

18. HUMAN ENHANCEMENT AND THE EMERGENT TECHNOPOLITICS OF THE 21ST CENTURY

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Abstract: The political terrain of the 20th century was shaped by the economic issues of taxation, labor, and social welfare and the cultural issues of race, nationalism, gender, and civil liberties. The political terrain of the 21st century will add a new dimension – technopolitics. At one end of the technopolitical spectrum are the technoconservatives, defending “human dignity” and the environment from technological progress. On the other end of the spectrum are the technoproggressives, holders of the Enlightenment faith that scientific and technological progress is liberating. Some of the key points of conflict in the emerging technopolitical struggle are the bioethical debates over human enhancement technologies. Technoproggressives such as “transhumanists” advocate for the right to use technologies that transcend human limitations, whereas technoconservatives argue for a strict limit on the nontherapeutic uses of biomedicine. Technopolitics has cut across the existing political lines and created odd coalitions between left-wing and right-wing technoconservatives on one side and technolibertarians and technodemocrats on the other. Future technopolitical debates are suggested that will force further technopolitical polarization.

Introduction

In 2004, *Foreign Policy* magazine asked eight prominent intellectuals to identify the most dangerous ideas in the world. Robert Wright’s essay fingered the idea of a “war on evil,” while Marxist historian Eric Hobsbawm attacked attempts to “spread democracy.” Philosopher Martha Nussbaum zeroed in on “religious intolerance,” and Paul Davies discussed the erosion of the idea of free will. Francis Fukuyama’s answer (Fukuyama, 2004) was the most intriguing, as his most famous work, *The End of History and the Last Man*, written after the collapse of the Soviet Union, argued that there were no longer dangerous ideologies that could threaten the Pax Americana of democratic capitalism. However, Fukuyama has changed his mind on that score. His new bête noir was one most of the readers of *Foreign Policy* had never heard of: “transhumanism.”

Fukuyama’s definition of transhumanism is the movement that seeks “to liberate the human race from its biological constraints” – and that is pretty close to the way transhumanists define their movement as well. That is, the few tens of thousands of them who actually use the term and who characterize their opponents like Fukuyama as “bioconservatives.” Given the miniscule size and invisibility of the transhumanist movement, why did

Fukuyama believe that movement posed a more serious threat than, say, Islamic fundamentalism? Because “the fundamental tenet of transhumanism – that we will someday use biotechnology to make ourselves stronger, smarter, less prone to violence, and longer-lived . . . is implicit in much of the research agenda of contemporary biomedicine.” Indeed, the use of converging technologies to improve human performance is the explicit goal of the NBIC conferences, whose participants are often influential leaders in government, industry, and academia. For Fukuyama and a growing number of technoconservative critics, the irresistible human enhancement possibilities emerging from the convergence of NBIC threaten new conflicts between the unenhanced and enhanced and threaten to upset the present rough equality among human beings.

Fukuyama articulated this argument at greater length in his 2002 book *Our Posthuman Future* (Fukuyama, 2002), which argued for broad restrictions on the use of biotechnology that might cross the barrier from “therapy” to “enhancement,” from Ritalin to genetic engineering. He is also a member of the U.S. President’s Council on Bioethics, which, under the leadership of Chairman Leon Kass, produced the enormous critique of human enhancement medicine *Beyond Therapy* (President’s Council on Bioethics, 2003).

In several decades, I think it will be clear that these events marked a turning point – the first explicit shots fired in the technopolitics of the 21st century. These coming technopolitical conflicts will be fought over the development, regulation, and accessibility of human enhancement technologies and will bring to the table fundamentally different conceptions of citizenship, rights, and the polity. Technopolitics will be as profound as the struggles between socialists and free marketers, or secularists and fundamentalists, will mix and blur among the 21st-century heirs of those battles. Unlike the struggle over trade union rights or gay marriage, however, the outcome of the technopolitical struggles will determine whether the human race itself will have a future.

In this essay I outline the new technopolitical axes of the 21st century – axes historically rooted in environmentalism and bioethics but now extending to other fields because of the convergence of technologies. I discuss some of the key figures and organizations that have shaped the current debate in the United States, from academic bioethics and the anti-abortion movement to the political left and environmental movements. Then I suggest some of the policy debates likely to further crystallize and mobilize these ideological camps.

Bioethics as Proto-Technopolitics

Many political ideas begin as parlor room debates or philosophical treatises long before they motivate parties and revolutions. Other debates among intellectuals stay in the parlor, influential among some policy-making elites but never embodied in social and political movements. When bioethics first emerged out of philosophical and theological debates in the 1960s, it was not yet clear that its issues would ever divide the public.

Then in 1979 President Carter appointed a President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. This first presidential bioethics commission worked from January 1980 to March 1983, and its dozen products contributed to fundamental changes in medical practice and policy, from organ transplantation and the declaration of death to the regulation of genetic engineering and research on human subjects. Quickly the new anti-abortion movement realized the connection of bioethics to its campaign to defend "the sanctity of life," and federal bioethics advisory bodies were embroiled in the struggle between the anti-abortion lobby and the largely pro-choice academics involved in bioethics. Unlike the debates over brain death or the withdrawal of life support, members of the lay public have had strong opinions about the legal personhood of the fetus and whether women's rights to control their own bodies extend to a control their own bodies extend to a right to terminate pregnancy. After barely two decades of parlor-room collegiality, bioethics had begun to become technopolitics, and bioethical theories had begun to reveal themselves as political ideologies.

