Beyond Therapy: Biotechnology and the Pursuit of Happiness

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Chapter Six

"Beyond Therapy": General Reflections

The four preceding chapters have examined how several prominent and (generally) salutary human pursuits may be aided or altered using a wide variety of biotechnologies that lend themselves to purposes "beyond therapy." In each case, we have discussed the character of the end, considered the novel means, and explored some possible implications, ethical and social. In surveying the pertinent technologies, we have taken a somewhat long-range view, looking at humanly significant technical possibilities that may soon-or not so soon-be available for general use, yet at the same time trying to separate fact from science fiction. In offering ethical analysis, we have tried to identify key issues pertinent to the case under discussion, asking questions about both ends and means, and looking always for the special significance of pursuing the old human ends by these new technological means. In this concluding chapter, we step back from the particular "case studies" to pull together some common threads and to offer some generalizations and conclusions to which the overall inquiry has led.

I. The Big Picture

The first generalization concerns the wide array of biotechnologies that are, or may conceivably be, useful in pursuing goals beyond therapy. Although not originally developed for such uses, the available and possible techniques we have considered-techniques for screening genes and testing embryos, choosing sex of children, modifying the behavior of children, augmenting muscle size and strength, enhancing athletic performance, slowing senescence, blunting painful memories, and brightening mood-do indeed promise us new powers that can serve age-old human desires. True, in some cases, the likelihood that the new technologies will be successfully applied to those purposes seems, at least for the foreseeable future, far-fetched: genetically engineered "designer babies" are not in the offing. In other cases, as with psychotropic drugs affecting memory, mood, and behavior, some uses beyond therapy are already with us. In still other cases, such as research aimed at retarding senescence, only time will tell what sort of powers may become available for increasing the maximum human lifespan, and by how much. Yet the array of biotechnologies potentially useful in these ventures should not be underestimated, especially

when we consider how little we yet know about the human body and mind and how much our knowledge and technique will surely grow in the coming years. Once we acquire technical tools and the potential for their use based on fuller knowledge, we will likely be able to intervene much more knowingly, competently, and comprehensively.

Second, despite the heterogeneity of the techniques, the variety of purposes they may serve, and the different issues raised by pursuing these differing purposes by diverse means, we believe that all of these matters deserve to be considered together, just as we have done in this report. Notwithstanding the multiplicity of ends, means, and consequences that we have considered, this report offers less a list of many things to think about than a picture of *one big thing* to think about: the dawning age of biotechnology and the greatly augmented power it is providing us, not only for gaining better health but also for improving our natural capacities and pursuing our own happiness. The ambitious project for the mastery of nature, the project first envisioned by Francis Bacon and René Descartes in the early seventeenth century, is finally yielding its promised abilities to relieve man's estate-and then some. Though our society will, as a matter of public practice, be required to deal with each of these techniques and possibilities as they arrive, piecemeal and independently of one another, we should, as a matter of public understanding, try to see what they might all add up to, taken together. The Council's experience of considering these disparate subjects under this one big idea-"beyond therapy, for the pursuit of happiness"-and our discovery of overlapping ethical implications would seem to vindicate the starting assumption that led us to undertake this project in the first place: *biotechnology beyond therapy deserves to be examined not in fragments, but as a whole*.

Yet, third, the "whole" that offers us the most revealing insights into this subject is not itself technological. For the age of biotechnology is not so much about technology itself as it is about *human beings empowered by biotechnology*. Thus, to understand the human and social meaning of the new age, we must begin not from our tools and products but from where human beings begin, namely, with the very human desires that we have here identified in order to give shape to this report: desires for better children, superior performance, younger and more beautiful bodies, abler minds, happier souls. Looking at the big picture through this lens keeps one crucial fact always in focus: how people exploit the relatively unlimited uses of biotechnical power will be decisively determined by the perhaps still more unlimited desires of human beings, especially-and this is a vital point-as these desires themselves become transformed and inflated by the new technological powers they are all the while acquiring. Our desires to alter our consciousness or preserve our youthful strength, perhaps but modest to begin with, could swell considerably if and when we become more technically able to satisfy them. And as they grow, what would have been last year's satisfaction will only fuel this year's greater hunger for more.

Fourth, as the ubiquitous human desires are shaped and colored not only reactively by the tools that might serve them but also directly by surrounding cultural and social ideas and practices, the "one big picture" will be colored by the (albeit changeable) ruling opinions, mores, and institutions of the society in which we live and into which the technologies are being introduced. For example, the desire for performance-enhancing drugs will be affected by the social climate regarding competition; the eagerness to gain an edge for one's children will be affected by whether many other parents are doing so; and the willingness to use or forego medication for various sorts of psychic distress will be affected by the poverty or richness of private life, and the

degree to which strong family or community support is (or is not) available for coping with that distress directly. Moreover, in a free and pluralistic society, we may expect a very diverse popular reaction to the invitation of the new technologies, ranging from exuberant enthusiasm to outright rejection, and the overall public response cannot be judged in advance. Yet because the choices made by some can, in their consequences, alter the shared life lived by all, it behooves all of us to consider the meaning of these developments, whether we are privately tempted by them or not. It is in part to contribute to a more thoughtful public appraisal of these possibilities that we have undertaken this report.

By beginning with the common human desires, we have sought to place what may be new and strange into a context provided by what is old and familiar. We recognize the temptation to add biotechnological means to our "tool kits" for pursuing happiness and self-improvement, and it is not difficult to appreciate, at least at first glance, the attractiveness of the goods being contemplated. We want to give our children the best start in life and every chance to succeed. We want to perform at our best, and better than we did before. We want to remain youthful and vigorous for as long as we can. We want to face life optimistically and with proper self-regard. And since we now avail ourselves of all sorts of means toward these ends, we will certainly not want to neglect the added advantages that biotechnologies may offer us, today and tomorrow.

At the same time, however, we have identified, in each of the previous four chapters, several reasonable sources of concern, ethical and social. And, in each case, we have called attention to some of the possible hidden costs of success, achieved by employing these means. The chapter on better children raised questions about the meaning and limits of parental control and about the character and rearing of children. The chapter on superior performance raised questions about the meaning of excellence and the "humanity" of human activity. The chapter on ageless bodies raised questions about the significance of the "natural" life cycle and lifespan, and their connection to the dynamic character of society and the prospects for its invigorating renewal. And the chapter on happy souls raised questions about the connections between experienced mood or self-esteem and the deeds or experiences that ordinarily are their foundation, as well as the connections between remembering truly and personal identity. Looking again at these subjects, now seen as part of "one big picture," we think it useful here to collect and organize the various issues into a semi-complete account, so that the reader may see in outline the most important and likely sources of concern.

Before proceeding, we wish to reiterate our intention in this inquiry, so as to avoid misunderstanding. In offering our synopsis of concerns, we are not making predictions; we are merely pointing to possible hazards, hazards that become visible only when one looks at "the big picture." More important, we are not condemning either biotechnological power or the pursuit of happiness, excellence, or self-perfection. Far from it. We eagerly embrace biotechnologies as aids for preventing or correcting bodily or mental ills and for restoring health and fitness. We even more eagerly embrace the pursuits of happiness, excellence, and self-improvement, for ourselves, our children, and our society. Desires for these goals are the source of much that is good in human life. Yet, as has long been known, these desires can be excessive. Worse, they can be badly educated regarding the nature of their object, sometimes with tragic result: we get what we ask for only to discover that it is very far from what we really wanted. Finally, they can be pursued in harmful ways and with improper means, often at the price of deforming the very

goals being sought. To guard against such outcomes, we need to be alert in advance to the more likely risks and the more serious concerns. We begin with those that are more obvious and familiar.

II. Familiar Sources of Concern

The first concerns commonly expressed regarding any uses of biotechnology beyond therapy reflect, not surprisingly, the dominant values of modern America: health and safety, fairness and equality, and freedom. The following thumbnail sketches of the issues should suffice to open the questions-though of course not to settle them.

