relationship between these two odd bedfellows, see Ervin Laszlo, "Why I Believe in Science and Believe in God: A Credo," *Zygon* 39, no. 3 (September 2004): 535–539.

26. For a more detailed discussion of the dangers of technological and cybernetic totalism, see Michael W. DeLashmutt, "A Better Life Through Information Technology? The Techno-Theological Eschatology of Posthuman Speculative Science," *Zygon: Journal of Religion and Science* 41, no. 2 (June 2006): 267–87.

27. James Surowiecki, "Technology and Happiness," *Technology Review* 108, no. 1 (January 2005): 72–76. *Computers & Applied Sciences Complete*, <http://www.ebscohost.com>.

28. Barbara A. Strassberg, "Magic, Religion, Science, Technology, and Ethics in the Postmodern World," *Zygon: Journal of Religion and Science* 40, no. 2 (2005): 307–32.

trajectories. Each case will entertain future possibilities, hopefully without getting caught in the trap of either utopian or dystopian thinking. Balance will be maintained by recalling that the future of humanity will likely be as thoroughly and richly human as its past and, therefore, determined by more than merely the development of new technologies.

Biotechnology

In effect, humanity is damned if it goes ahead with the production and use of a technology and yet also damned if it follows Bill Joy's recommendation and relinquishes development of it altogether. Nowhere is this truer than in the flourishing field of biotechnology, with its constantly changing borders between life and death, its ever-increasing capacity to alter the quality of life through genetic manipulations, and now even its capacity to create new life forms as the understanding of these sciences progresses.²⁹ Each of these technological trajectories confronts ethicists with a definition of human nature that is far more protean than the one they are used to endorsing and defending. This, in turn, makes applying human dignity theory to cases involving the latest biotechnology advances more problematic.

In her article, "Created Co-creator and the Practice of Medicine," Ann Pederson states, "at both the beginning and end of life, new technologies are changing the way we define life and death."³⁰ Here she refers to a constellation of technologies applied earlier and earlier in the lives of children, and later and later in the lives of seniors, in order to extend and preserve life. For instance, artificial womb technologies,³¹ among many other advances in neonatal care, preserve the lives of children who, not so long ago, would have certainly faced death or disability due to premature birth. While the preservation of life seems morally unproblematic, the application of these technologies has raised many unanticipated issues. On a number of occasions, for example, these technologies have helped to save the life of a child born to a drug-addicted mother, who subsequently abandons the child. According to Renee Denise Boss in the *Journal of Palliative Medicine*:

29. Modern biotechnology also raises the issues of the affordability of health care in the United States and how the financially exclusive system of distribution is, in itself, an affront to human dignity. For a more lengthy discussion of these issues, see R. McDougall, "A Resource-Based Version of the Argument That Cloning Is an Affront to Human Dignity," *Journal of Medical Ethics* 34, no. 4 (April 2008): 259–261.

30. Ann Pederson, "Created Co-Creator and the Practice of Medicine," *Zygon: Journal of Religion and Science* 39, no. 4 (2005): 801.

31. Frida Simonstein, "Artificial Reproduction Technologies (RTs)—All the Way to the Artificial Womb?," *Medicine, Health Care and Philosophy: A European Journal* 9, no. 3 (2006): 359–365.

Decisions to limit life-sustaining therapies for neonates are regularly made together by parents and physicians who agree that the predicted quality of life is extremely poor. Why then, when parents abandon a baby whose quality of life is also predictably grim, are those in charge unable to make decisions to limit that infant's suffering?³²

Another example is the dilemma created by the excess embryos produced when infertile couples use *in vitro* technologies. Although the gift of life given in these cases to otherwise barren couples again seems morally laudable, embryos produced by this method will most likely be stored in a freezer until they become unviable.³³ What is the status of those lives and what is the moral value of a procedure that produces so much of this kind of waste?³⁴ If the end result is death after a decade in the deep freeze, then is it ethically acceptable to use these embryos in scientific experiments or to harvest stem cells from these otherwise doomed embryos? More importantly, these cases present an affront to human dignity no matter what course of action is taken, whether that consists of indefinite storage, destruction, or experimentation.

Just as thorny as the technologies applied at the beginning of life are those applied at the end of life in order to extend, preserve, or enhance the quality of life for individuals who, in another age, would have already died. One cluster of technologies receiving a great deal of attention recently has been artificial life systems, like feeding tubes, and artificial lungs, hearts, kidneys, and other vital organs. Biomedical technology has rapidly become adept at keeping the physical body alive—so rapidly, in fact, that it has occasionally outstripped the human capacity to reflect on its obvious consequences. New classifications have appeared in the literature in order to account for these newfound powers. Terms such as *brain dead* and *persistent vegetative state* now join the old medical standbys such as *coma* and *unconscious*, in order to help determine the right path to take when confronted with an unresponsive, but ostensibly alive, body.³⁵ When people say that they value life, what sort of “life” does that mean? Does a body with functioning organs qualify as human life? As the

32. Renee Denise Boss, “End-of-Life Decision-Making for Infants Abandoned in the Neonatal Intensive Care Unit,” *Journal of Palliative Medicine* 11, no. 1 (2008): 109–11.