Although theologians had been important in bioethics in the 1960s and 1970s, by the 1980s most academic bioethicists were secular and leaned toward liberal democratic ethical principles. One popular approach to bioethics, for instance, has been the "principlism" articulated by Beauchamp and Childress (1994) – autonomy, justice, and beneficence/nonmaleficence – direct corollaries of the French revolutionary slogans of liberty, equality, and solidarity. Theological arguments that we should treat Man as *imago dei* gave way to modern liberal democratic and utilitarian arguments: the world will be a better place, and medical care will provide optimal benefit, if we give people equal resources, allow them to make decisions for themselves, and only make decisions for them when they cannot. But the exclusion of religious rationales from bioethical debate did not mean that bioethicists were now agents of pure reason and liberty.

In the 1970s, the focus of most bioethicists' attention had been on protecting patients from unethical scientific research and overly aggressive applications of end-of-life care, protecting the public from science and technology rather than securing their rights to it. Bioethicists also began to raise questions about the dangers of cloning, *in vitro* fertilization, and genetic engineering. There were occasional provocateurs like Joseph Fletcher, who

argued that humans have a right and obligation to control their own genetics (Fletcher, 1974), but as bioethics matured, it became clear that the biomedical industry did not need much help in pointing out the advantages of new drugs and biotechnology. The public and media turned to bioethicists for the cautions, caveats, and anxious hypotheticals about the future. Bioethicists responded to positive reinforcement and developed a finely honed suspicion of medical advances and a repertoire of “questions” that all technologies should be subjected to by bioethicists before being approved.

Today many bioethicists, informed by and contributing to the growing anti-technology orientation in the social sciences and humanities, start from the assumption that new biotechnologies are being developed in unethical ways by a profit-driven medical-industrial complex and will have myriad unpleasant consequences for society, especially for women, the poor, and the powerless. Rather than emphasizing the liberty and autonomy of individuals who may want to adopt new technologies or arguing for more equitable access to new biotechnologies, bioethicists often see it as their responsibility to slow the adoption of biotechnology altogether. The pervasive suspicion of technology and “progress” among bioethicists opened the field to crypto-religious doctrines of the importance of “human dignity,” instinctive moral sentiments, and respect for the natural order that provided a bridge language to the concerns of the religious conservatives.

The appointment of Leon Kass as the chair of President’s Council on Bioethics (PCB) in 2001 finally brought to a head this brewing contradiction within bioethics between the secular, liberal democratic tradition and the crypto-religious hostility to modernity that Kass embodied throughout his career. For the last 35 years, Leon Kass has been one of the chief conservative philosophical opponents of interventions into human reproduction and other medical technologies, from *in vitro* fertilization to withdrawal of life support. Kass is best known as a defender of the “wisdom of repugnance” or “yuck factor” – “repugnance is the emotional expression of deep wisdom, beyond reason’s power fully to articulate it” (Kass, 1997: 86).

Although he is Jewish and draws mostly from a Platonic and Aristotelian perspective, Kass’s appointment was warmly welcomed by the Christian right, who viewed him as an ally against abortion and secular bioethics. Kass, in turn, filled the President’s Council on Bioethics with conservative bioethicists, such as Mary Ann Glendon and Gilbert Meilander, and conservative intellectuals with little or no connection to academic bioethics, such as Robert George, Francis Fukuyama, James Q. Wilson, and Charles Krauthammer. The executive director for the PCB was Dean Clancy, a former aide to Texan Republican leader Dick Armey. The new PCB developed a symbiotic relationship with the conservative religious think-tank the Ethics and Public Policy Center and its journal of conservative bioethics,

The New Atlantis. The first product of the PCB under Kass was the recommendation that embryo cloning in research be criminalized – a reversal of the advice offered by the more liberal bioethics commission that served President Clinton. Kass's PCB then focused on human enhancement, encompassing psychopharmaceuticals to life extension, resulting in the mammoth report *Beyond Therapy* (President's Council on Bioethics, 2003). Reprising the themes already worked by Fukuyama and Kass, *Beyond Therapy* suggested that society should try to draw a line between therapy and enhancement (a line the PCB acknowledges is impossible to draw) or else see the erosion of our quality of life under the onslaught of ageless bodies, cheerful minds, and designed children.

One might mark the first salvo of mainstream bioethicists' resistance to Kassism as the 2003 essay "Leon the Professional." Written by editor Glenn McGee to preface an issue of the *American Journal of Bioethics*, an issue devoted to the ethics of human–animal chimeras, "Leon the Professional" hits the central tenet of Kassist technoconservatism:

[I]f we get past the "yuck" . . . [we] find that engineering of humans is not only ubiquitous and a function of ordinary human life as well as high-technology science, but also that the rules for avoiding "yuck" are a mere matter of faith themselves in the articles of a flimsy new kind of neoconservative natural law theory. And perhaps we are better off yucky but complicated than in the clean, well-lit spaces of the illusory safety of a "nature" that doesn't really exist. (McGee, 2003)

Left-wing bioethicists began a vocal campaign disparaging the focus of the PCB on posthumanity when 45 million Americans lacked health insurance, and billions around the world lack access to rudimentary medicine (e.g., Turner, 2004). When two of the few liberal members of the PCB were replaced with religious conservatives in the spring of 2004, American bioethicists erupted. A petition signed by hundreds of bioethicists protested the stacking of the PCB, and protests were organized against Kass's keynote address at the October 2004 meeting of the American Society of Bioethics and Humanities. In the midst of a presidential campaign in which support for embryonic stem cell research had become a surprisingly important wedge issue, bioethics was being reborn as technopolitics.

Jeremy Rifkin and Odd Bedfellows

Future-oriented activists from all corners of the political landscape already have been building technopolitics for two decades. Although Kass and the Christian right make up the most influential segment of the emerging

technoconservative bloc, they have increasingly been joined by people from the left. The principal far-sighted strategist who has brought the left flank of technoconservatism into alignment with the Right is the veteran activist and writer Jeremy Rifkin.

