

Engineering Immortality: Radical Life Extension and Its Critics

Tim Clancy, S.J.

ABSTRACT: With the breathtaking pace of medical advances and genetic research a growing number of philosophers and scientists are beginning to explore the prospect of our being able to transform not simply the world but our own human nature in light of our desires and ideals. Part of the program for these “transhumanists” is reflection upon the prospect of radical life extension. Just in the past ~~decade~~^{CENTURY} average life expectancy has risen close to thirty years. With a host of medical and genetic advances now within view at least imaginatively proponents argue that future humans could live indefinitely. What are we to make of the prospect of such virtual immortality? Death has often been considered an evil, if not the ultimate evil. But is it still better than its alternative? This paper looks at the consequences of such “posthuman” lifespans under three categories – social justice, consequences for the human life cycle and effects upon the meaning and character of human life. I conclude by offering a comparison between this virtual immortality and the Christian vision of life after death.

“Death is a disease that can be cured.”

“There is no greater reverence for life than the attempt to eliminate death.”

“Why must we age and die? ... There is no moral basis for the acceptance of death, disease and biological limitation.”

“Nothing is quite so absurd as the attempt to justify death.”

Selections from *The Transhumanist Manifesto*¹

¹Simon Young, *Designer Evolution: A Transhumanist Manifesto* (AmhurstNY: Prometheus Books, 2006), p. 42.

THESE ARE HEADY TIMES FOR FUTURISTS, visionaries, and even some scientists. For them we stand at the brink of the next step in human evolution, one in which we take charge of the evolutionary process ourselves and redirect it in light of our own needs and desires, by transforming not only the world around us but our very own nature. They call themselves transhumanists, for their hope is to transcend those limitations that until now have defined the human condition. Their goal is to create a new humanity – smarter, happier, healthier, indeed so superior to ourselves as to be called “posthuman.”

In this paper I wish to focus on one of the more radical aspirations of the transhumanist movement, that of arresting the aging process and living with the vim and vigor of twenty-somethings indefinitely – a virtual immortality cut short only by accidental death, homicide, or suicide. Whether attracted or appalled, or just amused, consideration of the prospect of radical life extension can put in sharp relief just what value, positive or negative, death has for us. It can also provide an instructive contrast to that other striving for transcendence that is found in religious faith, specifically in the Christian longing for eternal life after death.

In talking with a wide array of students and peers, I have found few who are not immediately dismissive of, even repulsed by the prospect of living forever. However, one has to ask whether this almost visceral reaction can be justified rationally or whether it is the product of the threat that it raises to hard-won beliefs that until now have enabled us to more or less successfully come to terms with our inevitable deaths. One transhumanist, the philosopher Nick Bostrom, director of the Future of Humanity Institute at

Oxford, speaks of those repelled at radical life extension as suffering from a kind of “Stockholm syndrome”¹ in which they have ended up championing their captor’s cause. Other transhumanists will refer to critics as “deathists,” “mortalists,” or “thanatosians” obsessed with defending a “pro-death dogma.” They are appalled at those appalled by this vision of a new humanity. In the words of Ronald Bailey, a columnist for *Reason* magazine, “Future generations will look back at the beginning of the twentieth century and marvel that intelligent people actually tried to stop biomedical progress just to protect their own cramped and limited vision of human nature.”²

Let me begin by detailing what has been achieved so far in extending life spans and the ways in which these visionary scientists imagine how the aging process might be arrested or at least managed so as to allow for human life to go on indefinitely. Life expectancy has already risen thirty years in the past century through revolutions in medicine and public health. Few people now die of the diseases that killed most in the past while they were still in the prime of their lives. Life expectancy has reached 78 in the United States. And that is the average. I live in a community of 37, 16 of whom are 80 or over. What natural threats to life remain are largely the diseases of old age: cancer, heart disease, Parkinsons, Alzheimers, etc. It is estimated that curing these final diseases would add another ten to fifteen years to our life expectancy. A life expectancy of even 100 may not be out of

¹ Nicholas Bostrom, “Recent Developments in the Ethics, Science and Politics of Life Extension,” *Aging Horizons* (Autumn-Winter 2005): 28-34 and at <http://www.nickbostrom.com/ethics/lifeextension.html> (August 7, 2012).