A. Health: Issues of Safety and Bodily Harm

In our health-conscious culture, the first reason people worry about any new biotechnical intervention, whatever its intended purpose, is safety. This will surely be true regarding "elective" uses of biotechnology that aim beyond therapy. Athletes who take steroids to boost their strength may later suffer premature heart disease. College students who snort Ritalin to increase their concentration may become addicted. Melancholics taking mood-brighteners to change their outlook may experience impotence or apathy. To generalize: no biological agent used for purposes of self-perfection or self-satisfaction is likely to be entirely safe. This is good medical common sense: anything powerful enough to enhance system A is likely to be powerful enough to harm system B (or even system A itself), the body being a highly complex yet integrated whole in which one intervenes partially only at one's peril. And it surely makes sense, ethically speaking, that one should not risk basic health pursuing a condition of "better than well."

Yet some of the interventions that might aim beyond therapy-for example, genetic enhancement of muscle strength, retardation of aging, or pharmacologic blunting of horrible memories or increasing self-esteem-may, indirectly, lead also to improvements in general health. More important, many good things in life are filled with risks, and free people-even if properly informed about the magnitude of those risks-may choose to run them if they care enough about what they might gain thereby. If the interventions are shown to be *highly* dangerous, many people will (later if not sooner) avoid them, and the Food and Drug Administration or tort liability will constrain many a legitimate would-be producer. But if, on the other hand, the interventions work well and are indeed highly desired, people may freely accept, in trade-off, even considerable risk of later bodily harm for the sake of significant current benefits. Besides, the bigger ethical issues in this area have little to do with safety; the most basic questions concern not the hazards associated with the techniques but the benefits and harms of using the perfected powers, assuming that they may be safely used.

B. Unfairness

An obvious objection to the use of enhancement technologies, especially by participants in competitive activities, is that they give those who use them an unfair advantage: blood doping or steroids in athletes, stimulants in students taking the SATs, and so on. This issue, briefly

discussed in Chapter Three, has been well aired by the International Olympic Committee and the many other athletic organizations who continue to try to formulate rules that can be enforced, even as the athletes and their pharmacists continue to devise ways to violate those rules and escape detection. Yet as we saw, the fairness question can be turned on its head, and some people see in biotechnical intervention a way to compensate for the "unfairness" of *natural* inequalities-say, in size, strength, drive, or native talent. Still, even if everyone had equal access to genetic improvement of muscle strength or mind-enhancing drugs, or even if these gifts of technology would be used only to rectify the inequalities produced by the unequal gifts of nature, an additional disquiet would still perhaps remain: The disquiet of using such new powers in the first place or at all, even were they fairly distributed. Besides, as we have emphasized, not all activities of life are competitive, and the uses of biotechnologies for purposes beyond therapy are more worrisome on other grounds.

C. Equality of Access

A related question concerns inequality of access to the benefits of biotechnology, a matter of great interest to many Members of this Council, though little discussed in the previous chapters. The issue of distributive justice is more important than the issue of unfairness in competitive activities, especially if there are systemic disparities between those who will and those who won't have access to the powers of biotechnical "improvement." Should these capabilities arrive, we may face severe aggravations of existing "unfairnesses" in the "game of life," especially if people who need certain agents to treat serious illness cannot get them while other people can enjoy them for less urgent or even dubious purposes. If, as is now often the case with expensive medical care, only the wealthy and privileged will be able to gain easy access to costly enhancing technologies, we might expect to see an ever-widening gap between "the best and the brightest" and the rest. The emergence of a biotechnologically improved "aristocracy"-augmenting the already cognitively stratified structure of American society-is indeed a worrisome possibility, and there is nothing in our current way of doing business that works against it. Indeed, unless something new intervenes, it would seem to be a natural outcome of mixing these elements of American society: our existing inequalities in wealth and status, the continued use of free markets to develop and obtain the new technologies, and our libertarian attitudes favoring unrestricted personal freedom for all choices in private life.

Yet the situation regarding rich and poor is more complex, especially if one considers actual benefits rather than equality or relative well-being. The advent of new technologies often brings great benefits to the less well off, if not at first, then after they come to be mass-produced and mass-marketed and the prices come down. (Consider, over the past half-century, the spread in the United States of refrigerators and radios, automobiles and washing machines, televisions and VCRs, cell phones and personal computers, and, in the domain of medicine, antibiotics, vaccines, and many expensive diagnostic and therapeutic procedures.) To be sure, the gap between the richest and the poorest may increase, but in absolute terms the poor may benefit more, when compared not to the rich but to where they were before. By many measures, the average American today enjoys a healthier, longer, safer, and more commodious life than did many a duke or prince but a few centuries back.

Nevertheless, worries about possible future bio-enhanced stratification should not be ignored. And they become more poignant in the present, to the extent that one regards spending money and energy on goals beyond therapy as a misallocation of limited resources in a world in which the basic health needs of millions go unaddressed. Yet although the setting of priorities for

research and development is an important matter for public policy, it is not unique to the domain of "beyond therapy." It cannot be addressed, much less solved, in this area alone. Moreover, and yet again, the inequality of access does not remove our uneasiness over the thing itself. It is, to say the least, paradoxical, in discussions of the dehumanizing dangers of, say, future eugenic selection of better children, that people vigorously complain that the poor will be denied equal access to the danger: "The food is contaminated, but why are my portions so small?" Huxley's *Brave New World* runs on a deplorable and impermeably rigid class system, but few people would want to live in that world even if offered the chance to enjoy it as an alpha (the privileged caste). Even an elite can be dehumanized, can dehumanize itself. The questions about access and distributive justice are, no doubt, socially important. Yet the more fundamental ethical questions about taking biotechnology "beyond therapy" concern not equality of access, but the goodness or badness of the things being offered and the wisdom of pursuing our purposes by such means.

D. Liberty: Issues of Freedom and Coercion, Overt and Subtle

A concern for threats to freedom comes to the fore whenever biotechnical powers are exercised by some people upon other people. We encountered it in our discussion of "better children" (the choice of a child's sex or the drug-mediated alteration of his or her behavior; Chapter Two), as well as in the coerced use of anabolic steroids by the East German Olympic swimmers (Chapter Three). This problem will of course be worse in tyrannical regimes. But there are always dangers of despotism within families, as many parents already work their wills on their children with insufficient regard to a child's independence or long-term needs, jeopardizing even the "freedom to be a child." To the extent that even partial control over genotype-say, to take a relatively innocent example, musician parents selecting a child with genes for perfect pitch-would add to existing social instruments of parental control and its risks of despotic rule, this matter will need to be attended to.

Leaving aside the special case of children, the risk of overt coercion does not loom large in a free society. On the contrary, many enthusiasts for using technology for personal enhancement are libertarian in outlook; they see here mainly the enlargement of human powers and possibilities and the multiplication of options for private choice, both of which they see as steps to greater human freedom. They look forward to growing opportunities for more people to earn more, learn more, see more, and do more, and to choose-perhaps several times in one lifetime-interesting new careers or avocations. And they look with suspicion at critics who they fear might want to limit their private freedom to develop and use new technologies for personal advancement or, indeed, for any purpose whatsoever. The coercion they fear comes not from advances in technology but from the state, acting to deny them their right to pursue happiness or self-improvement by the means they privately choose.

Yet no one can deny that people living in free societies, and even their most empowered citizens, already experience more subtle impingements on freedom and choice, operating, for example, through peer pressure. What is freely permitted and widely used may, under certain circumstances, become practically mandatory. If most children are receiving memory enhancement or stimulant drugs, failure to provide them for your child might be seen as a form of child neglect. If all the defensive linemen are on steroids, you risk mayhem if you go against them chemically pure. And, a point subtler still, some critics complain that, as with cosmetic surgery, Botox, and breast implants, many of the enhancement technologies of the future will very likely be used in slavish adherence to certain socially defined and merely fashionable notions of "excellence" or improvement, very likely shallow and conformist. If these fears are

realized, such exercises of individual freedom, suitably multiplied, might compromise the freedom to be an individual.

