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Contested Culture
The Plausibility of Transhumanism

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Abstract: Transhumanism seeks the continued evolution of human life beyond its current lifespan and supports technological intervention of selective human enhancement. At the core of contestation is deep-rooted concern about tampering with human nature and the unknown element of who we might become. Nevertheless, if humans have been in a continued state of transmutation from our earliest time, then this process is species-typical. What comes into play is the issue of what we desire and what is feasible for biological modification as it relates to life extension and preservation of one's autonomy. Even if transhumanism advocates life-promoting principles and values, the risks include our own evolvability. While the outstanding issue of what we might become if we live longer is an unknown, it is plausible that the transhumanist aim of radical life extension will be realized.

Keywords: Life extension; human enhancement; species-typical; autonomy; evolvability risk.

Life and its Extension

Life extension means increasing the length of time a person is alive. For human life, the length of time is bounded by a single century and its matter is tied to biology. When asking, "Why extend human life?" the question of what it is that is to be extended comes into play. Is it the body and its biological cells, the human mind and the unsolved mystery of consciousness, the species as a whole? Or, better yet, we might ask what core elements of life are to be extended, whether biological cells or digital devices, and what types of environments might exist within. When coupled with human enhancement, life extension takes a unique turn. Biotechnology interfaces diversify human nature through the most obvious of tools; the smart phone has become an extension of cognition, and the Internet an extension of the physical world.

Addressing what he calls a "problem for philosophy" Eugene Thacker notes two significant concepts, the "time and temporality" of life and the "form and finality" of life.[1] Thacker's perspectives are relevant because he looks at life outside the scientific-biological-medical perspective and the mechanical-technological sphere, and thus the tension between them. Thacker approaches the issue of what is life by introducing ontology of life and identifies and

[1] Eugene Thacker, *After Life*, Chicago: The University of Chicago Press 2010, pp. x, xiv, 4, 6, 17.

articulates two aspects of life that parallel the expansion of life. First, that life manifests in instances and, second, that those who are living denote the manifestations of particular instances. This observation is derived from Aristotle's use of life as the concept of "life-in-itself" and the "now" that is lived in the present, including "any and all the instances of life."[2] Life extension rests on the idea of staying alive. While corporeal life is necessary, to be sure, it is even more important to identify all instances of an individual's personhood, the "now" of being alive and the continuation of such instances that denote personal life.

The boundary of personal life is the aggregate of cells that forms a person. Lynn Margulis brings life directly into bodily matter as an evolutionary conglomeration of bacterial strains where life is "the transmutation of energy and matter" in performing an autopoietic behavior.[3] Margulis' proposed theory of symbiogenesis[4] suggests that we comprise a conglomerate of life forms—that as animals, humans are nucleated cells descended not just from a Darwinian theory of natural selection and common ancestry,[5] but from ancient bacteria, which themselves comprise different strains of bacteria (*WL*).

Although the Margulis suggests the term symbiogenesis for the process by which biology and technology synthesize in producing an origin by which new transmutations might emerge, Keith Ansell-Pearson refers to "bio-technogenesis" in relation to the "collapsing of bios and technos into each other" as a "spurious claim that with the coming of computers and the arrival of robot intelligence the planet is now entering a 'silicon age'."[6] The tension noted by Ansell-Pearson and through his observations that when it comes to issues on matters concerning life and silicon (or extending life, morphing life, and the symbiotechnogenesis of life), a certain nerve is touched. We are not upon a silicon age, it was already here.

Ecological relationships between and among elements of life, being fundamentally nutrition, motion, and reproduction,[7] as well as the potential for innovative technology to extend the human lifespan engages a transmutation (as in symbiogenesis) of the human in what is not just a horizontal process (as in the horizontality of the Darwinian theory), but also an autopoietic, cybernetic process. This notion sheds light on life is a process of historical self-adjusted augmentation and transformation (e.g., human-computer interfaces and bio-digital devices) and the scientific research of genomics and biotechnological advances that are intervening with death. Further, today a person can easily obtain information about one's genetics,[8] and the business of life extension is flooding the marketplace. Step-by-step one can see the human process toward life extension as plausible.