33. Marcia Clemmitt, “Couples Reluctant to Abandon Their Frozen Embryos,” *CQ Researcher* 16, no. 2 (2006): 710.

34. For a more extended discussion of this issue, see Giuseppe Benagiano and Maurizio Mori, “Evolution of Thinking of the Catholic Church on the Beginning of Human Life,” *Reproductive BioMedicine Online* 14 (2007): 162–68.

35. For more background on the historical evolution of this medical terminology, see N. D. Zasler, “Terminology in Evolution: Caveats, Conundrums and Controversies,” *NeuroRehabilitation* 19, no. 4 (December 2004): 285–92.

capacity to preserve and extend organ function continues to improve, won't the number of people preserved in these states of suspended animation increase? Will there be a day when society warehouses the living dead? Is that the same as valuing life?

Valuing life, or at least a certain quality of life, is the promise offered by the latest genetic therapies. Most genetic manipulation is presently geared toward preventing and correcting inherited diseases and syndromes in order to improve the quality of life.³⁶ Again, it is rather difficult to find anything morally suspect about this kind of technological intervention. However, some applications of genetic science pursue the more controversial goal of “enhancing” and “improving” the personal traits of individuals who fall within the normal limits of human functioning.³⁷ This kind of genetic manipulation raises many questions, especially when such modifications are made to the germ line; and they become more than simply alterations for that particular individual, but traits inheritable by subsequent generations.³⁸

Given the embryonic stage of development of this science, society is not at the point of confronting actual cases, and scientists assert that it will be decades before such questions need to be answered. Nevertheless, many talented and well-funded technologists are pursuing technologies that will allow individuals to live longer, run faster, jump higher, be smarter, be musically gifted, and so on.³⁹ Even if only a few of these projects ever come to full fruition, humanity will confront a flood of ethical concerns. For instance, who gets access to these technologies?⁴⁰ Right now the vast majority of technologists working on these projects work for companies interested in making money off of these long-term ventures, which suggests that access to these genetic modifications will be limited to those who can afford to pay. Is it possible then, that in the future a group of wealthy families will launch a branch of humanity that is qualitatively different from the rest of the population?⁴¹ Even worse, is it possible that in this same future humanity will also face real genetic

36. James S. Larson, “Medicine, Government, and the Human Genome,” *Journal of Health & Human Services Administration* 24, no. 3/4 (Winter2001/Spring2002): 323–25.

37. Elizabeth Fenton, 2008. “Genetic Enhancement—A Threat to Human Rights?” *Bioethics* 22, no. 1 (January 2008): 1.

38. David Heyd, “Human Nature: An Oxymoron?” *Journal of Medicine & Philosophy* 28, no. 2 (April 2003): 166.

39. Fenton, 7.

40. Dov Fox, “Luck, Genes, and Equality,” *Journal of Law, Medicine & Ethics* 35, no. 4 (December 2007): 712–726.

41. For a lengthier discussion of these issues, see the *Tikkun* interview with Michael Sandel, “The Problem with Genetic Engineering,” *Tikkun* 22, no. 5 (September 2007): 40–85. Academic Search Premier, <http://www.ebscobost.com>.

discrimination against disabled individuals or even against those who simply do not possess extraordinary engineered traits?⁴²

This rapidly increasing capacity to produce, preserve, extend, clone, and manipulate human life raises questions about the very concept of the unique and mysterious gift of individual human existence. In his article “Genetic Frontiers: Challenges for Humanity and Our Religious Traditions,” Philip Hefner points out that “the most critical challenge is to our understanding of human nature and values.”⁴³ The degree to which humans can choose the beginning and end of life, as well as desirable traits for themselves and their children, will in large part determine the extent to which they conceive of human life as a product rather than a gift.⁴⁴ The ability to choose life or death and even which desirable traits to keep and which undesirable anomalies to delete as is done for avatars in online gaming platforms, ontologically transforms the human from a mysterious subject of infinite worth into a manipulable consumer item of definite and marketable value. The question becomes how to prevent this devolution of human dignity and recover a sense of the “priceless” quality of human life⁴⁵ given the trajectories of current technological development.

Cybernetics and Robotics

Today the success of knee replacement surgery depends in no small part on advances in cybernetic and robotic technologies. Because of these advances, those who undergo this surgery can expect to feel up to almost any task at the end of recuperation. However, a mere twenty years ago the prognosis for the full recovery of knee function would have been much less certain; and only forty years ago, a person would face the prospect of spending retirement years hobbling around with a painful, gimpy joint. Such is the pace of advancement in reverse-engineering the human body using nonbiological materials.

42. Karen Eltis, “Genetic Determinism and Discrimination: A Call to Re-Orient Prevailing Human Rights Discourse to Better Comport with the Public Implications of Individual Genetic Testing,” *Journal of Law, Medicine & Ethics* 35, no. 2 (Summer 2007): 282–83.

43. Philip Hefner, 2007. “Genetic Frontiers: Challenges For Humanity and Our Religious Traditions,” *Zygon: Journal of Religion & Science* 42, no. 1: 183.

44. Relying on the founding secular philosophical traditions that inspired the US Constitution, Robert George makes more or less the same point in his short articles in the journal *Social Research*. Robert P. George, “Ethics, Politics, and Genetic Knowledge,” *Social Research* 73, no. 3 (Fall 2006): 1029–1032.