² Ronald Bailey, Francis Fukuyama and Morton Kondrake (moderator), “What are the Possibilities and Pitfalls of Aging Research into the Future?” in *Sage Crossroads* (Feb 12, 2003) at <http://www.sagecrossroads.net/files/transcript01.pdf>, p.7.

reach.

Of course, life extension is not primarily about raising life expectancy but about extending the human life span. The oldest documented human life is that of a French woman, a smoker by the way, who lived to the age of 122. Transhumanists talk about the prospects of extending the human life span to 150 within this century alone. If one could then ride the crest of further medical advances, taking advantage of them as they become available, people might soon have the potential to reach “escape velocity” and live on indefinitely.¹ How long is indefinitely? Basing himself on the risk of people in their twenties dying from accidents, Aubrey de Grey, one of the foremost scientists advocating radical life extension, argues that it would mean an average life expectancy of a thousand years. He adds that, assuming our posthumans to be far more risk averse than twenty-somethings, average life expectancy could reach 5,000 years.²

How could life be so extended? Scientists have already been able to extend the lifespan of fruit flies by selecting for late breeders. Selecting over ten to fifteen generations, Michael Rose has been able to triple the lifespan of fruitflies that he has dubbed “Methuselah flies.”³ In effect he argues that sex and death are related after all. Delay reproduction and evolution will select for those who live longer – long enough to reproduce later. Rose even suggests that this can happen at the level of the individual organism. He notes that eunuchs and celibates tend to live longer

¹ Aubrey de Grey with Michael Rae, *Ending Aging: The Rejuvenation Breakthroughs that Could Reverse Aging in Our Lifetime* (New York NY: St Martin’s Griffin, 2007), pp. 330-31.

² Young, *Designer Evolution* 42 (link to De Grey no longer active).

³ Ronald Bailey, “Forever Young: The New Scientific Search for Immortality,” *Reason* (Aug/Sept 2002) and at <http://reason.com/archives/2002/08/01/foreveryoung> (August 7, 2012).

lives.¹ Perhaps its no accident that I live with so many elderly Jesuits.

But selecting for late breeders in the human species would not be ethical. Rather the strategy for prolonging the human lifespan will be to identify the various mechanisms that contribute to the aging process. For it is now thought that aging is not a single process that can be potentially switched off by genetic manipulation. Rather, there are a half dozen or so independent processes that conspire to wear us down over the years. These range from the accumulation of replication errors in the DNA of our cells to declining hormone levels to telemere shortening that eventually stops the replication of new cells, among others. The hope is that once all these mechanisms are understood, each could be addressed and managed in the way that we now tackle diseases and chronic conditions. In effect, then, the strategy would be to treat death like a disease.

A couple of yet more radical ideas would be needed to supplement these treatments. One would be therapeutic cloning of organs to replace existing ones as they run down and wear out. By growing the new organs from the cells of the original individuals there would be no problem with tissue rejection. We are close to achieving this even today. More exotic and the ultimate tool, or *deus ex machina*, is nanotechnology. Nanotechnology works at the molecular level. If we could construct robotic machines at this level of magnitude (nanobots), we could inject millions of them into individuals. It would be their job to identify and repair cellular damage. It would be like a second immune system targeting defective cells. In this way the aging process could be arrested to keep us physically healthy and vigorous indefinitely.

¹Michael Rose, *The Long Goodbye: How Advances in Evolutionary Biolooy Can Help Us Postpone Aging* (New York NY: Oxford Univ. Press, 2005), pp. 55, 56-57.