In the 1960s and 1970s, Rifkin was an antiwar organizer and socialist activist, but in the late 1970s, Rifkin had a vision that the terrain of future politics would be fundamentally transformed by biotechnology in the same way that steam power and electricity had created new political and economic orders. In 1977 Rifkin went on to start the Foundation on Economic Trends to throw roadblocks in the way of biotech. Rifkin named his nemesis algeny, “the improvement of existing organisms and the design of wholly new ones with the intent of perfecting their performance.” However, for Rifkin (1993, 1998), algeny was also “a way of thinking about nature, and it is this new way of thinking that sets the course for the next great epoch in history.”

Rifkin quickly discovered the importance of alliances with the religious right built on their shared critiques of algenic hubris. In one campaign, Rifkin organized disgruntled former surrogate mothers and took them around the United States to pass laws banning surrogacy contracts. Rifkin used that campaign to build ties between Catholic conservatives who supported the Papal ban on surrogacy and feminists uneasy with “uteruses for hire.”

One of the issues that Rifkin sees as a clear and present danger is the crossing of species barriers using recombinant genetic engineering, a point that resonates with Christians concerned about humans “playing God.” So Rifkin reached out to religious groups arguing that these recombinant techniques not only were dangerous capitalist imperialism but also violate God’s plan for his separately created species, robbing life of its “sacredness.” In 1995 Rifkin announced that religious leaders representing more than 80 different religious groups had signed his “Joint Appeal Against Human and Animal Patenting” which read “We believe that humans and animals are creations of God, not humans, and as such should not be patented as human inventions.”

Again, in 2001, a heated battle raged between a broad coalition defending medical researchers’ use of cloned embryos to generate stem cells and the right-to-life movement and Republican president, who favored a ban on federally funded research using embryonic stem cells. In the midst of this battle, Rifkin sent out a petition to support a ban on “cloning” to prominent left-wingers and feminists. His petition had neo-conservatives William Kristol and Francis Fukuyama as cosignatories, and Rifkin said he wanted to unite the social conservative and liberal left camps around a shared opposition to “cloning” and the “commodification” of life it represented. “We are also concerned about the increasing bio-industrialization of life by the scientific community and life science companies and shocked and dismayed that clonal human embryos have been patented and declared to be

human ‘inventions.’ We oppose efforts to reduce human life and its various parts and processes to the status of mere research tools, manufactured products, commodities and utilities.”

Rifkin is quite clear about the importance of his odd coalitions to the coming “fusion technopolitics.” In a 2001 article titled “Odd Coupling of Political Bedfellows Takes Shape in the New Biotech Era” Rifkin (2001) says “The Biotech Era will bring with it a different constellation of political visions and social forces, just as the Industrial Age did. The current debate over embryo and stem cell research already is loosening the old political allegiances and categories. It is just the beginning of the new politics of biology.” Rifkin is right about the new technopolitics, and his successes build on the commonalities of technoconservatism on the left and right, but the technoproggressives are building some odd coalitions as well.

Mapping Technopolitics

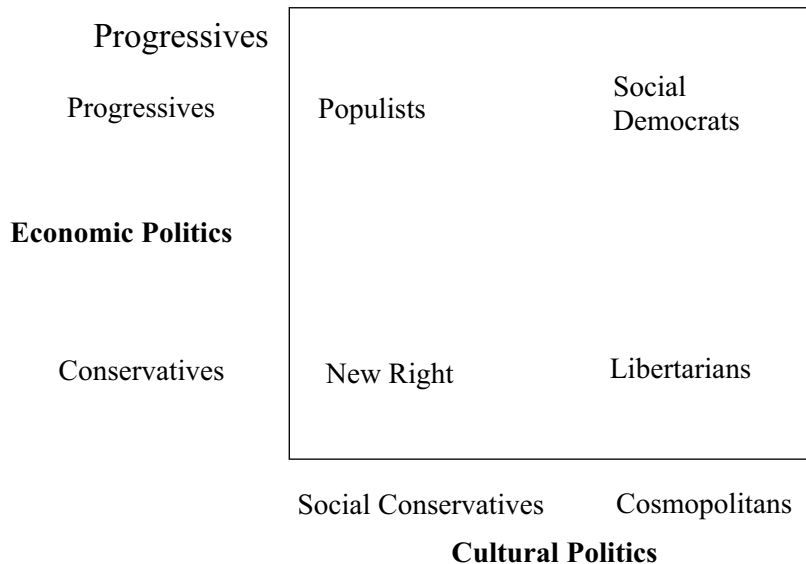
In the last century you could pretty accurately place someone politically by where he or she stood on two basic sets of political issues: economics and culture. Economic conservatives are not interested in reducing inequality and do not care for the welfare state, trade unions, taxation, business regulation, and economic redistribution. Economic progressives want people to be more equal and generally favor all these government measures. Cultural conservatives are generally nationalistic, ethnocentric, religiously conservative, and skeptical of women’s equality, sexual freedom, and civil liberties. Cultural progressives are generally secular and cosmopolitan and are supporters of civil liberties and minority and sexual rights. Figure 1 maps this political territory.

Where people and parties fall out on each of these two axes predicts their positions on other issues on that axis but not how they feel about issues on the other axis. The issues within each axis have some ideological and practical consistency that holds them together. People who are tolerant of changing gender roles and women’s rights are also more open to changing sexual mores such as gay rights, and opponents of social welfare are more likely to support lower taxes. However, knowing how people feel about women wearing pants does not tell you how they feel about right-to-work laws.

The terrain that these two axes create, shown in Figure 1, allows us to map out how parties and alliances in Western democracies form and shift. The economic interests of White working-class people have generally led them toward the upper half of the box – economic progressivism – whereas their educational backgrounds have made them more culturally conservative, leaning them toward the left hand side of the box. So, the natural politics of the native working class is the culturally conservative populism of Huey

Long or Pat Buchanan in the United States, the far right parties of Europe, or a Juan Peron of Argentina. Trade unions and social democratic parties, however, have generally been led by well-educated cosmopolitans who are trying to build alliances with the culturally liberal middle classes, pulling together working-class and middle-class support for the upper-right-hand “social democratic” corner. When working people stop believing their economic interests are represented by the social democrats, their distaste for immigration, gay rights, affirmative action, and abortion allows them to be pulled back toward the religious right in the lower-left-hand corner, anchored in the United States by the conservative churches that workers and the poor often attend.