45. Maureen Junker-Kenny, “Valuing the Priceless: Christian Convictions in Public Debate as a Critical Resource and as ‘Delaying Veto’ (J. Habermas),” *Studies in Christian Ethics* 18, no. 1 (April 2005): 55.

Once again, many rightfully feel grateful for these kinds of technologies and ask what could possibly be ethically problematic with pursuits that yield so many wonderful benefits. However, robotics and, to a greater extent, cybernetics raise questions about blurring the distinction between human and machine.⁴⁶ Replacing more and more of the given biological self with chosen, nonbiological parts threatens the concept of human nature and, therefore, of human dignity. These issues become logarithmically more convoluted when the discussion focuses on replacing the human brain by transferring the scanned contents of consciousness to software that can be loaded into a computer.⁴⁷In these cases, technology and techno-futurists challenge the meaning of the term *human*, begging the question, “At what point does the term *human* no longer accurately describe these cybernetic creations?”⁴⁸

Returning to the example of a person with a brand-new knee, probably no one would question her humanity after her operation; there would be little or no superficial evidence that something fundamental had changed. Even if she had multiple joints and organs replaced, most would not struggle to identify her core humanity. In fact, the technologies used in these cases are designed to fool people into thinking the new mechanical parts are no different than the originals. But what if her biological brain was replaced? And what if, years down the road, obvious problems with the “brain” changed her behavior in public and she had to be taken in for a software reboot? Is the person still a human in this instance—or is this just an illusion? Does the person have a mind, or is “he” or “she” just a very clever software program?

The founding belief of most cybernetic endeavors is that humans will eventually be able to construct a better version of themselves—a faster, stronger, smarter, and, therefore, happier version. For Christians, this scenario raises theological questions about God because it relegates God to the role of the maker of an inferior product. In essence, human ingenuity surpasses the divine. In so doing, it poses the conundrum of the created surpassing the creator, thereby negating the very notion of a superior being. It also raises questions about the dignity of human nature similar to those raised by genetic engineering.⁴⁹ If science can engineer humans, either genetically or mechanically, then the value of the human lies not in the human *qua* human, but in the excellence of scientific technique and the number and quality of features

46. For a discussion of this issue from the perspective of someone who does not think cybernetics necessarily results in this sort of blurred moral vision, see Henk G. Geertsema, “Cyborg: Myth or Reality?” *Zygon: Journal of Religion & Science* 41, no. 2 (2006): 289–328.

47. Christof Koch and Giulio Tononi, “Can Machines Be Conscious?” *IEEE Spectrum* 45, no. 6 (2008): 55–59.

48. Raymond Kurzweil, *The Age of Spiritual Machines* (New York: Penguin Putnam Inc., 1999).

49. See Bayer, 286–287.

that one possesses.⁵⁰ Cybernetics must face the question, “How does humanity avoid the commodification of itself and, therefore, the demotion of its own nature as it progresses further and further down the road toward its technological future?”

Environmental Impact

So far this chapter has focused on the intended consequences of actual or proposed technologies. In this last section, the focus shifts to the unintended consequences of technological advance—environmental destruction. Most of the technologies used on a daily basis are highly beneficial, and many people would find it hard to imagine a world without these conveniences. However, each of these technologies comes at a cost to the ecosystem. Aggregating these relatively small costs for an ever-increasing population of billions of people leads to concerns. For example, I am very conscious of my own energy consumption, yet I know that this is not sustainable over the long haul.⁵¹ The gas heat I enjoy in the winter, the air conditioning I use sparingly in the summer, the electricity generated in a nuclear plant, the computer I use to write this chapter, and even the bike I use to commute, all depend, to varying extents, on a model of energy use and resource consumption that can be sustained for only a few more decades.⁵²

Virtually every imaginable technology has some environmental impact that, if multiplied exponentially over the entire human population, could have potentially grave consequences for life on the planet. Twenty years ago, the environmental movement regularly pointed out that Earth could not support “another America,” suggesting that if the peoples of the undeveloped world began to mimic the production and consumption patterns of people in Europe and North America, then the planet was doomed. Per capita energy use and pollution rates were such that Americans were destroying the planet at a pace many times that of the average citizen in the developing world. Today, however, one rarely hears this phrase anymore because reality has quickly caught up to the direst prognostications. During this twenty-year period, China alone has produced tens of millions of new middle-class consumers, and some economists project that by 2015 China will have more than 300 million citizens

50. Some philosophers in what is being termed the post-humanist school of thinking believe that it is necessary to begin imagining the dignity of the cybernetic person. In this way, they are speaking of a kind of post-human dignity. Nick Bostrom, “In Defense of Posthuman Dignity,” *Bioethics* 19, no. 3 (June 2005): 212–214.

51. Mathis Wackernagel et al., “Tracking the Ecological Overshoot of the Human Economy,” *Proceedings of the National Academy of Sciences* 99 (14), 9266–9271.

52. Some would claim that there are already signs that humanity has reached such limits. For just one example see Moises Velasquez-Manoff, “Diet for a More-Crowded Planet: Plants,” *Christian Science Monitor* 100, no. 162 (July 16, 2008): 14.

living according to the standards of the Western middle class.⁵³ Whether Earth could support another America, it now is, due to the ever expanding global population growth and the massive expansion of the middle class, especially in China and India.