This special kind of reduction of freedom-let's call it the problem of conformity or homogenization-is of more than individual concern. In an era of mass culture, itself the by-product of previous advances in communication, manufacture, and marketing techniques, the exercise of uncoerced private choices may produce untoward consequences for society as a whole. Trends in popular culture lead some critics to worry that the self-selected nontherapeutic uses of the new biotechnical powers, should they become widespread, will be put in the service of the most common human desires, moving us toward still greater homogenization of human society-perhaps raising the floor but also lowering the ceiling of human possibility, and reducing the likelihood of genuine freedom, individuality, and greatness. (This is an extension of Tocqueville's concern about the leveling effects of democracy, now possibly augmented by the technological power to make those effects ingrained and perhaps irreversible.)

Indeed, such constriction of individual possibility could be the most important society-wide concern, if we consider the aggregated effects of the likely individual choices for biotechnical "self-improvement," each of which might be defended or at least not objected to on a case-by-case basis (the problem of what the economists call "negative externalities"). For example, it might be difficult to object to a personal choice for a life-extending technology that would extend the user's life by three healthy decades or a mood-brightened way of life that would make the individual more cheerful and untroubled by the world around him. Yet as we have suggested more than once, the aggregated social effects of such choices, widely made, could lead to a Tragedy of the Commons, where benefits gained by individuals are outweighed by the harms that return to them from the social costs of allowing everyone to share the goodies. And, as Huxley strongly suggests in *Brave New World*, when biotechnical powers are readily available to satisfy short-term desires or to produce easy contentment, the character of human striving changes profoundly and the desire for human excellence fades. Should this come to pass, the best thing to be hoped for might be the preservation of pockets of difference (as on the remote islands in *Brave New World*) where the desire for high achievement has not been entirely submerged or eroded.

III. Essential Sources of Concern

Our familiar worries about issues of safety, equality, and freedom, albeit very important, do not exhaust the sources of reasonable concern. When richly considered, they invite us to think about the deeper purposes for the sake of which we want to live safely, justly, and freely. And they enable us to recognize that even the safe, equally available, non-coerced and non-faddish uses of biomedical technologies to pursue happiness or self-improvement raise ethical and social questions, questions more directly connected with the essence of the activity itself: the use of technological means to intervene into the human body and mind, not to ameliorate their diseases but to change and improve their normal workings. Why, if at all, are we bothered by the voluntary *self*-administration of agents that would change our bodies or alter our minds? What is disquieting about our attempts to improve upon human nature, or even our own particular instance of it?

The subject being relatively novel, it is difficult to put this worry into words. We are in an area where initial revulsions are hard to translate into sound moral arguments. Many people are probably repelled by the idea of drugs that erase memories or that change personalities, or of

interventions that enable seventy-year-olds to bear children or play professional sports, or, to engage in some wilder imaginings, of mechanical implants that would enable men to nurse infants or computer-brain hookups that would enable us to download the *Oxford English Dictionary*. But can our disquiet at such prospects withstand rational, anthropological, or ethical scrutiny? Taken one person at a time, with a properly prepared set of conditions and qualifications, it will be hard to say what is wrong with any biotechnical intervention that could improve our performances, give us (more) ageless bodies, or make it possible for us to have happier souls. Indeed, in many cases, we ought to be thankful for or pleased with the improvements our biotechnical ingenuity is making possible.

If there are essential reasons to be concerned about these activities and where they may lead us, we sense that it may have something to do with challenges to what is naturally human, what is humanly dignified, or to attitudes that show proper respect for what is naturally and dignifiedly human. As it happens, at least four such considerations have already been treated in one place or another in the previous chapters: appreciation of and respect for "the naturally given," threatened by hubris; the dignity of human activity, threatened by "unnatural" means; the preservation of identity, threatened by efforts at self-transformation; and full human flourishing, threatened by spurious or shallow substitutes.

A. Hubris or Humility: Respect for "the Given"

A common, man-on-the-street reaction to the prospects of biotechnological engineering beyond therapy is the complaint of "man playing God." If properly unpacked, this worry is in fact shared by people holding various theological beliefs and by people holding none at all. Sometimes the charge means the sheer prideful presumption of trying to alter what God has ordained or nature has produced, or what should, for whatever reason, not be fiddled with. Sometimes the charge means not so much usurping God-like powers, but doing so in the absence of God-like knowledge: the mere playing at being God, the hubris of acting with insufficient wisdom.

Over the past few decades, environmentalists, forcefully making the case for respecting Mother Nature, have urged upon us a "precautionary principle" regarding all our interventions into the natural world. Go slowly, they say, you can ruin everything. The point is certainly well taken in the present context. The human body and mind, highly complex and delicately balanced as a result of eons of gradual and exacting evolution, are almost certainly at risk from any ill-considered attempt at "improvement." There is not only the matter of unintended consequences, a concern even with interventions aimed at therapy. There is also the matter of uncertain goals and absent natural standards, once one proceeds "beyond therapy." When a physician intervenes therapeutically to correct some deficiency or deviation from a patient's natural wholeness, he acts as a servant to the goal of health and as an assistant to nature's own powers of self-healing, themselves wondrous products of evolutionary selection. But when a bioengineer intervenes for nontherapeutic ends, he stands not as nature's servant but as her aspiring master, guided by nothing but his own will and serving ends of his own devising. It is far from clear that our delicately integrated natural bodily powers will take kindly to such impositions, however desirable the sought-for change may seem to the intervener. And there is the further question of the unqualified goodness of the goals being sought, a matter to which we shall return.

One revealing way to formulate the problem of hubris is what one of our Council Members has called the temptation to "hyper-agency," a Promethean aspiration to remake nature, including human nature, to serve our purposes and to satisfy our desires. This attitude is to be faulted not only because it can lead to bad, unintended consequences; more fundamentally, it also represents a false understanding of, and an improper disposition toward, the naturally given world. The root of the difficulty seems to be both cognitive and moral: the failure properly to appreciate and respect the "giftedness" of the world. Acknowledging the giftedness of life means recognizing that our talents and powers are not wholly our own doing, nor even fully ours, despite the efforts we expend to develop and to exercise them. It also means recognizing that not everything in the world is open to any use we may desire or devise. Such an appreciation of the giftedness of life would constrain the Promethean project and conduce to a much-needed humility. Although it is in part a religious sensibility, its resonance reaches beyond religion.

Human beings have long manifested both wondering appreciation for nature's beauty and grandeur and reverent awe before nature's sublime and mysterious power. From the elegance of an orchid to the splendor of the Grand Canyon, from the magnificence of embryological development to the miracle of sight or consciousness, the works of nature can still inspire in most human beings an attitude of respect, even in this age of technology. Nonetheless, the absence of a respectful attitude is today a problem in some-though by no means all-quarters of the biotechnical world. It is worrisome when people act toward, or even talk about, our bodies and minds-or human nature itself-as if they were mere raw material to be molded according to human will. It is worrisome when people speak as if they were wise enough to redesign human beings, improve the human brain, or reshape the human life cycle. In the face of such hubristic temptations, appreciating that the given world-including our natural powers to alter it-is not of our own making could induce a welcome attitude of modesty, restraint, and humility. Such a posture is surely recommended for anyone inclined to modify human beings or human nature for purposes beyond therapy.

Yet the respectful attitude toward the "given," while both necessary and desirable as a restraint, is not by itself sufficient as a guide. The "giftedness of nature" also includes smallpox and malaria, cancer and Alzheimer disease, decline and decay. Moreover, nature is not equally generous with her gifts, even to man, the most gifted of her creatures. Modesty born of gratitude for the world's "givenness" may enable us to recognize that not everything in the world is open to any use we may desire or devise, but it will not *by itself* teach us *which* things can be tinkered with and which should be left inviolate. Respect for the "giftedness" of things cannot tell us which gifts are to be accepted as is, which are to be improved through use or training, which are to be housebroken through self-command or medication, and which opposed like the plague.