Figure 1. The Political Terrain of the 20th Century



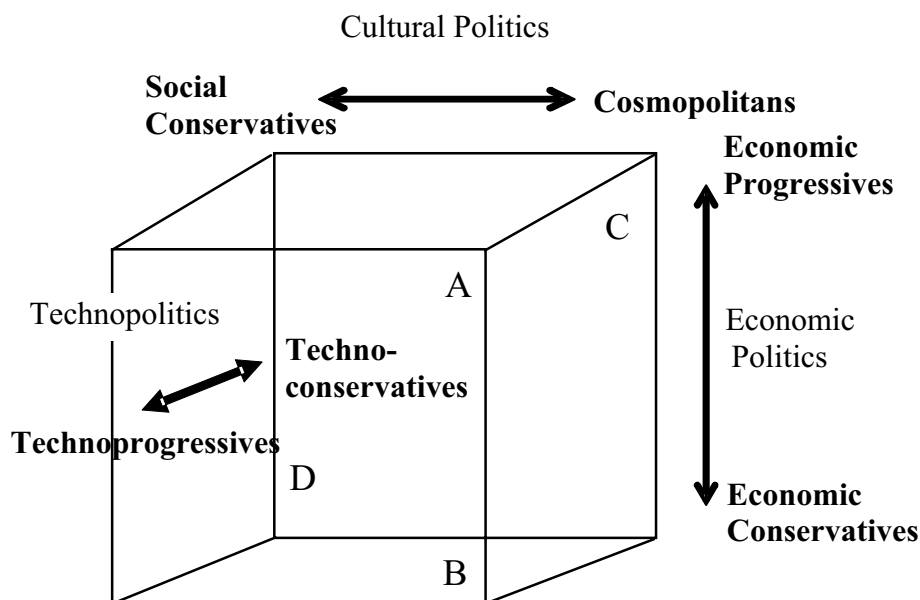
Gender is also tied to political leanings, with men tending toward cultural and economic conservatism. Economically, men tend to favor the cowboy individualism of the free market, and women are more supportive of the nurturing welfare state. Culturally, men are less supportive of women’s rights and sexual diversity, so men tend toward the New Right corner, and women toward the social democrats.

What is really interesting and new about 21st-century technopolitics, as illustrated in Figure 2, is that this third technopolitical dimension sticks straight out of the two-dimensional map. For instance, data from the 2002 EuroBarometer study reveal that support for biotechnology was not correlated with political opinions on redistribution or cultural conservatism

(Gaskell *et al.*, 2003). Instead, the strongest predictors of biotech views were “materialist values, optimism about technology, [and] confidence in actors involved in biotechnology and engagement” with biotechnological progress. People can be found in all political parties with the technoprogressive cluster of values as well as the technoconservative cluster. This gives rise to Rifkin’s odd left-right coalitions.

Figure 2. The Political Space and Ideological Positions of the 21st Century

(A = Technodemocrats; B = Technolibertarians; C = Left technoconservatives; D = Right technoconservatives)



As technopolitics crystallizes out of issues and political struggles from the treatment of the comatose and stem cells to GM food and cloning – and out of newer issues associated with nanotechnology and the other convergent fields – activists, parties, and ordinary citizens are nudged towards technopolitical consistency. However, there are already constituencies that lean toward one end or the other of the technopolitical spectrum.

A large 2000 National Science Foundation (NSF) survey of American attitudes toward science and technology asked whether the benefits of genetic engineering would outweigh its dangers (NSF, 2000). Four out of 10 Americans thought genetic engineering’s benefits would outweigh the costs, whereas 28% thought the benefits and costs would be balanced, and 32% believed costs will outweigh benefits. In another national survey of Americans in 2000, conducted by the Public Policy Research Institute at

Texas A&M University, 53% said that genetic engineering would “improve our way of life in the next 20 years,” and 30% said it would not (Priest, 2000). In these and other surveys, the majority of American respondents have been in favor of the public having access to *in vitro* fertilization, therapeutic genetic therapy, and genetic screening and abortion for disabled fetuses. Still only a minority are in favor of the “enhancement” technologies. About a quarter of Americans favor genetic enhancement and “designer babies,” and about 1 in 10 favors legal reproductive cloning.

On the other end, hard-core technoconservatives appear to make up about a quarter to a third of the population. About a third of Americans consistently oppose embryonic stem cell research, for instance. In a 2002 survey of Americans conducted by the Genetics and Public Policy Center [GPPC] at Johns Hopkins University, a quarter to a half of those people polled were opposed to prenatal selection and *in vitro* fertilization (GPPC, 2002). Thus, depending on the issue, 10% to a majority might end up with the technoproggressives, and 25% to a majority might end up with the technoconservatives.

The dynamics of the technopolitical split also vary around the world. Europeans, still spooked by Nazi eugenics and mad cow disease, and with strong Green lobbies, are more negative towards all reproductive technology and genetic engineering, although they have become more technoproggressive in recent years (Gaskell *et al.*, 2002). Asians, however, are generally more positive than Americans towards these technologies. In a 1993 survey, a majority of Indians and Thais supported genetic enhancement for physical characteristics and intelligence, and even for making people more ethical (Macer, 1994).