Fortunately, there appears to be growing awareness of the impact of humans on the environment, and a small but significant minority realizes that it might have dire near-term consequences. The question, from the perspective of CST, is how this awareness might challenge the traditional notions of human dignity. First, are humans really distinct from the rest of creation given the growing realization of radical dependence on the symbiotic web of relationships called nature? Second, given their destructive potential, are humans really the crowning achievement of this creation? Third, how can the species that has caused so much environmental degradation be understood as the stewards of this same Earth?

For reasons noted previously, contemporary ecotheology challenges traditional notions of human dignity, especially aspects of the tradition that stress human moral exceptionalism—the notion that humans have a unique moral value in comparison to all other creatures. Frequently, this challenge is only implied; the radical novelty of ecotheology's ideas about humanity and its relationship to the rest of creation is rarely explored in depth. Most ecotheologians recognize the inadequacies of traditional Catholic/Christian anthropologies in relation to the epic environmental challenges the planet faces. However, many of those same theologians, in the next instant, recall the tremendous value of these same traditional notions, which have been the source and sustaining inspiration for many of the most noble and progressive movements of the last few centuries.

The question confronting Christians then is whether this is an either/or dilemma: do humans either choose traditional conceptions of human dignity—and in so doing risk sacrificing life as we know it on this planet—or choose novel conceptions of human moral equivalency and risk undermining the moral and legal underpinnings of most of the Western religious and civil tradition?

Addressing this question requires identifying models of Christian ecotheology and examining the definition of humanity that emerges from each.⁵⁴ Five major categories of ecotheology emerge: traditional anthropocentrism, stewardship anthropocentrism, eco-justice, ecocentric deep ecology, and meta-ethical value theory. Traditional anthropocentrism, familiar to anyone conversant in traditional Christian moral doctrine, makes strict distinctions between the

53. Peter Ford, "Consumer tidal wave on the way: China's middle class. (Cover story)," *Christian Science Monitor* 99, no. 25 (2007): 1–12.

54. There are many examples of other categorizations of ecotheology, such as Laurel Kearns, "Saving the Creation: Christian Environmentalism in the United States," *Sociology of Religion* 57, no. 1 (1996): 55–70, and Raymond E. Grizzle and Christopher B. Barrett, "The One Body of Christian Environmentalism," *Zygon* 33, no. 2 (June 1998): 233–253.

inestimable, intrinsic value of human life and the calculable, extrinsic value assigned to the rest of creation. It casts God as a monarch, or a feudal lord, and, therefore, subjugating the rest of creation. Humans are understood as subjects of the royal divinity whose duty is to respect and obey the will of God.

Stewardship anthropocentrism maintains the distinction between human life and the rest of creation to some degree but places greater moral weight on the value of nonhuman creatures than traditional anthropocentrism.⁵⁵ This perspective falls short of equating the value of human life with the value of the rest of creation; however, it does advance Christian theology toward a more inclusive value theory that takes the natural world into account.

Eco-justice levels the ethical playing field between humans and the rest of creation. It transfers moral notions usually reserved for discussions of human social ethics—such as fairness, equity, and justice—and applies these to human behavior toward nature.⁵⁶ The moral equivalency of this perspective can be seen in its advocacy for radical action on the part of human society to reform its unjust and oppressive relationship with the rest of the created order.

Ecocentric deep ecology turns the discussion away from a human-centered focus and attempts to reconfigure the moral universe by focusing on the symbiotic interrelatedness of nature. Goodness is that which contributes to the flourishing of the ecosystem.⁵⁷ Humans fade into the background of this philosophical landscape as a thoroughly integral part of a much wider web of life and existence.

Meta-ethical value theory radicalizes the ecocentric viewpoint in that it affirms the primacy of symbiotic interrelatedness but uses a more microscopic lens in its approach to nature. Often referred to as an “ethic of place,” it claims that the starting point for any genuine ecotheology must be one’s local and immediate encounter with nature.⁵⁸

55. Good examples of this model are David J. Bryant, “*Imago Dei*, Imagination, and Ecological Responsibility,” *Theology Today* 57, no. 1 (April 2000): 35–50, and Judith N. Scoville, “Fitting Ethics to the Land: H. Richard Niebuhr’s Ethic of Responsibility and Ecotheology,” *Journal of Religious Ethics* 30, no. 2 (Summer 2002): 207–229.

56. Larry Rasmussen has done the most work in this category with books such as *Earth Community*, *Earth Ethics* (Maryknoll, NY: Orbis Books, 1996) and articles such as, “Is Eco-Justice Central to Christian Faith?” *Union Seminary Quarterly Review* 54, no. 3–4 (2000): 107–124. Other examples include John B. Cobb Jr., *Sustainability: Economics, Ecology, and Justice* (Maryknoll, NY: Orbis Books, 1992) and Rosemary Radford Ruether, *Gaia and God: An Ecofeminist Theology of Earth Healing* (San Francisco, CA: Harper Collins, 1992).

57. Examples of this perspective include the theology of Thomas Berry and his disciples. Thomas Berry, *The Dream of the Earth* (San Francisco, CA: Sierra Club Books, 2006). Another good example is Jan Deckers, “Christianity and Ecological Ethics: The Significance of Process Thought and a Pan-experientialist Critique of Strong Anthropocentrism,” *Ecotheology* 9, no. 3 (2004): 359–387.