To guide the proper use of biotechnical power, we need something in addition to a generalized appreciation for nature's gifts. We would need also a particular regard and respect for the special gift that is our own given nature. For only if there is a *human* "givenness," or a given humanness, that is also good and worth respecting, either as we find it or as it could be perfected *without ceasing to be itself*, will the "given" serve as a *positive* guide for choosing what to alter and what to leave alone. Only if there is something precious in our given human nature-beyond the fact of its giftedness-can what is given guide us in resisting efforts that would degrade it. When it comes to human biotechnical engineering beyond therapy, only if there is something inherently good or

dignified about, say, natural procreation, the human life cycle (with its rhythm of rise and fall), and human erotic longing and striving; only if there is something inherently good or dignified about the ways in which we engage the world as spectators and appreciators, as teachers and learners, leaders and followers, agents and makers, lovers and friends, parents and children, citizens and worshippers, and as seekers of our own special excellence and flourishing in whatever arena to which we are called-only then can we begin to see why those aspects of our nature need to be defended against our deliberate redesign.

We must move, therefore, from the danger of hubris in the powerful designer to the danger of degradation in the designed, considering how any proposed improvements might impinge upon the nature of the one being improved. With the question of human nature and human dignity in mind, we move to questions of means and ends.

B. "Unnatural" Means: The Dignity of Human Activity

Until only yesterday, teaching and learning or practice and training exhausted the alternatives for acquiring human excellence, perfecting our natural gifts through our own efforts. But perhaps no longer: biotechnology may be able to do nature one better, even to the point of requiring less teaching, training, or practice to permit an improved nature to shine forth. As we noted earlier, the insertion of the growth-factor gene into the muscles of rats and mice bulks them up and keeps them strong and sound without the need for nearly as much exertion. Drugs to improve alertness (today) or memory and amiability (tomorrow) could greatly relieve the need for exertion to acquire these powers, leaving time and effort for better things. What, if anything, is disquieting about such means of gaining improvement?

The problem cannot be that they are "artificial," in the sense of having man-made origins. Beginning with the needle and the fig leaf, man has from the start been the animal that uses art to improve his lot by altering or adding to what nature alone provides. Ordinary medicine makes extensive use of similar artificial means, from drugs to surgery to mechanical implants, in order to treat disease. If the use of artificial means is absolutely welcome in the activity of healing, it cannot be their unnaturalness alone that disquiets us when they are used to make people "better than well."

Still, in those areas of human life in which excellence has until now been achieved only by discipline and effort, the attainment of similar results by means of drugs, genetic engineering, or implanted devices looks to many people (including some Members of this Council) to be "cheating" or "cheap." Many people believe that each person should work hard for his achievements. Even if we prefer the grace of the natural athlete or the quickness of the natural mathematician-people whose performances deceptively appear to be effortless-we admire also those who overcome obstacles and struggle to try to achieve the excellence of the former. This matter of character-the merit of disciplined and dedicated striving-is surely pertinent. For character is not only the source of our deeds, but also their product. As we have already noted, healthy people whose disruptive behavior is "remedied" by pacifying drugs rather than by their own efforts are not learning self-control; if anything, they may be learning to think it unnecessary. People who take pills to block out from memory the painful or hateful aspects of a new experience will not learn how to deal with suffering or sorrow. A drug that induces

fearlessness does not produce courage.

Yet things are not so simple. Some biotechnical interventions may assist in the pursuit of excellence without in the least cheapening its attainment. And many of life's excellences have nothing to do with competition or overcoming adversity. Drugs to decrease drowsiness, increase alertness, sharpen memory, or reduce distraction may actually help people interested in their natural pursuits of learning or painting or performing their civic duty. Drugs to steady the hand of a neurosurgeon or to prevent sweaty palms in a concert pianist cannot be regarded as "cheating," for they are in no sense the source of the excellent activity or achievement. And, for people dealt a meager hand in the dispensing of nature's gifts, it should not be called cheating or cheap if biotechnology could assist them in becoming better equipped-whether in body or in mind.

Nevertheless, as we suggested at some length in Chapter Three, there remains a sense that the "naturalness" of means matters. It lies not in the fact that the assisting drugs and devices are artifacts, but in the danger of violating or deforming the nature of human agency and the dignity of the naturally human way of activity. In most of our ordinary efforts at self-improvement, whether by practice, training, or study, we sense the relation between our doings and the resulting improvement, between the means used and the end sought. There is an experiential and intelligible connection between means and ends; we can see how confronting fearful things might eventually enable us to cope with our fears. We can see how curbing our appetites produces self-command. Human education ordinarily proceeds by speech or symbolic deeds, whose meanings are at least in principle directly accessible to those upon whom they work.

In contrast, biotechnical interventions act directly on the human body and mind to bring about their effects on a passive subject, who plays little or no role at all. He can at best *feel* their effects *without understanding their meaning in human terms*. Thus, a drug that brightened our mood would alter us without our understanding how and why it did so-whereas a mood brightened as a fitting response to the arrival of a loved one or to an achievement in one's work is perfectly, because humanly, intelligible. And not only would this be true about our states of mind. All of our encounters with the world, both natural and interpersonal, would be mediated, filtered, and altered. Human experience under biological intervention becomes increasingly mediated by unintelligible forces and vehicles, separated from the human significance of the activities so altered. The relations between the knowing subject and his activities, and between his activities and their fulfillments and pleasures, are disrupted.

The importance of human effort in human achievement is here properly acknowledged: the point is less the exertions of good character against hardship, but the manifestation of an alert and self-experiencing agent making his deeds flow intentionally from his willing, knowing, and embodied soul. If human flourishing means not just the accumulation of external achievements and a full curriculum vitae but a lifelong being-at-work exercising one's *human* powers *well* and without great impediment, our genuine happiness requires that there be little gap, if any, between the dancer and the dance.

C. Identity and Individuality

With biotechnical interventions that skip the realm of intelligible meaning, we cannot really own the transformations nor can we experience them as genuinely ours. And we will be at a loss to attest whether the resulting conditions and activities of our bodies and our minds are, in the fullest sense, our own as human. But our interest in identity is also more personal. For we do not live in a generic human way; we desire, act, flourish, and decline *as ourselves*, as individuals. To be human is to be someone, not anyone-with a given nature (male or female), given natural abilities (superior wit or musical talent), and-most important-a real history of attachments, memories, and experiences, acquired largely by living with others.

In myriad ways, new biotechnical powers promise (or threaten) to transform what it means to be an individual: giving increased control over our identity to others, as in the case of genetic screening or sex selection of offspring by parents; inducing psychic states divorced from real life and lived experience; blunting or numbing the memories we wish to escape; and achieving the results we could never achieve unaided, by acting as ourselves alone.

To be sure, in many cases, biomedical technology can restore or preserve a real identity that is slipping away: keeping our memory intact by holding off the scourge of Alzheimer disease; restoring our capacity to love and work by holding at bay the demons of self-destroying depression. In other cases, the effect of biotechnology on identity is much more ambiguous. By taking psychotropic drugs to reduce anxiety or overcome melancholy, we may become the person we always wished to be-more cheerful, ambitious, relaxed, content. But we also become a different person in the eyes of others, and in many cases we become dependent on the continued use of psychotropic drugs to remain the new person we now are.