Human Enhancement: Normal and Species-Typical

The phrase "species-typical" refers to innate and commonly inherited behaviors that can be recognized by most members of a species.[9] The distinction between species-typical and non-typical could be categorized by "dual-use" technologies for enhancement.[10] For example,

[2] Aristotle, *De Anima*, ed. William David Ross, Oxford: Clarendon Press, 1931.

[3] See Lynn Margulis and Dorion Sagan, *What is Life?*, Berkeley: University of California Press 2000, pp. 133, 194, 221, here p. 215. [Henceforth cited as *WL*] Margulis states: "Changing to stay the same is the essence of autopoiesis. It applies to the biosphere as well as the cell. Applied to species, it leads to evolution" (p. 31). To contextualize this statement, Margulis quotes Willem de Kooning's artistic reflections on abstract expressionism: "If you write down a sentence and you don't like it, but that's what you wanted to say, you say it again in another way.... You have to change to stay the same" (p. 31).

[4] "Symbiogenesis" is coined by the Russian biologist Konstantin Merezhkovsky and is developed by others, including Boris M. Kozo-Poliansky.

[5] Charles Darwin, *On Origin of Species By Means of Natural Selection*, New York: Modern Library, 1859.

[6] Keith Ansell-Pearson, *Deleuze and Philosophy: The Difference Engineer*, New York: Routledge 1997, p. 182.

[7] http://www.eurekalert.org/pub_releases/1998-10/M-CCD-051098.php, last accessed 12-10-2013.

[8] For example, the Silicon Valley business 23 and Me currently charges $ 99.00 for a DNA test based on a saliva sample.

[9] Clive D. L. Wynne, "What are Animals? Why Anthropomorphism is Still Not a Scientific Approach to Behavior?," *Comparative Cognition & Behavior Reviews*, 2 (2007), pp. 125-35, here p. 125.

[10] In the domain of human enhancement, "dual-use" refers the use of technology for therapeutic purposes and for enhancement purposes. While there is no clear boundary that separates therapy from enhancement. Humans have varying degrees of capabilities and disabilities when it comes to performing at levels essential for realizing individual needs and for those

therapeutic enhancement refers to the standard practice and uses of medical technologies to restore the biological body to a normal physiological state and/or to assist as a preventative measure. Selective enhancement refers to improving a person's capacities outside the limits of normal. Nevertheless, while the concept of "normal" is necessary for rudimentary classifications and for advanced valuations of human behaviors—such as scientific comparisons, medical examinations, and psychological determinations—these criteria do not accurately reflect the inimitability, diversity, and difference within the scope of the human species' capability. The biopolitics of human enhancement of the late twentieth century and the early twenty-first century include the cultures of life extensionists, feminists, cyberpunks, transhumanists, posthumanists, avatars, transsexuals, bio-hackers, geeks, and others, who support and encourage bodily, sexual and psychological diversity and multiplicity. Those who desire to live longer—well past the current maximum lifespan—are largely for a socio-political change of the dicta of traditional codified "normal" and "normality" that prescribe a set of universals,[11] as developed by the Western world, about not just what man and woman are, but that death is a natural process of life.[12]

The concepts of normal and normalcy often leave out human desire by assuming that all humans are equal or ought to be categorized by certain predetermined universals. Additionally, these concepts set up complacent standards that may fall below what is currently felt (and what is considered acceptable) by individuals and society. On the other hand, standardized understandings help to provide a measure of safety, distancing the unknown factors of the future from the present. Yet, if enough change in human behavior and appearance occur, and little by little the borders between normal and enhanced persons accelerates—likely, by small seemingly insignificant steps—the outcome will eventually be noticed to the extent that one generally would have to agree that a new normal has been set, even if by default.

levels acceptable within the context of what humans consider to be a fully functioning society.