Generational change, and rising educational levels and secularism worldwide, appear to be on the technoproggressive’s side, as technoproggressivism is more common among the young, the college educated, and the secular. Technoconservatism is more common among older people, the less educated, the more religious, and women. In the 2000 NSF survey, men believed genetic engineering’s benefits would outweigh costs 11% more often than women did (45% to 34%), and college graduates were more optimistic than those with high school degrees by 11% (48% to 37%). A 2001 Gallup poll on animal cloning found that 56% of those with postgraduate education said animal cloning should be allowed, compared to only 19% of those with a high school degree (Carroll, 2001). Women were much more likely to oppose animal cloning than men (74% of women to 53% of men opposed).

Gathering of Forces

There are already technopolitical organizations gathering money, activists, and popular support into their four or five ideological camps. The technopolitics being staked out today in the United States include technoconservatism of the left and right, as well as “technolibertarians” and “technodemocrats.”

Right Technoconservatives

The backbone of contemporary technoconservatism is the religious right, fired by the idea of divine boundaries on human ambition and hostility to abortion, euthanasia and changing sexual mores and gender roles. Belief in embryonic rights and the need for sacred limits on biomedical hubris are points of unity for Catholic and Protestant conservatives opposing *in vitro* fertilization, cloning, and genetic engineering. Catholic teaching also forbids “artificial” interference in the human procreation or any conception outside of marital sex, ruling out *in vitro* fertilization, surrogate motherhood, cloning, and genetic manipulation of embryos.

One of the bases for religious technoconservatism in the United States is the San Francisco–based Center for Bioethics and Culture (CBC). Funded by influential Christian right leader Chuck Colson, and directed by Nigel Cameron, the CBC has quickly grown to have branches in Chicago, Los Angeles, St. Louis, Tennessee, Wisconsin, and Washington, D.C. In its first 2 years the CBC’s principal activity has been sponsoring conferences on the threat to religious values from “TechnoSapiens;” that is, the transhumanist movement and human enhancement technologies.

The religious right correctly sees transhumanism as the latest manifestation of secular humanism – the claim that human beings can use reason to control and improve their lives without faith or divine intervention. Human reproductive and enhancement technologies are seen as violating the prohibition on hubris. Conservative Catholic and Protestant spokespeople are quite clear that genetic engineering of human beings and other efforts at “unnatural” longevity and human enhancement are attempts to usurp God’s powers. In 2002 Pope John Paul II said, for instance, that modern man “claims for himself the creator’s right to interfere in the mystery of human life. He wishes to determine human life through genetic manipulation and establish the limit of death.”

Against the demand for humanist self-determination, the Christian right has carefully honed the terms “human” and “human dignity” as stand-ins for less politically salable theological concepts. For instance, the “Manifesto on Biotechnology and Human Dignity” (CBC, 2002), organized by Cameron and Colson and signed by leading lights of the American right, says

“biotechnology . . . poses in the sharpest form the question: What does it mean to be human? . . . [I]n biotechnology we meet the moral challenge of the twenty-first century.” Biotechnologies threaten human dignity, says the manifesto, because they will lead to eugenics, mass farming of embryos for body parts, and the commodification of life. Most centrally, however, biotechnologies threaten the idea that humans, and only humans, have “dignity” from conception to death:

[T]he uniqueness of human nature is at stake. Human dignity is indivisible: the aged, the sick, the very young, those with genetic diseases – every human being is possessed of an equal dignity; any threat to the dignity of one is a threat to us all... humans are distinct from all other species; at every stage of life and in every condition of dependency they are intrinsically valuable and deserving of full moral respect.¹

Up the coast in Seattle sits The Discovery Institute, another Christian right think-tank and the sponsor of technoconservative writer Wesley J. Smith. Smith was once a collaborator of left-wing consumer activist Ralph Nader and coauthor of a number of Nader’s books. Then a family friend with a terminal illness turned to the Hemlock Society for assistance in committing suicide. Smith was horrified at the supposed acceptance and complacency of bioethicists to America’s “culture of death,” and he started his odyssey to become a favorite writer and speaker for the Christian right.

Smith sees three interrelated threads in the culture of death: animal rights, personhood ethics, and transhumanism. In a 2002 article “The Transhumanists” in the Web version of *The National Review* (Smith, 2002), Smith warns: “Once we’ve been knocked off our pedestal of moral superiority [to animals] . . . society will accept measuring a biological ‘platform’s’ . . . moral worth by determining its level of consciousness. Thus, post-humans, humans, animals genetically engineered for intelligence, natural fauna, and even machines, would all be measured by the same standards.” For Smith, personhood-based citizenship will lead inevitably to a dictatorship of the posthumans. “Transhumanism envisions a stratified society presided over by genetically improved ‘post-human’ elites. Obviously, in such a society, ordinary humans wouldn’t be regarded as the equals of those produced through genetic manipulation.”

The religious right has eagerly embraced Smith’s conspiracy theory of animal rights activists, bioethicists, and transhumanists trying to enslave humanity. The CBC’s TechnoSapiens conference used a version of Smith’s “The Transhumanists” as its motivating document, and its themes found their

¹ www.thecbc.org/redesigned/manifesto.php

way into routine attacks on transhumanists in the Christian media (e.g., Hook, 2004).

In the Midwest, the base for Christian right bioethics is Chicago's Center for Bioethics and Human Dignity (CBHD), led by John Kilner, chair of ethics at Trinity International University. In 2003 Kilner and his CBHD colleague C. Ben Mitchell published "Remaking Humans: The New Utopians Versus a Truly Human Future" (Mitchell and Kilner, 2003). In addition to the charge that transhumanists hate humanity and are dangerous totalitarians in disguise, Kilner and Mitchell make clear another, specifically Christian, objection. "Much of what the Transhumanists long for is already available to Christians: eternal life and freedom from pain, suffering, and the burden of a frail body. As usual, however, the Transhumanists – like all of us in our failed attempts to save ourselves – trust in their own power rather than God's provision for a truly human future with him."¹ Human enhancement is a distraction from the Christian promises of salvation in the afterlife.