58. Excellent examples of this type of ecotheology are Kirkpatrick Sale, *Dwellers in the Land: The Bioregional Vision* (San Francisco, CA: Sierra Club Books, 1985) and Douglas Burton-Christie, “The Spirit of Place: The Columbia River Watershed Letter and the Meaning of Community,” *Horizons* 30, no. 1 (Winter 2003): 7–24.

Models of Christian Ecotheology					
	Traditional Anthropocentrism	Stewardship Anthropocentrism	Eco-Justice	Eco-centric Deep Ecology	Meta-ethical Value of Place
Locus of Value	Human life has intrinsic value; nature has extrinsic value.	All creation has some intrinsic value; humans possess ultimate intrinsic value.	All creation has equal intrinsic value; there are no privileged species.	All creation as a constantly changing process has equal intrinsic value; differentiation and individuation are illusory.	The idea of intrinsic value only makes sense in a local, immediate context.
Ethical Relationship	Entirely one sided	Humans have greatest value although some reciprocity is implied.	Equality implied by the negation of privilege	Interdependence and reciprocity are central.	Restoration and reparation of sundered relationships
Human Mission	Humans should wisely use nature to achieve their goals.	Humans should manage the complex human/natural relationship so that all thrive.	Humans should overturn and radically reform their destructive and oppressive structures.	Humans need to rediscover their place within the symbiotic relationships of nature.	Humans need to encounter nature immediately both within themselves and in their ecological setting.
God	Feudal Lord	Benevolent CEO	Liberator	Pantheism	Animating Spirit
Jesus/Christ	Obedient Son of the feudal lord who sacrifices himself for all people	Agent or representative of the benevolent CEO who is sent as a teacher and exemplar	Agent or representative of the liberating God who fights oppressions and suffers the consequences	All humans are sons and daughters of God.	Spirit Guide
Sacrament	Nature is a mere instrument.	Nature is a valued instrument.	Nature reveals God's liberatory identity.	Nature is sacrament as nature reveals God.	Nature is sacrament as nature is animated by Spirit.
Church	Institution—Bride of Christ	People of God—Pilgrim People	Church of the Poor—Community of the Oppressed	Community of Creation	Communion with local ecosystem

This rather strict categorization of Christian ecotheology does not make clear the extent to which some ecotheologians have shifted freely between perspectives, and how most of them have done so unconsciously. Many authors have worked with multiple images of God, who could be a crusading liberator in one context and a few pages later be portrayed in very sterile, abstract, and transcendent terms as the animating principle undergirding the process of universal becoming. On the one hand, this fluidity of categories certainly leads to creativity and avoids the pitfall of theoretical notions becoming ossified or conceptually trapped.

However, these various theological models do not necessarily coexist peacefully, and some actually contradict the basic tenets of others. To talk in one context about God as a benevolent CEO who will ultimately guide humanity to eco-utopia does not always mesh well with the image of the church as a community of the oppressed in the next. Theoretical inconsistencies have the potential to lead to creative new insights, which is especially true when the authors are aware of them. However, more often, theoretical inconsistencies yield nonsensical theologies and lead to confusion, so it is important to have a clear map of the theoretical landscape.

Each of the ecotheological categories assumes a certain kind of natural order, which in turn presumes a place for human life in the cosmos.⁵⁹ The question is whether to endorse this vision and whether humans would even recognize themselves through this theoretical lens. Is there a privileged, special, or even identifiably distinct place for human existence in a realized ecotheological utopia? Is human dignity recognizably and qualitatively different from the dignity of other creatures, or is the difference only one of kind and not character? Does ecotheology demand a radical reconfiguration of the entire corpus of traditional Christian theology, or can remnants of that tradition inform and guide the way into an eco-friendly future?

One of the major unintended consequences emerging from humanity's awakening to its own toxic impact on the environment has been a thoroughgoing rethinking of philosophical anthropology. The longstanding notion that humans are qualitatively distinct from, and superior to, other creatures has been fundamentally challenged by an awareness of humanity's environmental sins, as well as a deepening scientific understanding of humans and their relationship to the vast web of life on Earth. More and more, it is becoming clear that only a deep ecological consciousness can rein in this destructive technological

59. These categories have been gleaned from various sources in ecotheology and from conversations with others working in environmental theology. Significant insight into these categories came from conversations with my colleague Kay Read, who has visually mapped human attitudes toward the natural world and come up with her own scheme of eight categories. Also, recognition is due to Willis Jenkins of Yale University since during his talk at the Annual Meeting of the Society of Christian Ethics in January of 2009 the inspiration and outline for these categories finally congealed.

trajectory. The idea that humanity is essentially distinct from the rest of creation and can use and consume the whole of creation as it sees fit⁶⁰ seems to be giving way to recognition that humans are creation, and it is they.⁶¹ Therefore, its use and consumption are no longer morally neutral, and an ethic of the subjectivity of creation is beginning to worm its way into the ethical consciousness of the major religions.