[11] See Andy Miah, *Genetically Modified Athletes: Biomedical Ethics, Gene Doping and Sport*, New York: Routledge 2004, pp. 1, 37, 110, 126.

[12] Francis Fukuyama, *Our Posthuman Future: Consequence of the Biotechnology Revolution*, New York: Picador 2002, p 7.

Desire and Feasibility

"We must restrict our focus to the zone where desire and feasibility intersect."[13]

The dialectics between the desire to extend the human lifespan and its feasibility is often approached in relation to biotechnology's research climate, costs of technological developments, ethical issues, and legal ramifications. Passions can outweigh costs and this fervor keeps pounding the pavement toward progress; notably, through the efforts of the early alchemists in manipulating matter, or as in Nikolai F. Fyodorov's "common task,"[14] and Jean Finot's proposed fabrication of living matter. More recently, these passions continued through the work of Robert Ettinger in foreseeing human cryopreservation,[15] in Eric Drexler's notion of self-assembling bionano systems,[16] and in Raymond Kurzweil's predilection for an age of intelligent machines.[17] In light of these optimistic visions, it becomes significant that the dialectics of what might be desired and what could be feasible reach a level of logic outside the scope of an inward-looking socio-cultural activism of life extension proponents.

Gregory Stock believes, "we cannot say much about the challenges that will accompany the first steps of human self-design until we examine the specific biological modifications that might intrigue us when the technology arrives" (*RDH* 97). For him, the choices we make today are a "preview of the deeper ones we will face" in the years to come, especially "because they reveal the cultural and biological desires that shape our preferences" (*RDH* 97). As a biophysicist, Stock worked in the formative stages of the current biotechnological climate. He links the Gaia hypothesis[18] with

[13] Gregory Stock, *Redesigning Humans: Our Inevitable Genetic Future*, Boston: Houghton Mifflin Company 2002, p. 97. [Henceforth cited as *RDH*]

[14] See http://www.regels.org/N-Fedorov-1.htm, last accessed 12-10-2013.

[15] Robert C.W. Ettinger, *The Prospect of Immortality*, Chelsea, NY: McFadden Books, 1966.

[16] Eric Drexler, *Engines of Creation*, Harpswell, ME: Anchor 1987, pp. v, 4, 213.

[17] Raymond Kurzweil, *The Age of Spiritual Machines*, New York: Penguin, 2000.

[18] See James E. Lovelock and Lynn Margulis, "Atmospheric homeostasis by and for the biosphere: The Gaia hypothesis," *Tellus* 26 (August 1974), p.

Teilhard's thinking noosphere with a technologically interconnected approach in proposing the human as a type of superorganism, "a community of organisms so fully tied together that it is a single living being"[19] and one that is "at the forefront of life's evolution from the simplest of living forms, and where this evolutionary process will lead us cannot be known," but "affirms that we are connected" (*MM* 245).

These associations—a gestalt of the human and its environment coupled with the human sphere of thought as a transmutation of elements—ties into the field of cybernetics. Because cybernetics forms the ground point for the physical augmentation of the human body, both Stock's early ideas of a type of metaman and his more recent logic concerning human desire and its feasibility suggest a maturing foundation with a practical capability that gives credence to the optimistic visions of extending the maximum human lifespan and the cultural landscape in which such visions reside.