All this being said, I am not really concerned with how scientifically feasible this all is. Its value lies rather in giving us an opportunity to identify the positive import of what we normally take to be an evil – our mortality. One of those eighty-year-old Jesuits with whom I live once confided to me in an elevator, “Tim, aging is a bitch. But it beats the alternative.” Well, death too can be a bitch, but today we can explore whether it may also beat its alternative – namely, living on and on and on until we get hit by a bus.

Arguments against radical life extension fall into three categories. First, there is the question of distributive justice. Who will have access to this technology? Who will pay for the research? Second, there is the disruption to the life cycle. What happens to the maturational process in an indefinitely extended life? What would identity look like when one lives for centuries? Could one have a stable identity over such a time span? And finally there is the question of what virtues may be lost with the erasure of death from the horizon of our living. We define ourselves as mortals. Would virtual immortality denature us? Are there virtues to mortality? Are there virtues even to the diminishment that aging brings? Would human life ironically be impoverished should we never experience an impoverishment of our powers?

Social Justice

On the matter of distributive justice, who would have access to this technology? How expensive would it be to manage the various aging processes, let alone to have periodic organ replacements and have one’s body injected with millions of nanobots? Would it create a new class system with virtually immortal posthumans living along side the merely human majority

of the population? Such a state of affairs would make the class system of the ancient world look trivial. Combined with other transhuman enhancements to memory, mood, strength, and intelligence, the posthuman elite would appear more like Greek gods compared to mere human confreres. Or would our posthumans still be able to see the merely human as confreres? Would humans be covered under a posthuman categorical imperative?

The response to these fears from the transhumanist camp is that, since at this point we are simply envisioning a future, we would do well to imagine that after an initial startup period these medical techniques would become cheap and readily available to everyone. Furthermore, most transhumanists would be loathe to force life extension on anyone. If one has philosophical or moral or religious objections to living on indefinitely, then don't take the treatments. But don't prevent those of us who do want to continue living from doing so.

Yet between now and then, should limited research dollars even be invested in realizing this vision when average life expectancy in much of the third world, especially Africa, is still in the mid-fifties or even lower. Is there not something unsettling about first-world researchers seeking to extend the natural human life span when so many around the world fall so far short of reaching even contemporary life expectancies in the first world. Should we not be devoting our resources first to raising the third world up to first-world standards before working on transcending our natural lifespan altogether?

The response to this objection is to ask why pick on anti-aging research? There are indeed vast inequalities in the world and research dollars are not now allocated on the basis of what is going to be of greatest benefit to the least well off. Vast resources are spent on late onset diseases such as cancer and Alzheimer's while basic health care languishes in many third-world countries.

Advocates also remind critics that anti-aging research is ultimately about saving lives. 150,000 people die every day, two-thirds from age related causes. A breakthrough in radical life extension could mean the saving of tens of thousands of lives a day. As Bostrom has argued: “Whatever problem is identified (with radical life extension), is it worth the death of 100,000 people per day to avoid having to solve it?”¹

Nevertheless anti-aging researchers are not now asking for huge sums of money to fund a Manhattan Project on aging. Until more concrete progress is made they are advocating for tens of millions, not tens of billions of dollars. The NIH currently invests 0.02% of its budget for aging research. Even a hundred fold increase would still keep it as a low funding priority.

Disruption of the Life Cycle

The second series of objections revolves around the disruption of the human life cycle. Not only does delayed reproduction lead to extended life, but extending life would inevitably lead to delayed reproduction. How else to deal with the growth in population when people stop dying? We have already seen the increase in the earth’s population this past century as a result of the extension of average life expectancy. And where life expectancy is high, birth rates are falling. The more libertarian transhumanists argue that people would still be able to choose whether to have a child. They suspect that the birth rate would continue to fall, however, and they have faith that future technological advances would continue to increase the carrying capacity of the earth as it has up to now.

However, it is more likely that even if people would still be able to choose whether to have a child, they would not be able to

¹ Bostrom, op cit.

choose when. With so few people dying (as a proportion of the overall population), births would have to be tightly regulated. In effect you would have to wait your turn in line. And if people are living a thousand years, that could be a long wait.