Conclusion

Traditional Western notions of human dignity, which undergird much of contemporary social and political theories about the value and status of the individual person, are being challenged by the development of certain cutting-edge technologies that stretch the boundaries of established concepts of humanity. Some of these technologies affect the way the human is conceived and raise questions about the repercussions these changes might have on notions of human rights in the near future. Advances in the high-tech industries of biotechnology, cybernetics, and environmental science pose threats to Western ideas about human dignity as well as offer opportunities to re-vision the human in novel and more inclusive ways. In the end, one can respond to these challenges by retreating to the safe confines of current conceptions of human dignity or by seeing them as an invitation to open dialogue with new technologies in order to discover weaknesses and inadequacies in the traditional philosophical anthropologies so they can be exposed, updated, and corrected. Only then can these important concepts once again play their prophetic and humanizing role in society.

This is not the first time in history that ideas of human dignity have been challenged. Historical periods of disease, pestilence, famine, and natural disaster have all raised questions about the notion that humans possess a unique status, granted to them in the moral universe by a loving and powerful God. Social institutions like slavery and hierarchical social systems like royalty likewise compromised the belief in human dignity among recent ancestors. Certainly the Enlightenment stands out as one of the many historical moments when political, economic, and philosophical ideas about the individual had a profound impact on how Western culture understood the human and the way each individual ought to relate to the common good. The scientific discoveries of this

60. "There is a growing awareness of the sublime dignity of human persons, who stand above all things and whose rights and duties are universal and inviolable." *Gaudium et spes*, no. 27.

61. "People will recognize the inherent value of creation and the dignity of all living beings as creatures of God." Catholic Bishops of the Pacific Northwest and Canada, "The Columbia River Watershed," p. 14, <http://www.thewssc.org/images/stories/Resources/Statements/colvr-e.pdf>.

same period, especially Galileo's rejection of a geocentric view of the universe, rocked Western notions of human exceptionalism and the widespread belief that the Earth was God's lonely little laboratory.

In the present moment, marked by a fascination with technological prowess, humanity faces a challenge similar to those encountered in other periods of human history. Because of rapidly advancing technology and its effect on humans and all other living creatures on the planet, traditional conceptions of human nature are no longer adequate and require reformation. Human dignity as an ethical formulation has been a reliable and inspirational tool for philosophers, religious leaders, policy makers, educators, and average citizens from a wide variety of cultures throughout the ages. It is an ethic worth preserving, but it cannot be preserved in amber. Like all other traditional philosophical and religious ideas, it will become dusty and useless if it is locked away like a museum piece. Human dignity theorists have to be willing to enter these dangerous dialogues and allow these precious ethical gems to be dynamically restored in the process.

Case Study

Designer Babies: The Fertility Institutes

A newlywed couple, madly in love, decides to conceive a child, but instead of turning out the lights and leaping into bed, they drive to the nearest fertility clinic for a genetic consultation. At the clinic, they are examined and tested. Eggs and sperm are taken from the prospective parents, who are then given a long form with a menu of checkboxes and asked to choose the various features they would like their child to have. Sound like a joke or a deleted scene from a sci-fi movie? Well this futuristic scenario is much closer than most people imagine. As Dr. Mark Hughes, the Director of the Genesis Genetics Institute, a large fertility laboratory in Detroit, and a pioneer of preimplantation genetic diagnosis (PGD), claims, "It's technically feasible and it can be done."⁶²

Dr. Hughes goes on to say that no legitimate lab would offer such services because the scientific community would immediately ostracize it. However, assurances such as these offer cold comfort in a context in which one clinic, the Fertility Institutes in Los Angeles, has already flirted with offering its clients the ability to choose more than just the gender of their children.

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62. Gautam Naik, "A Baby, Please, Blond Freckles—Hold the Colic," *Wall Street Journal* (February 12, 2009), <http://www.online.wsj.com/article/SB123439771603075099.html>.

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Dr. Jeffrey Steinberg, a leading figure in the field of *in vitro* fertilization, runs the clinic. He is convinced that “we not bury our heads in the sand and pretend these advances are not happening.”⁶³ Dr. Steinberg and his colleagues claim that they can predict certain characteristics, such as eye color, hair color, and complexion, with 80 percent accuracy. They also feel certain that this is just the tip of the iceberg and have plans to implement every conceivable customization as these become available through the advances of genetic science.⁶⁴

The Institute cannot change the DNA of the donating couple—if neither the mother nor the father has genes for green eyes, for example, then the Institute cannot give them a baby with green eyes. Yet within the constraints inherent in the DNA of the donating couple, The Fertility Institute is willing to screen embryos for these traits. The Fertility Institute wants to offer several other customizations, and many more are sure to be released in the coming years as the science behind screening for them is developed.⁶⁵

In most contemporary technological societies, certain kinds of genetic selections are not only permissible but also desirable and beneficial in many instances. So, for instance, very few people have reservations about genetic screening for diseases and deformities before the implantation process; they want to ensure that the children born are not destined to lead lives of misery due to handicapping conditions that were easily preventable. Although more controversial than screening for disease and deformity, screening for gender has become customary in most countries, using the same PGD process in which a three-day-old embryo, consisting of about six cells, is tested in a lab.⁶⁶ Only embryos free of disease and of the desired gender—if the parents have also chosen to select for gender—are then implanted in the womb.