Hammering out the arguments with ethical trepidations against such desire, and purporting its feasibility as unlikely, we turn to a United States Council of Bioethics report that established an inquiry "into the potential implications of using biotechnology 'beyond therapy,' in order to try to satisfy deep and familiar human desires."[20]

> The desire for ageless bodies involves the pursuit not only of longer lives, but also of lives that remain vigorous longer. It seeks not only to add years to life, but also to add life to years. This double purpose is therefore likely to be better served by certain approaches to life-extension than by others. Life-extension may take three broad approaches: (1) efforts to allow more individuals to live to old age by combating the causes of death among the young and middle-aged; (2) efforts to further extend the lives of those who already live to advanced ages by reducing the incidence and severity of diseases and impairments of the elderly (including muscle and memory loss) or by replacing cells, tissues, and organs damaged over time; and (3) efforts to mitigate or retard the effects of senescence more generally by affecting the general process (or processes) of aging, potentially increasing not only the average but also the maximum human lifespan. [*BT* 165]

It is the third approach as presented above—that of mitigating effects of senescence in order to increase the maximum human lifespan, which directly relates to appending human mortality. In navigating this course, human desire is steered in large part by the hope for control over death.

Notably for anyone interested in life extension, the issue is not just concerned with bodily enhancement but with the larger environment in which the enhancement takes place and the idea that humans might or could redesign themselves. Historically, when a human augments one's body with exterior tools and exhausts its functions, then appending one's own body can be seen as an innate behavior. The specific issues here are the desire to enhance, most likely out of need, and the feasibility and practicability of enhancement based on whether appropriate tools can be developed. Notably, Stock addresses this concern, "[t]he desire to triumph over our own mortality is an ancient dream, but it hardly stands alone" (*RDH* 9) … "why not acknowledge that what we really desire is not shorter morbidity at the end of life, but a life that is both healthier and longer?" (*RDH* 80). Yet, practicability interferes with this desire, as Stock notes: "We must restrict our focus to the zone where desire and feasibility intersect" (*RDH* 97). This zone parallels that of artistic, design-based approaches because (i) artistic concepts have a certain leeway in expression and not necessarily accountable for its accuracy and (ii) design-based processes are structured to find solutions or meet specific needs. The balance between artistic expression and design-based approaches can be seen similarly because approaches life expansion (with freedom in expression for countless possibilities) is thrilling, especially in science fiction. Nevertheless, in order to add to the scholarship of the vision it must have a theoretical basis and/or practical and doable result.

2, Online http://www.gps.caltech.edu/classes/ge148c/pdf%20files/lovelock.pdf, last accessed 12-10-2013. Lovelock and Margulis propose that the Earth's cycling of atmospheric gases could suggest that it is homeostasis and, although this theory does not offer proof of its existence, it does introduce the notion that the Earth is alive as a self-regulating system of the biosphere, atmosphere, hydrosphere and pedosphere.

[19] Gregory Stock, *Metaman: The Merging of Humans and Machines into a Global Superorganism*, New York: Simon & Schuster 1993, pp. 20. [Henceforth cited as *MM*]

[20] Leon R. Kass et al., *Beyond Therapy: Biotechnology and the Pursuit of Happiness*, Wasington, DC: The President's Council on Bioethics 2003, p. x. Online http://bioethics.georgetown.edu/pcbe/reports/beyondtherapy, last accessed 12-10-2013. [Henceforth cited as *BT*]

Andy Clark echoes the concern of many involved in both sides of the life enhancement discussion: that the human is being modified at its core—that the concepts of normal, natural, single, and even "protective social policies—of mainstream society" are in themselves shifting.[21] "It is a delicate matter, then to balance this danger against the competing vision … of a new media allowing us slowly and safely to explore multiple aspects of our personal and sexual identity" (*NBC* 191). The impassioned person who rages against being pre-defined by his or her gender or body image or being subject to a maximum lifespan, one which is considered natural and normal, that address the body, personal identity, and human rights—in what is known as morphological freedom.[22]

> The network is not bounded by the skin but includes all external pathways along which information can travel. It also includes those effective differences which are immanent in the 'objects' of such information. It includes the pathways of sound and light along which travel transforms of differences originally immanent in things and other people—and especially *in our own actions*.[23]

Autonomy, Connectivity, and Evolvability

> My body is wherever there is something to be done.
> (Merleau-Ponty)[24]

That one person is an autonomous agent is paradoxical; one is only alone insofar as her mind permits and actions warrant. As the body propels each person into the world, we are immersed in a primordial soup of atoms, molecules, and life forms in all their variety and in all their conjoint relationships. The transhuman concept, as a descriptive agent of change, offers new models for technologically mediated bodies that could feasibly lead toward radical life extension. One might ask: Where is the human in all this change? The particular behaviors of being that affords us the autonomy and connectivity, or the illusion of same—the agility and flexibility—our plasticity—is largely fostered by our senses and responses to each environment we inhabit.