As the power to transform our native powers increases, both in magnitude and refinement, so does the possibility for "self-alienation"-for losing, confounding, or abandoning our identity. I may get better, stronger, and happier-but I know not how. I am no longer the agent of self-transformation, but a passive patient of transforming powers. Indeed, to the extent that an achievement is the result of some extraneous intervention, it is detachable from the agent whose achievement it purports to be. "Personal achievements" impersonally achieved are not truly the achievements of persons. That I can use a calculator to do my arithmetic does not make *me* a knower of arithmetic; if computer chips in my brain were to "download" a textbook of physics, would that make *me* a knower of physics? Admittedly, the relation between biological boosters and personal identity is much less clear: if I make myself more alert through Ritalin, or if drugs can make up for lack of sleep, I may be able to learn more using my unimpeded native powers while it is still unquestionably *I* who am doing the learning. And yet, to find out that an athlete took steroids before the race or that a test-taker (without medical disability) took Ritalin before the test is to lessen our regard for the achievement of the doer. It is to see not just an acting self, but a dependent self, one who is less himself for becoming so dependent.

In the deepest sense, to have an identity is to have limits: my body, not someone else's-even when the pains of aging might tempt me to become young again; my memories, not someone else's-even when the traumas of the past might tempt me to have someone else's memories; my achievements and potential, not someone else's-even when the desire for excellence might tempt me to "trade myself in" for a "better model." We seek to be happy-to achieve, perform, take pleasure in our experiences, and catch the admiring eye of a beloved. But we do not, at least self-

consciously, seek such happiness at the cost of losing our real identity.

D. Partial Ends, Full Flourishing

Beyond the perils of achieving our desired goals in a "less-than-human way" or in ways "not fully our own," we must consider the meaning of the ends themselves: better children, superior performance, ageless bodies, and happy souls. Would their attainment in fact improve or perfect our lives as human beings? Are they-always or ever-reasonable and attainable goals?

Everything depends, as we have pointed out in each case, on how these goals are understood, on their specific and concrete content. Yet, that said, the first two human ends-better children and superior performance-do seem reasonable and attainable, sometimes if not always, to some degree if not totally. When asked what they wish for their children, most parents say: "We want them to be happy," or "We want them to live good lives"-in other words, to be better and to do better. The desire is a fitting one for any loving parent. The danger lies in misconceiving what "better children" really means, and thus coming to pursue this worthy goal in a misguided way, or with a false idea of what makes for a good or happy child.

Likewise, the goal of superior performance-the desire to be better or do better in all that we do-is good and noble, a fitting human aspiration. We admire excellence whenever we encounter it, and we properly seek to excel in those areas of life, large and small, where we ourselves are engaged and at-work. But the danger here is that we will become better in some area of life by diminishing ourselves in others, or that we will achieve superior results only by compromising our humanity, or by corrupting those activities that are not supposed to be "performances" measured in terms of external standards of "better and worse."

In many cases, biotechnologies can surely help us cultivate what is best in ourselves and in our children, providing new tools for realizing good ends, wisely pursued. But it is also possible that the new technological means may deform the ends themselves. In pursuit of better children, biotechnical powers risk making us "tyrants"; in pursuit of superior performance, they risk making us "artifacts." In both cases, the problem is not the ends themselves but our misguided idea of their attainment or our false way of seeking to attain them. And in both cases, there is the ubiquitous problem that "good" or "superior" will be reconceived to fit the sorts of goals that the technological interventions can help us attain. We may come to believe that genetic predisposition or brain chemistry holds the key to helping our children develop and improve, or that stimulant drugs or bulkier muscles hold the key to excellent human activity. If we are equipped with hammers, we will see only those things that can be improved by pounding.

The goals of ageless bodies and happy souls-and especially the ways biotechnology might shape our pursuit of these ends-are perhaps more complicated. The case for ageless bodies seems at first glance to look pretty good. The prevention of decay, decline, and disability, the avoidance of blindness, deafness, and debility, the elimination of feebleness, frailty, and fatigue, all seem to be conducive to living fully as a human being at the top of one's powers-of having, as they say, a "good quality of life" from beginning to end. We have come to expect organ transplantation for our worn-out parts. We will surely welcome stem-cell-based therapies for regenerative medicine, reversing by replacement the damaged tissues of Parkinson disease, spinal cord injury, and many

other degenerative disorders. It is hard to see any objection to obtaining a genetic enhancement of our muscles in our youth that would not only prevent the muscular feebleness of old age but would empower us to do any physical task with greater strength and facility throughout our lives. And, should aging research deliver on its promise of adding not only extra life to years but also extra years to life, who would refuse it?

But as we suggested in Chapter Four, there may in fact be many human goods that are inseparable from our aging bodies, from our living in time, and especially from the natural human life cycle by which each generation gives way to the one that follows it. Because this argument is so counterintuitive, we need to begin not with the individual choice for an ageless body, but with what the individual's life might look like in a world in which everyone made the same choice. We need to make the choice universal, and see the meaning of that choice in the mirror of its becoming the norm.

What if everybody lived life to the hilt, even as they approached an ever-receding age of death in a body that looked and functioned-let's not be too greedy-like that of a thirty-year-old? Would it be good if each and all of us lived like light bulbs, burning as brightly from beginning to end, then popping off without warning, leaving those around us suddenly in the dark? Or is it perhaps better that there be a shape to life, everything in its due season, the shape also written, as it were, into the wrinkles of our bodies that live it-provided, of course, that we do not suffer years of painful or degraded old age and that we do not lose our wits? What would the relations between the generations be like if there never came a point at which a son surpassed his father in strength or vigor? What incentive would there be for the old to make way for the young, if the old slowed down little and had no reason to think of retiring-if Michael could play basketball until he were not forty but eighty? Might not even a moderate prolongation of lifespan with vigor lead to a prolongation in the young of functional immaturity-of the sort that has arguably already accompanied the great increase in average life expectancy experienced in the past century?

Going against both common intuition and native human desire, some commentators have argued that living with full awareness and acceptance of our finitude may be the condition of many of the best things in human life: engagement, seriousness, a taste for beauty, the possibility of virtue, the ties born of procreation, the quest for meaning. This might be true not just for immortality-an unlikely achievement, likely to produce only false expectations-but even for more modest prolongations of the maximum lifespan, especially in good health, that would permit us to live as if there were always tomorrow. The pursuit of perfect bodies and further life-extension might deflect us from realizing more fully the aspirations to which our lives naturally point, from living well rather than merely staying alive. A concern with one's own improving agelessness might finally be incompatible with accepting the need for procreation and human renewal. And far from bringing contentment, it might make us increasingly anxious over our health or dominated by the fear of death. Assume, merely for the sake of the argument, that even a few of these social consequences would follow from a world of much greater longevity and vigor: What would we then say about the simple goodness of seeking an ageless body?

What about the pursuit of happy souls, and especially of the sort that we might better attain with pharmacological assistance? Painful and shameful memories are disturbing; guilty consciences trouble sleep; low self-esteem, melancholy, and world-weariness besmirch the waking hours.

Why not memory-blockers for the former, mood-brighteners for the latter, and a good euphoriant-without risks of hangovers or cirrhosis-when celebratory occasions fail to be jolly? For let us be clear: If it is imbalances of neurotransmitters that are largely responsible for our state of soul, would it not be sheer priggishness to refuse the help of pharmacology for our happiness, when we accept it guiltlessly to correct for an absence of insulin or thyroid hormone?

And yet, as we suggested in Chapter Five, there seems to be something misguided about the pursuit of utter and unbroken psychic tranquility or the attempt to eliminate all shame, guilt, and painful memories. Traumatic memories, shame, and guilt, are, it is true, psychic pains. In extreme doses, they can be crippling. Yet, short of the extreme, they can also be helpful and fitting. They are appropriate responses to horror, disgraceful conduct, injustice, and sin, and, as such, help teach us to avoid them or fight against them in the future. Witnessing a murder should be remembered as horrible; doing a beastly deed should trouble one's soul. Righteous indignation at injustice depends on being able to feel injustice's sting. And to deprive oneself of one's memory-including and especially its truthfulness of feeling-is to deprive oneself of one's own life and identity.