But independent of one's own desires for a child, what would it be like to live in a society where the vast majority of people have never been parents, or were parents a couple hundred years ago? Are there virtues to parenting that would be lost or drowned out of public debate? In his criticism of designer babies, Michael Sandel has argued that parenting schools a person in unconditional love. You love the child however it turns out. There is a radical contingency in the outcome that makes the child appear as a gift rather than a product. Even more than romantic love, parenting done right involves a radical de-centering of the self.¹ Few posthumans will have had such a maturing character-forming experience.

Adolescence, on the other hand, would be likely to extend even further than it does today. Adolescence became a discrete stage of life when life expectancy began to rise in the nineteenth century. Today there is talk of the rise of yet another stage of life, young adulthood, as students upon graduation from college do not immediately enter the job force, let alone get married. Rather, they do service years, go on to graduate schools, or simply move back home. What they are doing is not irrational. On the contrary, since they will likely have to work into their mid-seventies, doing what they will only be able to do now, before they acquire responsibilities that tie them down for the next fifty years, makes perfect sense. It's not like they would be losing any seniority. No one expects to work for the same company for life anymore

¹ Michael Sandel, "The Case Against Perfection," *The Atlantic Monthly* (April, 2004), also at <http://www.theatlantic.com/past/docs/issues/2004/04/sandel.htm> (August 7, 2012)

anyway.

With the arrest of aging, adulthood would now become the final stage in the developmental process. And yet what would that adulthood look like? Take first one's professional life: Would you work the same job for hundreds of years? Would there be college professors teaching from century-old notes? Or would you inevitably at some point lose interest and need to try something else? Or if you didn't lose interest, would you need to be forced out, to make way for someone else more recently trained, whose ideas are fresher. It's been said of various professions that progress occurs one tombstone at a time. Would innovation and creativity be undermined by an entrenched gerontocracy? Retirement can be difficult. How difficult would it be to be retired from a job when you are still at the top of your game, with as much energy and in as good a health as ever? Your next job may also be fulfilling, but it is not your first choice. And what of the job after that, and after that, and after that? As Karl Rahner once put it when discussing the prospect of life extended indefinitely, how many jobs can one work before it all ceases to mean very much?¹

A meaningful personal life extended over the centuries faces similar challenges. We say that love is forever, but could a relationship really remain vital for hundreds of years? Again our experience with increasing life expectancy would counsel skepticism. Half of all marriages already end in divorce. Would we need to restructure marriage as a term contract – renewable of course? In fact, some critics argue that the whole structure of the family would become so distended as to lose much of its centrality in our culture. What would it be like to have parents you have not lived with for hundreds of years? Or children you raised half a millennium ago?

¹ Karl Rahner "On Christian Dying," *Theological Investigations* 7 (New York NY: Herder and Herder, 1971), pp. 285-87.

Indeed, if human identity has a narrative structure, if we are the stories we tell about ourselves, can there be a story to a life with so many disparate chapters that has no end in sight? Could we integrate our life into a single seamless whole? Or would our lives rather read like an actor's credits – a serial listing of roles that may or may not have much to do with one another? Once more we are beginning to see this happen even today as people live long enough to move from one job to the next, even working into a retirement that would otherwise stretch out before many as an empty expanse. Would not endless youth only aggravate this condition to the breaking point?

And what of death when it finally does come? As I said at the outset, for the posthumanist life would still end eventually by some catastrophic accident, by being deliberately killed or through death at one's own hand – all kinds of death that we today consider tragic. They are tragic for they are all deaths that do not need to happen. Lives cut off too soon. For our posthumans would any death be too soon? These tragic kinds of death are the hardest to grieve. Yet they would be the only forms of grief our posthumans would know. Rather than "cure" death, would this not make death truly fearsome and absurd?