In Washington, D.C., a locus of religious conservative bioethics is the Ethics and Public Policy Center, dedicated to reinforcing "the bond between the Judeo-Christian moral tradition and the public debate over domestic and foreign policy issues."² EPPC's BAD (Biotechnology and American Democracy) Project is headed by Eric Cohen, who works for Kass's PCB as a Senior Research Analyst. BAD's journal, *The New Atlantis*, publishes conservative commentaries on the potential of artificial intelligence, nanotechnology, biotechnology, reproductive technology, and life extension to erode "human dignity."

An example of BAD's technology politics was the enthusiastic participation of *The New Atlantis* in the Foresight Institute's October 2004 conference on nanotechnology policy in Washington, D.C. The Foresight Institute, a center of thinking about nanorobotics and molecular manufacturing since the 1980s, was regrouping after the institute felt that its perspective on nanorobotics was not given sufficient priority under the National Nanotechnology Initiative. *The New Atlantis'* managing editor, Adam Keiper, had previously written about nanotechnology (Keiper, 2003), arguing that technoconservatives needed to join the "nanotechnology revolution" in order to steer nanotechnologists away from hubristic radical redesigns of the human body. The Foresight meeting provided a perfect opportunity for such engagement. Keiper had *The New Atlantis* cosponsor the meeting of dejected nanotechnology visionaries and established a blog on the conference. He was awarded a place on the agenda for an eagerly anticipated address on "The Importance of Nanotech Politics." Keiper exhorted the audience that if they wanted to stop "getting their asses whipped" in funding turf wars they had to improve their image by severing their ties with

¹ www.cbhd.org/resources/bioethics/mitchell_kilner_2003-08-29.htm

² www.eppc.org/

transhumanists. In his opinion, it would be disastrous for nanotechnology if its fortunes became tied to the looming struggle between transhumanists and technoconservatives that Keiper predicted would dominate Washington politics in the coming decades.

Left Technoconservatives

Left-wing technoconservatives come in two basic flavors: New Left and deep ecologist. What unites these two approaches is their rejection of the traditional left narrative that equates scientific and technological with social progress.

For the New Left, the progress narrative ended with the rise of the military-industrial complex and corporate capitalism, which they saw as systematically designing and marketing technologies that reinforce White, male American corporate and military power. In reaction, the New Left embraced anti-technological pastoralism, voluntary simplicity, and “appropriate technology.”

One of the most sophisticated of the left technoconservative theorists is writer Langdon Winner. In his classic *The Whale and the Reactor: A Search for Limits in an Age of High Technology* Winner makes a careful argument that “artifacts have politics” – that the power relations of society are designed into technologies. According to Winner, modern technology, selected for and designed under the thumb of corporations and the military, encourages centralization, hierarchy, and the concentration of power. Some technologies are more likely to reinforce hierarchy and domination than others, and the goal of a democratic technology politics is to identify and encourage empowering technologies.

When it comes to nanotechnology and human enhancement technologies, however, Winner sees few opportunities for citizen empowerment, and much more for social control and hierarchy. In April 2003, Winner testified before the House Science Committee, along with transhumanist and computer scientist Ray Kurzweil and nanotechnologist Chris Peterson, on the advisability of the National Nanotechnology Initiative. That day, Winner became the first person to warn the U.S. Congress of the threat from posthumanity. In response to a question about when there would be greater-than-human intelligence, Winner sternly intoned “I hope never. One of the concerns about nanotechnology and science and engineering on this scale is that it is plowing onward to create a successor species to the human being. I think when word gets out about this to the general public they will be profoundly distressed. And why should public money be spent to create an eventual race of posthumans?” To which transhumanist Ray Kurzweil responded, “I would define the human species as that species that inherently

seeks to extend our own horizons. We didn't stay on the ground, we didn't stay on the planet, we're not staying with the limitations of our biology."

The Oakland-based Center for Genetics and Society, a leftist group opposed to "technoeugenics," argues that human enhancement technologies will lead to a genetic caste system. The CGS helped organize the September 2001 conference that launched bioethicists George Annas (2000, 2001) and Lori Andrews's campaign for an international treaty to ban cloning and inheritable genetic modification. The CGS staff lobby the UN in support of the ban and write op-eds for the media attacking transhumanists and advocates of germinal choice.

Some feminists are also now joining forces with the religious and environmental bioLuddites to oppose reproductive technology, cloning, and germinal choice. Feminist authors Naomi Klein and Judith Levine, women's health activist Judy Norsigian, and other prominent feminists have joined the Rifkin-organized progressive bloc in opposition to the use of embryos in medical research, even though it meant joining forces with the right-to-life movement. Norsigian says that women cannot ever give informed consent to genetic therapies because those risks cannot be fully known. Marcy Darnovsky of the Center for Genetics and Society notes the ironic difficulty of feminists arguing for restrictions on reproductive rights: "It will take focused effort to make it clear that altering the genes of one's children is not among the reproductive rights for which so many women and women's organizations have struggled" (Darnovsky, 2000).

Deep ecologists, in contrast, reject the progress narrative in a more fundamental way than the New Leftists. Deep ecology was first articulated by the philosophers Arne Naess and George Sessions in the 1970s (Naess, 1989; Sessions, 1995) and spread with the growth of the radical environmentalist groups like Earth First! The core of the Deep Ecology platform is the assertion that "The well-being and flourishing of human and nonhuman life on Earth have value in themselves. These values are independent of the usefulness of the nonhuman world for human purposes" (Naess and Sessions, 1993). Consequently, "Humans have no right to reduce this richness and diversity except to satisfy vital needs." In order to reduce humanity's excessive interference with the nonhuman world there must be "a substantial decrease of the human population."