These feeling states of soul, though perhaps accompaniments of human flourishing, are not its essence. Ersatz pleasure or feelings of self-esteem are not the real McCoy. They are at most shadows divorced from the underlying human activities that are the essence of flourishing. Most people want both to feel good and to feel good about themselves, but only as a result of being good and doing good.

At the same time, there appears to be a connection between the possibility of feeling deep unhappiness and the prospects for achieving genuine happiness. If one cannot grieve, one has not truly loved. To be capable of aspiration, one must know and feel lack. As Wallace Stevens put it: Not to have is the beginning of desire. In short, if human fulfillment depends on our being creatures of need and finitude and therewith of longings and attachment, there may be a double-barreled error in the pursuit of ageless bodies and factitiously happy souls: far from bringing us what we really need, pursuing these partial goods could deprive us of the urge and energy to seek a richer and more genuine flourishing.

Looking into the future at goals pursuable with the aid of new biotechnologies enables us to turn a reflective glance at our own version of the human condition and the prospects now available to us (in principle) for a flourishing human life. For us today, assuming that we are blessed with good health and a sound mind, a flourishing human life is not a life lived with an ageless body or an untroubled soul, but rather a life lived in rhythmed time, mindful of time's limits, appreciative of each season and filled first of all with those intimate human relations that are ours only because we are born, age, replace ourselves, decline, and die-and know it. It is a life of aspiration, made possible by and born of experienced lack, of the disproportion between the transcendent longings of the soul and the limited capacities of our bodies and minds. It is a life that stretches towards some fulfillment to which our natural human soul has been oriented, and, unless we extirpate the source, will always be oriented. It is a life not of better genes and enhancing chemicals but of love and friendship, song and dance, speech and deed, working and learning, revering and worshipping.

If this is true, then the pursuit of an ageless body may prove finally to be a distraction and a deformation. And the pursuit of an untroubled and self-satisfied soul may prove to be deadly to desire, if finitude recognized spurs aspiration and fine aspiration acted upon *is itself* the core of happiness. Not the agelessness of the body, nor the contentment of the soul, nor even the list of external achievements and accomplishments of life, but the engaged and energetic being-at-work of what nature uniquely gave to us is what we need to treasure and defend. All other "perfections" may turn out to be at best but passing illusions, at worst a Faustian bargain that could cost us our full and flourishing humanity.

Summing up these "essential sources of concern," we might succinctly formulate them as follows:

In wanting to become more than we are, and in sometimes acting as if we were already superhuman or divine, we risk despising what we are and neglecting what we have.

In wanting to improve our bodies and our minds using new tools to enhance their performance, we risk making our bodies and minds little different from our tools, in the process also compromising the distinctly human character of our agency and activity.

In seeking by these means to be better than we are or to like ourselves better than we do, we risk "turning into someone else," confounding the identity we have acquired through natural gift cultivated by genuinely lived experiences, alone and with others.

In seeking brighter outlooks, reliable contentment, and dependable feelings of self-esteem in ways that by-pass their usual natural sources, we risk flattening our souls, lowering our aspirations, and weakening our loves and attachments.

By lowering our sights and accepting the sorts of satisfactions that biotechnology may readily produce for us, we risk turning a blind eye to the objects of our natural loves and longings, the pursuit of which might be the truer road to a more genuine happiness.

To avoid such outcomes, our native human desires need to be educated against both excess and error. We need, as individuals and as a society, to find these boundaries and to learn how to preserve and defend them. To do so in an age of biotechnology, we need to ponder and answer questions like the following:

When does parental desire for better children constrict their freedom or undermine their long-term chances for self-command and genuine excellence?

When does the quest for self-improvement make the "self" smaller or meaner?

When does a preoccupation with youthful bodies or longer life jeopardize the prospects for living *well*?

When does the quest for contentment or self-esteem lead us away from the activities and attachments that prove to be essential to these goals when they are properly understood?

Answers to these questions are not easily given in the abstract or in advance. Boundaries are hard to define in the absence of better knowledge of the actual hazards. Such knowledge will be obtainable only in time and only as a result of lived experience. But centrally important in shaping the possible future outcomes will be the cultural attitudes and social practices that shape desires, govern expectations, and influence the choices people make, now and in the future. This means reflecting more specifically on how biotechnology beyond therapy might affect and be affected by American society.

IV. Biotechnology and American Society

In free societies such as our own, choices about using biotechnologies are not made by central planners looking to realize some dream of a more perfect future society. They are made largely by private individuals looking to realize their personal dream of a better life, for themselves and for their children. The choices that they make will, of course, be constrained by boundaries set by law and by the limits of their own resources. More subtly, they will be influenced by the social norms, cultural ideals, and institutional practices of their communities-as these norms, ideals, and practices are themselves reciprocally shaped by the aggregated results of countless private choices. No account of our subject would be complete without a brief look at these larger social implications.

Looking over the horizon, what sort of society might we be getting in the coming age of biotechnology? What sort of society are we, in fact, bringing into being, knowingly or unknowingly, by our private choices? And how might our existing American norms, ideals, and practices frame and color the "big picture" whose outlines are only now becoming visible?

On the optimistic view, the emerging picture is one of unmitigated progress and improvement, yielding a society in which more and more people are able to realize the American dream of liberty, prosperity, and justice for all. Projecting that the present century will continue the remarkable achievements of the one just ended, it is easy to imagine a society whose citizens are healthier, longer-lived, livelier, freer, more competent, better educated, more productive, better accomplished, and happier than they have ever been in any society now known, including our own. Many more human beings-now biologically better equipped, aided by performance-enhancers, and more liberated from the constraints of nature and fortune-might someday live on a much higher human plane than has hitherto been possible save for very few people. This rosy picture of the future, encouraged by our past successes, cannot be lightly gainsaid.

Yet, as we have suggested throughout this report, there are reasons to expect more mixed or even unattractive outcomes. For example, there are risks-small in today's United States-of a sex-unbalanced society, the result of unrestrained free choice in selecting the sex of children; or of a change-resisting gerontocracy, with the "elders" still young in body but old and tired in outlook. And there are still uglier possibilities: an increasingly stratified and inegalitarian society, now with purchased biological enhancements, with enlarged gaps between the over-privileged few

and the under-privileged many; a society of narcissists focused on personal satisfaction and self-regard, with little concern for the next generation or the common good; a society of social conformists but with shallow attachments, given over to cosmetic fashions and trivial pursuits; or a society of fiercely competitive individuals, caught up in an ever-spiraling struggle to get ahead, using the latest biotechnical assistance both to perform better and to deal with the added psychic stress.

Lacking prophetic powers, we will not hazard any guesses as to which of these prospects is more likely to be our future. Up until now, such visionary work has been best left to the imaginative gifts of science fiction writers, who, more than everyone else, have thought seriously aboutwhere biotechnology may be taking us, for better and for worse. From now on, however, we will do well to pay attention to this matter, devising the sorts of social indicators and empirical research that could teach us which way the social and cultural winds are blowing.

But if we can only dimly perceive our possible or likely futures, we can clearly recognize some features of contemporary American life that will, almost certainly, exercise great influence over the future that is likely to emerge. Among them we would identify the importance of commerce, the practice of medicine, and the ruling ideals and ethos of the American polity. They are already playing major roles in determining which of the many possible social futures our grandchildren and great-grandchildren will inherit.

A. Commerce, Regulation, and the Manufacture of Desire

Whether one likes it or not, progress in biology and biotechnology is now intimately bound up with industry and commerce. Although the federal government is still the major sponsor of biomedical research, more and more scientists work in partnership with industry. And the emergence of a vigorous biotech industry, growing rapidly even before it has delivered very much of its great promise, is a sign of things to come. Whatever one finally thinks about the relative virtues and vices of contemporary capitalism, it is a fact that progress in science and technology owes much to free enterprise. The possibility of gain adds the fuel of interest to the fire of genius, and even as the profits accrue only to some, the benefits are, at least in principle, available to all. And the competition to succeed provides enormous incentives to innovation, growth, and progress. We have every reason to expect exponential increases in biotechnologies and, therefore, in their potential uses in all aspects of human life.