A good death takes preparation. The diminishment of our powers, physical and even psychological, prepare us to let go of life. And it prepares those who love us to let us go. So too our diminishment schools us into handing over what we hold dear to those who will live on after us. In this way a good death completes the cycle of life.

Ironically, the only form of death available to the posthuman that holds the promise of a good death is the deliberate taking of one's own life. But here too context is all. To take one's life while in the full flower of one's powers, however weary with life one may be, would fall hardest on family and friends who may not be prepared to let go. In order to prepare well for death, perhaps the

best way for our posthumans to die would be to stop the anti-aging treatments and let life, and death, take up its interrupted course.

Transhumanists acknowledge that radical life extension would lead to fundamental disruptions to human relationships and how we understand ourselves. However, time is on our side. We will still age one year at a time. We will have hundreds of years to prepare for and then adapt to living hundreds of years. We have successfully adapted to the thirty-year extension of life expectancy in this century. We will undoubtedly adapt again. Yet transhumanists agree that the time to start thinking about radical life extension is now.

The Virtues of Mortality

A third set of objections to radical life extension circle around the rather counter-intuitive question of whether the consciousness of our mortality does not have its own virtues. Leon Kass, head of the past president's Commission on Bioethics, has been a strong advocate for the essential importance of mortality: "Death is a blessing to everyone whether they know it or not." He gives what are essentially transcendental arguments for the ultimate value of mortality under four headings: interest and engagement; seriousness and aspiration; beauty and love; virtue and moral excellence.¹ In regards to each he will argue that death is a necessary condition for its very possibility.

With respect to the first, he asks whether consciousness of our mortality is not a necessary condition for our truly devoting ourselves to anything. Would endless time eliminate any sense of urgency in the present? In Simone de Beauvoir's novel *All Men*

¹ See Leon Kass, "L'Chaim and Its Limits: Why Not Immortality?" in *The Fountain of Youth: Cultural, Scientific and Ethical Perspectives on a Biomedical Goal*, edited by Stephen Post and Robert Binstock (New York NY: Oxford Univ. Press, 2004), pp. 304-20.

are Mortal the main character is a person who cannot die, who has seen it all and become world-weary. Our posthumans can choose to die, but if the motive is to escape a life grown jaded and cynical, what does this say about the value of such virtual immortality?

Secondly, if value is a function of scarcity, then it is death that helps to give life its priceless significance. Rather than death making life meaningless, it is consciously confronting the reality of our inevitable death that can awaken us to the importance of spending wisely what time we have. Heidegger goes so far as to define the human being as a being towards death, the kind of being who discovers the meaning and purpose of this being by facing the horizon of ultimate non-being with eyes wide open. It is the fact of our inevitable death that calls us to make something of ourselves in the present. Kass points in contrast to the immortal gods of the ancient Greeks, who for all their eternal youth and vigor led essentially trivial lives. What absorbs them is the life of mortal humans for whom things are literally matters of life and death. It is mortality, Kass argues, that makes life count.

Thirdly, Kass quotes Wallace Stevens, "Death is the mother of beauty." Might it be our very transience that in part inspires us to make objects of permanent beauty to leave behind us? And, on the other hand, is it not the fragility and transience of things, that contribute to their aesthetic appeal? Why are we let down when we find a flower bouquet to be silk? And as I have already mentioned, can our appreciation for the beauty of our beloved, not just their physical beauty, which would never fade, but their moral beauty, the beauty of their soul, last for centuries? In marriage we pledge our lives together till death do us part. Is that too great a commitment to expect of anyone in an age where death is rare?

Finally Kass asks whether mortality is not a necessary condition for the possibility of moral excellence. It is heroic to devote one's life to a worthy cause, but what if that life extends 1,000, 2,000 years into the indefinite future. Might one tire,

become jaded? Perhaps it is no accident that prophets tend to be young. So too other virtues, what Schleiermacher calls the martial virtues or the virtues of adversity, such as courage, endurance, and self-sacrifice are most admirable when there is something truly irreplaceable at stake, be it one's life or a period of time that cannot be made up.