Take the case of Cindy and John Whitley. Their first child died at the age of 9 months from a deadly genetic disorder called spinal muscular atrophy. Genetic analysis uncovered that the Whitleys statistically had a 1 in 4 chance of creating a child with spinal muscular atrophy each time they conceived. Unwilling to risk having another child with

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63. “Designer Babies’ Ethical?” *CBS News* (March 3, 2009), <http://www.cbsnews.com/stories/2009/03/03/earlyshow/health/main4840346.shtml>

64. Keith Kleiner, “Designer Babies: Ready or Not Here They Come,” *Singularity Hub* (February 25, 2009), <http://www.singularityhub.com/2009/02/25/designer-babies-like-it-or-not-here-they-come/>.

65. *Ibid.*

66. Naik.

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(continued)

the deadly disorder, the Whitleys used PGD to conceive three children, all healthy.⁶⁷

However, the science of PGD, like all other sciences, is in a constant state of discovery, and the potential services it offers to couples seeking assistance continues to expand. Embryo screening has recently been used to create “savior siblings”—healthy spare embryos left over from the screening process that can be harvested to treat serious illness in the implanted embryo. It has also been used to weed out embryos carrying markers for diseases, such as breast cancer or other diseases that might not strike a person until much later in life. There are also rumblings that the technology has been used in cases of so-called “negative screening” in which, for instance, a child born to deaf parents is selected to be deaf him or herself.⁶⁸

This science also raises the specter of eugenics and the development of a “master race.” Even scientists who favor this kind of genetic choice recognize that only select individuals who live in highly developed technological cultures will have access to these types of procedures. Due to the costs and to the fact that, in most cases, these procedures will be deemed “elective” and, therefore, not covered by insurance or national health plans, only the relatively wealthy will be able to modify their offspring. Many ask whether this kind of genetic selection based on economic standing sets up a situation in which the process of natural selection will be replaced by a class-based evolution of the human species, in which members of a certain elite class will be able to generate offspring who are “superior” competitors and who represent a genetic “master race.”⁶⁹

A recent poll conducted by the New York School of Medicine demonstrates some degree of support for the notion of designing a better child. A majority of 999 people who sought genetic counseling said they supported genetic screening for eliminating disease, mental retardation, and blindness. Once again, such opinions tend to be relatively noncontroversial in American culture. However, the same survey revealed that 10 percent of the respondents supported genetic screening for both athletic ability and height and that 13 percent would use the procedure to achieve superior intelligence.⁷⁰

Given the current state of genetic science, successful and consistent characteristic enhancement is very difficult to achieve. Even the simplest

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67. Ibid.

68. Ibid.

69. Matt Collins, “The Need to Regulate ‘Designer Babies,’” *Scientific American* (May 4, 2009), <http://www.scientificamerican.com/article.cfm?id=regulate-designer-babies>.

70. Ibid.

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traits such as hair and eye color appear to be the product of multiple genetic and environmental factors, and knowledge of what these factors are and how they can be manipulated is incomplete, although increasing daily. More complex characteristics such as intelligence, athleticism, and happiness present enormous hurdles to geneticists attempting to identify the control mechanisms for these traits. Most of these characteristics require modification of the environment through development, rehearsal, and practice as children, adolescents, and adults in order to bear full fruit. Add to this complexity that there is no single cultural definition of “intelligence” let alone “happiness,” and one begins to understand the difficulties associated with trying to genetically manipulate these characteristics at birth.

A few short months after announcing his clinic’s ability and intention to offer hair, eye, and skin color as optional traits to their lab customers, Dr. Steinberg backed away from this commitment—after making “an ‘internal, self-regulatory decision’ to scrap the project because of ‘public perception’ and the ‘apparent negative societal impacts involved.’”⁷¹ However, most commentators agree that this change of heart on the part of one person at one clinic in Los Angeles will have no appreciable effect on the ever-increasing capacity to choose the traits of offspring.⁷² Many are calling for government regulation; however, others contend that with the globalization of genetic sciences, these regulations will not be enforceable unless they can somehow be enacted internationally. Barring this unlikely eventuality, any country’s national laws will have little or no effect on the inevitable march toward designer babies.

Questions

1. How does the choice of personal characteristics for one’s children differ from choosing features for any other product?
2. Should parents have the right to purchase these traits from providers of fertility services as they purchase other consumer goods?
3. What does human dignity theory have to say about the increasing capacity to determine the characteristics of one’s offspring?
4. In this case, the values of scientific advancement, the freedom to choose, and the dignity of the human are weighed against one another, sometimes in contentious ways. How might all of these values be preserved without sacrificing one or the others?

71. Collins, “The Need to Regulate ‘Designer Babies.’”

72. Ibid.

Case Study

The People's Car⁷³

Tata Motors of India was established in 1945 as a locomotive manufacturer and in 1954 branched out and began manufacturing commercial vehicles. It ended a fifteen-year collaboration with Daimler Benz of Germany in 2010, and now, at the end of the first decade of the twenty-first century, Tata Motors is one of the largest automobile manufacturers in India with annual revenues in excess of \$14 billion. Today the company makes passenger cars as well as multi-utility, light, medium, and heavy commercial vehicles. The company exports its vehicles around the world and employs more than 1,400 engineers and scientists in six research and development centers in India, South Korea, Spain, and the United Kingdom.