Two aspects of the marriage between biotechnology and free-market commerce pose challenges to our ability to keep control of how those powers will be used. First, scientists and entrepreneurs, for perfectly understandable reasons, want no interference with research or development. Freedom to experiment is essential to discovery; freedom to invent and to market is essential to technological advance. Distrustful of governmental regulation and leery of public scrutiny of their activities, biologists and technologists are especially inclined to resist legal limitations that might be imposed on their activities based on ethical considerations. Like those who would prefer to "go slow," they vigorously make their interests felt in the deliberations of government. Yet in the long run, as members of American society, they have as much to gain or lose as anyone else from the kind of society that their own efforts are helping to create. What sort of society it will be will depend in part on whether industry and the broader public will

collaborate in finding ways to monitor and regulate the uses of biotechnology beyond therapy.

Entrepreneurs not only resist governmental limitation of their work or restrictions on the uses to which their products may be put. They also promote public demand. The success of enterprise often turns on anticipating and stimulating consumer demand, sometimes even on creating it where none exists. Suitably stimulated, the demand of consumers for easier means to better-behaved children, more youthful or beautiful or potent bodies, keener or more focused minds, and steadier or more cheerful moods is potentially enormous. If the existing cosmetic industry may be taken as a model, the sky may be the limit for a truly effective "cosmetic pharmacology" that would deliver stronger muscles, better memories, brighter moods, and peace of mind. The direct-to-consumer advertising of pharmaceutical and other companies-for mood-brighteners, fatigue lesseners, youth preservatives, and behavior modifiers-is a harbinger of things to come. Today it is Ritalin, Botox, Rogaine, Viagra, and Prozac; could tomorrow be "Memorase," "Popeye's Potion," "Eroticor," "Self-love," or "Soma"? Desires can be manufactured almost as effectively as pills, especially if the pills work more or less as promised to satisfy the newly stimulated desires. By providing quick solutions for short-term problems or prompt fulfillment of easily satisfied desires, the character of human longing itself could be altered, with large aspirations for long-term flourishing giving way before the immediate gratification of smaller desires. What to do about this is far from clear; but its importance should not be underestimated.

B. Medicine, Medicalization, and a Stance "Beyond Therapy"

Wherever they may be invented and manufactured, most new biotechnologies, including those serving goals beyond therapy, will probably enter ordinary use through the offices of the medical profession. Should this occur, the pursuit of happiness and self-perfection would become part of the doctor's business, joining many other aspects of human life that formerly had little to do with doctors and hospitals: childbirth, infertility, sexual mores and practices, aspects of criminal behavior, alcoholism, abnormal behavior, anxiety, stress, dementia, old age, death, grief, and mourning-all these have over the past century been at least partially medicalized, and often with good reasons and welcome results. The causes of medicalization are many, among them, the power of modern biological explanation and technique; the growth in medical knowledge and competence; the expanding domain of psychiatry, the "doctoring of the psyche"; increased success using medical interventions; and rising patient expectations of cure, relief, and salvation coming from health care professionals. It is also driven by deep cultural and intellectual currents, for example, to see more and more things in life not as natural givens to be coped with but as objects rightly subject to our mastery and control; to have compassion for victims, even when the victims are victimized by their own foolish conduct; to see the human person not in spiritual or moral terms, but as a highly complex and successful product of blind evolutionary forces (which still perturb him through no fault of his own); and-very important-the acceptance of "health" as the one readily recognized and utterly uncontroversial human good (in contrast, say, with virtue, morality, or wisdom). With the decline in the cultural authority of religious institutions, and with the shrinking of other communal systems of help and support for people in difficulty, physicians often find themselves simply "neighbor to the problem." Rightly extending a helping hand, they often conceive and treat the problems they encounter in a purely medical fashion.

As new biotechnologies appear, with novel uses beyond therapy, the tendency toward

medicalization will almost certainly be strengthened, both as a matter of practice and as a matter of thought. Physicians are the gatekeepers of biomedical technologies. They are judges of proper use. They are aware of dangerous side effects. They prescribe and dispense as they see fit. The medical profession is clothed in venerable ethical dress; in the United States there are also professional standards of good practice that offer guidance and principles of reimbursement that set limits on free professional and patient choices. Nevertheless, the practice of medicine is highly decentralized, and each physician has enormous discretion in dealing with patients, able to adapt general practices to the special needs and circumstances of each individual. All this is comforting and reassuring, more so than if the new biotechnical powers were wielded by an upstart group of technicians lacking these professional assets and virtues.

But there are difficulties when medical practice moves beyond therapy. Where the goal is restoring health, the doctor's discretion is guided by an agreed-upon and recognizable target. But a physician prescribing for goals beyond therapy is in uncharted waters. Although fully armed with the means, he has no special expertise regarding the end-neither what it is nor whether it is desirable. To the extent that the patient is transformed from a sick person needing healing into a consumer of technical services, medicine will be transformed from a profession into a trade and the doctor-patient relationship into a species of contract, ungoverned by any deep ethical norms. Should this occur, the medical profession and the health care system will be called upon to practice retail sanity regarding the technologies and wholesale madness regarding the ends, the costs, and the possible consequences of their use. The health-care system in the United States already constitutes roughly one-sixth of the gross national product. What might it become in the coming age beyond therapy?

There is yet a second and perhaps more fundamental danger in the growth of medicalization, a danger of thinking and outlook whose consequences could well be profound. The therapeutic intention at the heart of medicine-the goal of making whole that which is broken or disabled-runs the risk of looking increasingly upon the entire human condition in this way and, as a result, of regarding biotechnological measures as the royal road to improving our lot in life. Two opposing dangers need to be avoided. On the one hand, there is the risk of viewing everything in human life-not only human frailties, disappointments, and death itself, but also human relationships, pride and shame, love and sorrow, and all self-discontent-under the lens of disease and disability. Such a tendency would encourage everywhere the idea of human life as "victimhood" in need of rescue; it would discourage everywhere the idea that human beings are responsible agents and, at their best, noble creatures aspiring to and capable of genuine excellence and flourishing. On the other hand, there is the risk of attacking human limitation altogether, seeking to produce a more-than-human being, one not only without illnesses, but also without foibles, fatigue, failures, or foolishness.

Seen against these problematic temptations, the remedy for the dangers lurking in the drift toward greater medicalization and "beyond therapy" is, paradoxically, to be found in rethinking the very idea of "beyond therapy." It is to be found in adopting a standpoint toward human life that is, in another sense of the term, radically *beyond* therapy. It does not start with medicine to discover the terrain that lies beyond the goals of medicine. It looks beyond the therapeutic view of life altogether. It rejects and goes beyond the "therapy versus enhancement" distinction for a reason deeper than those we gave at the outset of this report (see Chapter One): for medicine,

sickness, and healing are not the natural or best lens through which to look upon the whole of human life. Health, though a primary human good, is not the only-or even the supreme-human good.

Going "beyond therapy" in this sense means returning to an account of the human being seen not in material or mechanistic or medical terms but in psychic and moral and spiritual ones. It is to see the human being as a creature "in-between," neither god nor beast, neither dumb body nor disembodied soul, but as a puzzling, upward-pointing unity of psyche and soma whose precise limitations are the source of its-our-loftiest aspirations, whose weaknesses are the source of its-our-keenest attachments, and whose natural gifts may be, if we do not squander or destroy them, exactly what we need to flourish and perfect ourselves-*as human beings*. Readers, we hope, will recognize that this entire report has been written from this more-than-therapeutic perspective and with this richly humanistic intent.