The influence of deep ecology is increasingly pervasive throughout the liberal left and is found now in the writing of some of the most prominent leaders of the anti-human enhancement groups. One such deep ecologist is Andrew Kimbrell, the former policy director for Jeremy Rifkin, who went off to found the Washington lobby the International Center for Technology Assessment. Most of Kimbrell's energies have been devoted to attacking genetically engineered crops, but he has taken time out to write *The Human*

Body Shop (1993), an attack on the alleged commodification of organs and tissues that he sees as “desacralizing” the human body.

The radical environmental group Rural Advancement Foundation International changed its name in 2001 to the Action Group on Erosion Technology and Concentration (ETC), with a new mandate of fighting nanotechnology and genetic engineering. They have called for a global moratorium on nanotechnology research (2003a) and human enhancement technologies (2003b) on the basis of safety and equity concerns, as well as on the “precautionary principle.” The “precautionary principle” as used by ETC and the environmental movement is the assertion that no technology should be used until its risks are fully assessed. Because the long-term risks of technologies can never be fully assessed, the precautionary principle becomes a rationale for pervasive technoconservatism.

Mainstream environmental groups are also beginning to line up with the opponents of human enhancement technologies as they adopt a consistent technoconservatism. Carl Pope, the director of the Sierra Club, used his address to the 2001 meeting of the National Abortion and Reproductive Rights Action League to urge the gathered pro-choice activists to support restrictions on parents’ rights to germinal choice. The ecological thinktank Worldwatch Institute devoted a 2002 issue of its magazine to a dozen articles opposing cloning and human genetic engineering, written by McKibben, Fukuyama and prominent feminist and environmental writers. Testifying before the U.S. Congress in 2002 in support of a ban on the use of cloning in medical research Brent Blackwelder, president of the environmental group Friends of the Earth, said “The push to redesign human beings, animals and plants to meet the commercial goals of a limited number of individuals is fundamentally at odds with the principle of respect for nature” (Mooney, 2002). In 2003 Blackwelder joined the technoconservative Institute on Biotechnology and a Human Future as a senior Fellow.

Environmental writer Bill McKibben’s 2003 book *Enough* is an example of the merger of both New Left and deep ecological technoconservatism. As the title says, McKibben is satisfied with four score years of life, with the current technologies of modern medicine, the capacities of his brain, and the world’s level of economic development, and he thinks the rest of us should be also. He calls for the world to emulate the example of the Amish and Tokugawa Japan and turn our back on further progress in order to contemplate and appreciate the virtues of the things we have. We all need to accept, he says, “that as a species we are good enough. Not perfect, but not in need of drastic redesign. We need to accept certain imperfections in ourselves in return for certain satisfactions. . . . We don’t need to go post-human, to fast-forward our evolution, to change ourselves in the thoroughgoing ways that the apostles of these new technologies demand.”

A more extreme example of left technoconservatism is found in the manifesto of Ted Kaczynski, the Unabomber. Between 1978 and 1996, Kaczynski mailed 16 bombs to targets in academia, killing three and maiming 23. He used his bombings to blackmail the media into publishing his 35,000-word manifesto in which he specifically addresses the need to dismantle medicine along with all other parts of industrial civilization, because of the threat from human genetic manipulation. “[M]an in the future will no longer be a creation of nature, or of chance, or of God (depending on your religious or philosophical opinions), but a manufactured product. . . . The only code of ethics that would truly protect freedom would be one that prohibited ANY genetic engineering of human beings” (Kaczynski, 1996). For Kaczynski, the principal argument for destroying technological civilization was to stop genetic enhancement: “You can’t get rid of the ‘bad’ parts of technology and retain only the ‘good’ parts.”

Technolibertarians

Techno-utopianism, and even bio-futurism, was a solidly left-wing phenomenon from French revolutionary Marie Condorcet (1794) and the British anarchist philosopher William Godwin’s (1842) speculations about conquering death, to the 19th-century utopian communalists like Fourier and Saint Simon, to the 20th-century Marxists J. B. S. Haldane (1923) and J. D. Bernal’s (1929) speculations about genetic engineering and cyborg implants. By the 1970s, however, the left had ceded techno-utopianism to anarcho-capitalists and libertarians.

As a consequence, when a heady mix of psychedelicists, science fiction fans, space enthusiasts, and life extensionists came together in Southern California in the 1980s, they gravitated toward the utopian anarcho-capitalism of writers such as David Friedman (1989), as documented in Ed Regis’s (1990) classic social history *Great Mambo Chicken and the Transhuman Condition*. It was this milieu that first nurtured the idea of nanotechnology, for instance. Palo Alto Eric Drexler, the founder of the Foresight Institute and author of the ur-text of nanotechnology, *The Engines of Creation: The Coming Era of Nanotechnology* (1986), was also a cryonicist, and he speculated in *Engines* on how nanorobots would enable the repair of ice-crystal-damaged cryonauts.

Out of this heady mix was born the libertarian transhumanist group the “extropians” under the leadership of the British philosophy graduate student Max More. More’s Extropy Institute developed a core set of extropian principles, such as “boundless expansion” and “dynamic optimism,” as well as intelligence augmentation, immortalism, and uploading minds into computers. The extropians attracted a large following on the new, growing

Internet, and their conferences drew many luminaries of the hip fringe of computer science, nanotechnology, science fiction, and the arts.

By the late 1990s, however, the extropian subculture had begun to lose its political homogeneity, and with the collapse of the dot-com prosperity and bubble economy in Silicon Valley, the Hobbesian free market lost its appeal. Max More renounced libertarianism, and European non-libertarian transhumanists organized the World Transhumanist Association to gather those enthusiastic about the right to use human enhancement technologies but alienated by distinctively American free-market ideology.