Since the transhumanist purposes alternatives to biology, the relationship between the ability of a person to alter behavior and/or physical performance within one's environment is significant. From a neuroscientist's perspective Joseph Ledoux opines that what makes us who we are is all about our synapses—the key players in the brain's communication system.[25] This system contains the hardwired responses that intersect a person's experiences. In other words, the brain's nature (hardwiring) meshes with a person's nurturing (life experiences). Life experiences, in all their varied ways—love, anger, regret, hope, loss, or happiness—are the fuel for brain plasticity. Human enhancement future alternatives to biology could be varied and unique, as enhancement is not one-size-fits-all. Each person is individuated by complex behaviors and even though we share biological architecture, personal existence—our own identities and our identifiers—is where each person's narrative begins. But if enhancement takes us into a more virtual sphere, what are the possible risks?

Life expansion risks have been discussed as evolvability risks and also as bioconservative risks. Evolvability can be understood as an ability of a species to produce variants more apt than those currently existing within a species. For example, Lee Altenberg uses the term evolvability in computer science as a type of "emergent selection phenomenon,"[26] where he attempts to develop "a performance measure for genetic algorithms" (*EEG* 48). Engineer and designer Thomas Ray's concern with the issue of evolvability pertains to building artificial systems and observing which type of system shows signs of evolution and which types do not.[27] Here, evolution in computer-based systems, as in

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[21] Andy Clark, *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*, Oxford: Oxford University Press 2003, p. 191. [Henceforth cited as *NBC*]

[22] See Max More, "Technological Self-Transformation: Expanding Personal Entropy," *Extropy* 10/4:2, (Winter/Spring 1993), also at http://www.maxmore.com/selftrns.htm, last accessed 12-10-2013. Morphological freedom means the right to one's body and proposed the right to enhance one's body and the right not to be coerced into enhancing.

[23] Gregory Bateson, *Steps to an Ecology of Mind*, Chicago: University of Chicago Press 2000, p. 319. First published by the Estate of Gregory Bateson in 1972.

[24] Quoted in *NBC* 89.

[25] Joseph Ledoux, *Synaptic Self: How Our Brains Become Who We Are*, New York: Penguin 2003, p. 1.

[26] Lee Altenberg, "The Evolution of Evolvability in Genetic Programming," in *Advances in Genetic Programming*, ed. Kenneth E. Kinnear, Jr., Cambridge, MA: MIT Press 1994, pp. 47-74, here p. 47. [Henceforth quoted as *EEG*]

[27] Thomas S. Ray, *Some Thoughts on Evolvability*, posted

the project Tierra, is designed for evolvability in that:

> [t]he running of the self-replicating program (creature) on the virtual computer (Tierra), with the errors imposed by the operating system (mutations) results in precisely the conditions described by Darwin as causing evolution by natural selection. While this is actually an instantiation of Darwinian evolution in a digital medium, it can also be viewed as a metaphor: The sequence of machine instructions that constitute the program of a creature is analogous to the sequence of nucleotides that constitute the genome, the DNA, of organic organisms.[28]

One way of looking at evolvability outside computer science is to consider any system—a society or culture, for example, that has evolvable characteristics. Incidentally, it seems that today's culture is more emergent and mutable than physiological changes occurring in human biology. In the course of a few thousand years, human tools, language, and culture have evolved manifold. The use of tools within a culture has been shaped by the culture and shows observable evolvability—from stones to computers—while human physiology has remained nearly the same.