C. Biotechnology and American Ideals

The significance of these two prominent features of American life-the power of free markets and the prestige of medicine-points us also toward a greater understanding of the implications of our new biotechnical powers for our American ideals. In a certain sense, as a people committed to life, liberty, and the pursuit of happiness, we may tend to be especially drawn to the promise of biotechnology. Some of the techniques we have discussed offer the prospect of longer and livelier life, of expanded liberty made possible by improved abilities and powers, and of a more successful and fulfilling pursuit of happiness. Medicine thrives in a culture that values life; science and enterprise thrive in a society that values freedom; technology flourishes in a nation eager to make life more prosperous and comfortable.

And yet, these very ideals also offer reasons to moderate the desires that drive us toward greater biotechnological prowess, and to look upon new possibilities through the lens of a rich yet temperate understanding of the human condition. Even as they encourage progress, the American principles may serve to moderate a dangerous utopianism. Our devotion to life is understood in light of the human dedication to *the good life,* and so calls for reflection on our most basic priorities, and on just what it is that gives life its significance. Our aspiration to liberty is grounded in some sense that we men and women are the beings deserving of liberty, and capable of using it well. It reminds us, also, that our actions always run the risk of curtailing the freedom of others, including especially that of future generations-to whom we owe the same liberty passed down to us. And our nation's declared commitment to the pursuit of happiness-understood in light of our devotion to life, and our dedication to meaningful liberty-invites us to consider the nature (and also the limits) of happiness, and to wonder what sort of happiness a people so devoted and dedicated might rightly pursue.

But these American ideals, and the character of the nation they have helped to shape, moderate not only our hopes but also our fears. The reservations we have raised in this report are the worries of a free and decent people-concerned for its character and its goodness and its soul. Had we looked only at the perils of the technologies that seem to lie in our future, and had we sought to imagine the worst, it would not have been difficult to raise up specters of terrifying and inhuman violations, or of an unprecedented despotism of man over man, with powerful new

technologies serving as the whips of new slave-masters. The recent history of the human race offers no dearth of sources for such nightmarish visions. But that is not what we perceive when we peer over the horizon, because our society, dedicated as it is to life and liberty and happiness, is always alert to repel such excesses.

Rather, the concerns we have raised here emerge from a sense that tremendous new powers to serve certain familiar and often well-intentioned desires may blind us to the larger meaning of our ideals, and may narrow our sense of what it is to live, to be free, and to seek after happiness. If, by informing and moderating our desires and by grasping the limits of our new powers, we can keep in mind the meaning of our founding ideals, then we just might find the means to savor some fruits of the age of biotechnology, without succumbing to its most dangerous temptations.

To do so, we must first understand just what is at stake, and we must begin to imagine what the age of biotechnology might bring, and what human life in that age could look like. In these pages, we have sought to begin that vital project, in the hope that these first steps might spark and inform a public debate, so that however the nation proceeds, it will do so with its eyes wide open.

Footnotes

i. For example: It mattered to the young woman we cited in Chapter Five that the young man said he loved her only because he was high on Ecstasy. It matters to all of us that the people we have dealings with are not psychotropically out of their right minds. In neither case is the issue one of unfair advantage.

ii. The danger of despotism of one generation over the next is, in fact, one of the arguments sometimes voiced against human cloning. See our report, *Human Cloning and Human Dignity: An Ethical Inquiry*, Washington, D.C.: Government Printing Office, 2002.

iii. Freedom does not automatically increase with a growing range of options. On the contrary, if the options differ but little from one another (Nike rather than Adidas, Budweiser rather than Coors), and if the choosing agent expends growing energies on choices that contribute but little to his or her genuine well-being, enjoying one's greater number of options might represent a curtailment of a deeper and more genuine freedom.

iv.Which of the imaginable social consequences will in fact occur is, of course, an empirical question, though it is worthwhile to think about the alternatives in advance. Indeed, anticipatory reflection might play a role in helping to forestall some of the worst possible outcomes. We return to the relation of biotechnology to American society in the last section of this chapter.

v. The question of the knowledge and goodness of goals is often the neglected topic when people use the language of "mastery," or "mastery and control of nature," to describe what we do when we use knowledge of how nature works to alter its character and workings. Mastery of the means of intervention without knowing the goodness of the goals of intervening is not, in fact, mastery

at all. In the absence of such knowledge of ends, the goals of the "master" will be set rather by whatever it is that happens to guide or move his will-some impulse or whim or feeling or desire-in short, by some residuum of nature still working within the so-called master or controller. To paraphrase C. S. Lewis, what looks like man's mastery of nature turns out, in the absence of guiding knowledge, to be nature's mastery of man. (See his *The Abolition of Man*, New York: Macmillan, 1965, paperback edition, pp. 72-80.) There can, in truth, be no such thing as the *full* escape from the grip of our own nature. To pretend otherwise is indeed a form of hubristic and dangerous self-delusion. For reasons given in the text, therapeutic medicine, though it may use the same technologies, should not be regarded as "mastery of nature," but as service to nature, as we come to know, through medical science, how it might best be served.

vi. By his very nature, man is the animal constantly looking for ways to better his life through artful means and devices; man is the animal with what Rousseau called "perfectibility."

vii. We have also noted that other people, suffering from certain neuro-psychiatric disorders, become capable of learning self-control only with the aid of medication addressed to their disorders.

viii. This is not merely to suggest that there is a disturbance of human agency or freedom, or a disruption of activities that will confound the assignment of personal responsibility or undermine the proper bestowal of praise and blame. To repeat: most of life's activities are non-competitive; most of the best of them-loving and working and savoring and learning-are self-fulfilling beyond the need for praise and blame or any other external reward. In these activities, there is at best no goal beyond the activity itself. It is the possibility of natural, unimpeded, for-itself human activity, that we are eager to preserve against dilution and distortion.

ix. The gift of added years of expected future life is surely a great blessing for the young. But is the correlative perception of a seemingly limitless future an equal blessing? How preciously do people regard each day of life when its limits are out of sight?

x. "Medicalization," a term coined by sociologists, means in the first instance a way of thinking and conceiving human phenomena in medical terms, which then guides ways of acting and organizing social institutions. More fully, it is the tendency to *conceive* an activity, phenomenon, condition, behavior, etc., as a disease or disorder or as an affliction that should be regarded as a disease or disorder: (1) people *suffer* it (the essence of patient-hood) or it befalls them; they are *victims* of it, hence not responsible for it; (2) the causes are *physical* or *somatic*, not "mental" or "spiritual" or "psychic"; (3) it requires (needs) and demands (has a claim to) *treatment*, aimed at *cure* or at least relief and abatement of symptoms; (4) at the hands of persons trained in the healing arts and licensed as *healers*; and (5) this conception of the condition will be supported by the society, which will also support efforts at treatment out of its interest in the *health* (as opposed to the morals or the education) of its people. The term is used-both in the literature and by us here-as neutral description, without any implied judgment. We have discussed medicalization of mental life briefly in Chapter Five.

xi. Or without birthmarks, the superficial sign of being marked from birth as finite and frail. See Nathaniel Hawthorne, "The Birth-mark."

Endnotes

1. This discussion depends heavily on a paper by Michael J. Sandel, "What's Wrong with Enhancement," prepared for the President's Council on Bioethics, Washington, D.C., December 12, 2002. Copy available at the Council's website, www.bioethics.gov.

2. The discussion that follows depends heavily on a paper by Leon R. Kass, "Beyond Therapy: Biotechnology and the Pursuit of Human Improvement," prepared for the President's Council on Bioethics, Washington, D.C., January 16, 2003. Copy available at the Council's website at www.bioethics.gov.

3. See, for example, Jonas, H., "The Blessings and Burdens of Mortality," *Hastings Center Report*, January/February 1992; Kass, L., "*L'Chaim* and Its Limits: Why Not Immortality," in *Life, Liberty, and the Defense of Dignity: The Challenge for Bioethics*, San Francisco: Encounter Books, 2002.

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