In 2003, Tata Motors decided to design and manufacture the Nano, a tiny car costing around \$2,500.⁷⁴ The company targeted the segment of the personal transportation market currently filled by motorbikes. The ideal consumer for the Nano would be individuals currently unable to afford a car and who use motorbikes as a form of family transportation. By 2009, the first Nanos began hitting Indian showrooms, and consumers immediately saw how this car offered all of the benefits of their automotive competitors, like Maruti and Suzuki, yet did so at an affordable price. The Nano was being touted as the car for the masses—at least that is what everyone at Tata assumed at first.

The automotive industry has been a major contributor to a number of airborne pollutants and has been identified as a significant factor in global climate change as well. Overall the transportation sector contributes about 24 percent to global carbon emissions. Cars and other light duty vehicles contribute about 10 percent to the global carbon emissions produced by carbon fuels, and in the car category, the small-car segment makes up the largest share of carbon emissions at 25 percent. Experts claim that this outsized contribution by the small-car segment is due to the fact that there are so many more of these vehicles on the road than of any other variety. The environment must also contend with the exponential growth in the number of vehicles of all kinds worldwide, from 50 million in 1950 to 580 million in 1997, a trend that seems unlikely to abate any time in the near future. If anything, the rate of vehicle production will likely increase as India and China add unprecedented numbers of new middle-class consumers every year. In fact, projections show that the number of vehicles on the road will triple between 2014 and 2050.

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73. This case study is based on a case study written by Shankar Narayanan, "Tato Nano: Environmental Concerns," which can be found at www.caseplace.org.

74. <http://tatanano.inservices.tatamotors.com/tatamotors/>.

Case Study

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When it was unveiled in 2008 at the Auto Expo in New Delhi, the Nano was marketed as the People's Car. In spite of its diminutive size, the vehicle is designed as a family car, with seating for four passengers and generous interior space. It is an all-aluminum construction, which makes it exceptionally, light and the two-cylinder, fuel-injected engine and rear-wheel drive allow very good gas mileage. The Nano meets and exceeds all regulatory requirements in the markets where it is sold, which now includes most of the European Union. It has been touted as the product that will make car ownership an achievable goal for as many as 14 million Indian families, who currently cannot afford products from other manufacturers. The introduction of the Nano has lowered the cost of an entry-level car in India by 30 percent. Tata has broken through a major milestone in the mobility paradigm and is creating a whole new segment in the existing transportation market.

In addition to great gas mileage, solid safety, and low cost, the Nano also boasted having tailpipe emissions performance that exceeded all regulatory requirements of both India (Bharat III) and the European Union (Euro III). In fact, it had lower emissions than the motorbikes it was designed to replace. This combined with the lower fuel efficiency of most other cars meant that the Nano would provide low-cost transportation with a lower carbon footprint.⁷⁵

However, in spite of all these positives, concerns emerged about the Nano's potential to degrade air quality and contribute to global climate change. The principal concern had to do with the potential popularity of an ultra-cheap car for the masses and how this would increase people's reliance on the automobile, rather than bicycles or mass transit, as their primary mode of transportation. J. D. Power Asia Pacific projected that the Nano will likely sell 100,000 units per year through 2013 and possibly double that number by 2014. An Indian rating agency claims that the Nano could increase overall automobile sales by 20 percent in its first year of production and has the potential of expanding the car market in India by 65 percent.

Additionally, some predict that the Nano will spur other manufacturers to slash prices on their vehicles and launch their own minicars, further exacerbating this trend toward greater reliance on cars. This expansion of the sheer volume of cars on the streets of India's crowded cities would intensify the already heavy congestion, which would, in turn, increase tailpipe

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75. The engine will require finer tuning in order to reach the highest and most strict emission standards of Euro IV. The company itself appears to be dedicated to being seen as an environmentally conscious manufacturer as can be seen at its website, http://www.tatamotors.com/our_world/we_care.php.

Case Study

(continued)

emissions. Average speeds in major Indian cities such as Mumbai and Delhi have already fallen to 10–12 km/hr., and with the deluge of cars that the introduction of the Nano portends, this figure could easily drop to 5–10 km/hr. A study by the World Bank demonstrated that car emissions rise dramatically when average speeds fall below 40 km/hr. and spike even higher once speeds drop below 20 km/hr. Fuel consumption was four to six times as high at 5–10 km/hr. as it was at 40 km/hr., with corresponding tailpipe emissions. Tata based its emission claims for the Nano on ideal driving conditions, which assumed drivers would travel above 40 km/hr. Under actual conditions in the most crowded areas of India, the environmental impact of the Nano appears much bleaker.

Questions

1. Does the Tata Nano represent an egalitarian dream, as the company and its supporters claim, or an environmental nightmare, as environmentalists and others suggest? Explain.
2. In this case, two different principles of CST potentially clash. On the one hand, there is the egalitarian thrust of making a social good more accessible to a greater number of people who could not otherwise afford this product. On the other hand, this product could have a dramatically negative impact on the environment. How would you resolve this ethical dilemma?
3. If you were an executive with decision-making power at Tata, what would you recommend? How would you deal with these conflicting values?
4. If you were an Indian consumer with a small family that had to get around the busy and dangerous streets of Mumbai on a motorbike, what would your attitude be toward the Nano? Would you be tempted to buy one?

For Further Reading

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