For the purpose of speculation on evolvability risk, one would look at the converse of life extension—what might stand in the way of the human transition in becoming transhuman and, later, posthuman. The obvious concern would be a catastrophic risk of extinction. The less obvious risk is that of the psychology of human behavior, especially the tyrannical behavior of one group of people attempting to and/or succeeding at coercing and controlling another, such as historical episodes of oppressive social hierarchies.

> The rich complexity of each individual is produced by a cognitive architecture, embodied in a psychological system, which interacts with the social and nonsocial world that surrounds it. Thus humans, like every other natural system, are embedded in the contingencies of a larger principled history, and explaining any particular fact about them requires the joint analysis of all the principles and contingencies involved.[29]

Outside the realm of humankind, nature has its own collision course. Inside the realm of humankind individual ideologies and psychologies collide and conflicts arise. One possible prelude for priming this discourse is to build on the concept of morphological freedom as a freedom that protects the rights of those who want to enhance as well as the rights of those who do not want to enhance. More specifically, it can be seen as a civil right to modify one's own biology. A step further would be to use the same logic with life extension. In this way, we begin by addressing human behavior as consequential to sciences and technologies of life extension and the future human. There are uncertainties and risks and human rights to consider when appending the physical body and cognition, developing new environments for existence, and manipulating matter.

Conclusion

That the human could be reduced to Fukuyama's Factor X, a series of codes, or a conglomeration of molecules and patterns with which to deconstruct and reassemble,[30] echoes aspects of early proto-science and the philosophical and scientific theories of Fedorov and Finot—possibly making these notions more historically linked and less obscure. Whether or not emerging and speculative technology will be used to develop new types of bodies, new types of environments, and new platforms for life is yet to be seen. Along the way the larger question remains: How can we build better knowledge of human differences that emphasize understanding instead of unproductive bias and misinterpretation?

Freedom of choice is vigorously cherished in a free world, as fragmented and contested as the profoundly

June 17, 1999 at http://life.ou.edu/pubs/evolvability, last accessed 12-10-2013.

[28] Thomas S. Ray, "Evolution, Complexity, Entropy, and Artificial Reality," *Physica D: Nonlinear Phenomena*, 75/1-3 (August 1994), pp. 239-63, here p. 241.

[29] John Tooby and Leda Cosmides, "The Psychological Foundations of Culture," in *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, eds. Jerome H. Barkow, Leda Cosmides, and John Toby, New York: Oxford University Press, pp. 19-136, here p. 21. Although the relationship of the person to his/her environment is a syncretic approach and a "psychic unity of humankind" and that the growth of strong empirical adherence to a conclusion is predicated upon a certain detectable genetic uniformity among humans, this paper does not support the "species-typical" conclusion that proposes a universal of what humans are supposed to be in regards to the right type of human, especially in regards to sexuality and gender-based behaviors supporting a particular socio-political ideology.

[30] Eric Drexler, *Engines of Creation*, Harpswell, ME: Anchor 1987, pp. v, 4, 213.

numerous cultures of the world may be. Although conflict and contestations might arise in the blink of an eye, humankind does forge ahead with "a distinctive ... vision as complex and protean."[31] With the conspicuous metaphorical elephant in the room revealed,[32] along with acknowledging the spectrum of risks and encompassing concerns that undoubtedly will arise from the emerging and speculative technologies of life extension, we can continue uncovering what might be the necessary conditions enabling the plausibility of the transhumanist future.

[31] Richard Tarnas, *The Passions of the Western Mind: Understanding the Ideas that Have Shaped Our World View*, New York: Ballantine Books 1991, p. 3.

[32] It is known that academe humanities is largely postmodernist in approaching human enhancement, transhumanism and the posthuman future and has largely contested the tenets of the worldview in which human enhancement and life extension are lodged. Nevertheless, it is the hope of the author that diverse representations of the human future within the humanities might develop in deference to the postmodernist and other philosophical worldviews.