This last series of objections is perhaps the most satisfying and the most disappointing. The objections get to the heart of the matter – what value may lie in death itself – but they are questions more than arguments, and as transcendental arguments, they are based ultimately on a mere intuition of what is necessary for the possibility of what we do value, an intuition that may not be testable before life extension succeeds. To these the transhumanists respond with their own intuitions: that our interests are inexhaustible; that life's meaning and purpose would be enhanced by transcending the limitations of time; that we would have more time to create and appreciate beauty, more experience upon which to build moral character. Our lives would be richer, not poorer.

In the end we are speaking of two conflicting faiths. A faith in life, one might say, and a faith in death as an essential element to any life worthy of the name. I would like to conclude by contrasting this virtual immortality of death indefinitely deferred with the Christian vision of immortality beyond death. Both are visions of transcendence, one technological and scientific, the other religious.

Technological transcendence is about transcending our limitations. Death is perhaps our ultimate limitation. Transcend it and we have transcended our nature. We have become posthuman. But there is a thread that runs through many of the criticisms we

have seen of this transhumanist vision. Something remains that is never transcended but rather constantly reinforced – the self. Few adults schooled in the unconditional de-centering love that is parenting. No diminishment to prepare one to hand over one's position or power or resources to those who follow. A life too long to be given over to any single cause or person. A life that is never spent.

Transcendence of the self, on the other hand, is the essence of religious aspirations for transcendence. Rather than being about transcending limitations on our power and control, the Christian vision of immortality is about self-emptying and self-surrender. Rather than the transhumanist longing for a healthier, smarter, happier, more powerful self, a virtual apotheosis of the "I," Christianity finds completion in the death of what Tauler refers to as the "I, Me, Mine." The Christian vision of immortality is not about independence and a virtual invulnerability but about an utter dependence upon God. Just as we live only by participation in the creative power of God, so the immortality of the saints is but a participation in the immortality of God. Its not something they possess of their own accord.

Aquinas says that the saints behold God face to face. Looking into one another's eyes – just as we first find recognition looking into our mother's eyes looking back into ours. Or as two lovers who lose themselves in each other's eyes. It is intimacy at its most intimate. On the other hand, Catholics also believe that the saints keep an eye on us as well caring about us, interceding for us before the Father. My favorite image for this is the cloud of witnesses in Hebrews who are imagined as cheering spectators in the amphitheater as we run the race of our lives around the track. In both cases the saints lead radically other-centered lives. Their immortality is not about them.

For our posthumans, however, the self is so important that to "save" their lives they are prepared to put a stick in the spokes of

the cycle of nature itself. Now it is true that Christians do not believe in reincarnation. For us there are no hosts of pre-existent souls awaiting birth. Yet I cannot help but feel that something is wrong about the posthumans' unwillingness to leave the stage. Would the first generation to enjoy a lifespan of a thousand years not in some way also be the last generation? Would those born afterwards be so few and far between as to no longer count as an age cohort? In so transcending our nature, are we not transcending nature altogether?

Is death then sacred? Far from being an evil for God to answer for, is it rather a grace, albeit what Luther would call a dark grace? Is death indeed a blessing in part for us perhaps, sometimes, but even more so for others, especially those others who would follow after us? Is it not the ultimate decentering of the self, its final transcendence?

Is death then sacred? It bears many characteristics of the numinous. We approach it with fear and trembling. It gives our life a sense of direction and purpose. However much we may understand it scientifically, experientially it will always remain a mystery. And it makes us cognizant of what is ultimate – God, love, even life itself, not as death's antithesis, but as its complement. And if death is sacred, then is not the vision of radical life extension death's ultimate secularization? As Kass notes, "it is probably no accident that it is the generation that proclaims the death of God and the meaninglessness of life that embarks on life's indefinite prolongation."¹ Is death not rather like Jacob's angel, with whom we must wrestle in the dark of night but whom we should not release until it give us its blessing.

¹ Ibid. 317.