However, the strong relationship between libertarianism and the growing transhumanist milieu continues. For instance, Ron Bailey, the science writer for the libertarian journal *Reason* and author of *Liberation Biology: A Moral and Scientific Defense of the Biotech Revolution* (2005), is one of the most prolific transhumanist writers. The libertarian Web-zine *TechCentral Station* publishes articles by numerous transhumanist-inclined writers, such as the anti-regulatory legal scholar Glenn Harlan Reynolds. Even as the extropians try to escape from the libertarian corner of political space, transhumanist ideas are now generally taken for granted by libertarians.

From the libertarians, technoprogressivism also appears to be seeping into traditional conservatism. For instance, in January 2005 William Safire announced he was retiring from conservative punditry to devote his twilight years to advocacy for neuro-enhancement medicine at the brain science-focused Dana Foundation. “Medical and genetic science will surely stretch our life spans. Neuroscience will just as certainly make possible the mental agility of the aging. Nobody should fail to capitalize on the physical and mental gifts to come” (Safire, 2005).

Technodemocrats

Although the technopolitical debate often seems polarized between libertarian technoprogressives and various technoconservatives, liberal and left-wing technoprogressives or “technodemocrats” are now emerging in many quarters. Technodemocrats defend the idea the human condition can be improved with technology but insist that regulation ensure the safety of the technologies and that they be made universally accessible.

In bioethics, for instance, egalitarian philosophers such as John Harris (1992), Peter Singer (2002), Glenn McGee (2003), Ronald Dworkin (2000), Julian Savulescu (2001), and Allen Buchanan, Dan W. Brock, Norman Daniels, and Daniel Wikler (2000) are openly arguing against natural law-based bans on enhancement and procreative liberty, and for universal access policies that ameliorate the potential inequities of procreative liberty and enhancement medicine. Advocates of drug policy reform, such as the Center for Cognitive Liberty and Ethics, are struggling to frame transhumanist

policies that would protect individual freedom to use brain-enhancing technologies while protecting brain privacy against surveillance and control technologies. Pro-technology disability activists, such as the late Christopher Reeve, have begun to resist the disability movement orthodoxy and campaign for cures for their paralysis, blindness, and deafness. A dissident school of pro-technology “cyborgologists” in the humanities, inspired by Donna Haraway’s seminal “Cyborg Manifesto” (1984), are problematizing the romantic dualisms of left technoconservatism and are offering Haraway’s idea of the transgressive cyborg as an empowering identity. Gay and transgender activists are rejecting the idea that biology must dictate gender, reproduction, and sexual preference and are arguing for their right to use reproductive and body-shaping technologies.

Some advocates of environmentalism are also setting aside knee-jerk opposition to new technologies and exploring ways that nanotechnology (Mulhall, 2002) and genetic engineering (Center for Global Food Issues, 2004) might benefit humanity. The AgBioWorld Foundation at the Tuskegee Institute has mobilized a global network of biotech scientists to defend genetically modified crops on humanitarian and ecological grounds. For instance, crops can be genetically engineered to require less agricultural land, pesticides, and fertilizer and to provide more essential nutrients. In its 2003 review of nanotech and AI titled “Future Technologies, Today’s Choices” (Arnall, 2003), Greenpeace says there is no need for bans on nanotech, or even for new regulatory structures, and that “new technologies . . . are also an integral part of our solutions to environmental problems, including renewable energy technologies such as solar, wind and wave power, and waste treatment technologies such as mechanical-biological treatment.”

Although various kinds of political progressives are reasserting a positive approach to technology, the strongly libertarian transhumanist movement is developing a left-of-center wing. The World Transhumanist Association was founded in 1988 by the Swedish philosopher Nick Bostrom and British philosopher David Pearce. It represented European fellow travelers of the extropians, whose politics ranged from Green and social democrat to Euro-Liberal. The WTA now has 3000 members and 25 chapters in 100 countries around the world. Membership surveys have shown that although the extropians are more than 50% libertarian or anarchist, the membership of the World Transhumanist Association is only about 25% libertarian and about 35% left-leaning and 45% moderate or apolitical.

The Politics to Come

Compared to the well-organized, well-funded, and politically connected technoconservatives, the technoprogressives and transhumanists are as yet a rag-tag and scruffy subculture, with little political influence or organizational

heft. However, they do have the enormous advantage that it is easier to sell technological progress, health, beauty, youth, and life than it is to sell simplicity, sickness, aging, and death. Perhaps it is in recognition of their attractiveness that technoconservatives like Francis Fukuyama suggest that technoprogressive ideas are so dangerous. Certainly, if the technoconservatives are successful in delaying or banning human enhancement technologies, it appears likely that there will be a rapid growth in pro-technology coalitions and campaigns, combining libertarians and social democrats, that would be parallel to the left-right technoconservative coalitions.

Some of the areas of conflict likely to force a crystallization and polarization along the technopolitical axes include

- Demands of the growing senior population for anti-aging research and therapies, in the context of increasing conflict over generational equity and the tax burdens of retiree pensions and health care
- Food and Drug Administration approval of gene therapies, psychopharmaceuticals, and nanocybernetics for “enhancement” purposes, such as improving memory, mood, senses, life extension, and athletic performance
- Perfection of neonatal intensive care and artificial uteruses that eroded the current political compromise on fetal rights, predicated on “viability” as a moral dividing line
- The intellectual enhancement of animals, forcing a clarification of the citizenship status of intelligent non-humans
- The regulation of the potentially apocalyptic risks of nanomaterials, nanomachines, genetically engineered organisms, and artificial intelligence
- Parental rights to use germinal-choice technologies to choose enhancements and aesthetic characteristics of their children
- Proliferation of wearable, implanted, and ubiquitous computing, progress with direct brain–computer interfaces, and widespread use of “cyborg” technologies to assist disabled people.

These possibilities will probably generate as much support for technoprogressivism as they do technoconservative backlash, but if democratic polities are able to mediate these technopolitical debates in a way that ensures that new technologies are adopted, but are made safe and widely available, we may end up with unimaginably improved lives and a safer, healthier, more prosperous world.

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