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# Lives of the Immortalists

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Mark O'Connell's *To Be a Machine* is a voyage through a world oriented toward the ultimate techno-scientific aim: the perfection of the human race through technology. But unlike most books on transhumanism, this book is refreshingly personal, featuring a series of encounters with leading transhumanists as told by an outsider who is sometimes daunted, often provoked, ever searching in his effort to tackle questions about the potential of technology to radically transform human life.

*To Be a Machine: Adventures Among Cyborgs, Utopians, Hackers, and the Futurists Solving the Modest Problem of Death*
By Mark O'Connell
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The book opens with the line, "All stories begin in our endings: we invent them because we die." It is a touchingly opposite event, however, that O'Connell then turns to—the birth of his first child. This explicitly personal note comes to illuminate both the investigation that follows and the author's reflection on the kind of human portrait that emerges from the transhumanist worldview, which approaches nature not as a reality to be understood but a problem to be solved. For O'Connell, his son's birth entails an alarming discovery: Staring down at his newborn, he is faced with the human condition in all its inherent vulnerability, confronted with our finitude.

As O'Connell points out, there is an interesting common slippage in the term "the human condition." "Condition" usually just means the way things are, but another way of understanding it is as "an illness or other medical problem." From this perspective, our condition is not a state of being but an anomaly, a deviation from the way things ought to be. "I am not a transhumanist," O'Connell explains at the outset. "But my fascination with the movement, with its ideas and its aims, arises out of a basic sympathy with its premise: that human existence, as it has been given, is a suboptimal system."

O'Connell's earliest encounter with transhumanism is through the futurist Max More's "A Letter to Mother Nature." The document is a sort of manifesto against the basic human traits endowed to us by nature—our cognitive limitations, our bodily form, aging, even



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mortality itself. From this rejection, it is a brief step to the idea that our finitude may be changeable, that there may be a way to rig evolution through technological advancement and escape once and for all from our condition. O'Connell quotes More's introduction to *The Transhumanist Reader* (2013): "Becoming posthuman means exceeding the limitations that define the less desirable aspects of the 'human condition.' Posthuman beings would no longer suffer from disease, aging, and inevitable death."

Confronted with this vision, O'Connell is driven to understand what it would mean for technology to remake humanity. "I wanted to learn what it meant to be a machine, or to think of yourself as such."

But before embarking on his quest, O'Connell offers some cautionary observations on the transhumanist movement—which cast a respectful skepticism upon the interviews and encounters he goes on to relate. First, what appears to be a liberation from the tyranny of nature may in fact result in an unprecedented subjugation to technology. Second, even though the transhumanist movement is predicated on a forward-leaning stance, it evinces an extreme, oddly anachronistic brand of optimism, reminiscent of the Enlightenment era or of positivists' extravagant promises about the future.

As O'Connell recounts his experiences with transhumanists, he excels in showing how their hope of abolishing the limits Mother Nature has forced on us is inextricably tied to an intensely personal reckoning with the frightening realities of the human condition. Natasha Vita-More, chairwoman of the Humanity Plus organization and wife of Max More (both More and Vita-More chose their surnames as adults to reflect their posthuman vision), was in her early thirties when she had an ectopic pregnancy and was faced with the fragility of new life and the specter of her own death. Tim Cannon, techno-entrepreneur and leading figure in the biohacker scene, was struggling with the terrible reality of alcoholism to the point that he attempted suicide. Laura Deming, a founder of The Longevity Fund who enrolled at M.I.T. to study biology at the age of fourteen, describes her realization as a child that her grandmother was no longer capable of playing with her. "What was wrong with my grandma," she says, "was not viewed as an illness. It wasn't even viewed as being *wrong*." Zoltan Istvan, 2016 U.S. presidential candidate for the Transhumanist Party, had an unsettling encounter with the randomness of our own endings when he very nearly stepped on a half-buried land mine in Vietnam.

Through these stories, O'Connell explores transhumanism not as a detached set of beliefs but as a reflection of what it is to be human—to experience life as an all-too-brief moment in a continuous flow and to



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instinctively want to rebel against our fate.

One curious motif in the book is an apparent ambivalence about whether humans belong to the natural world of biology or to the artificial world of machines. This theme emerges, for instance, during O'Connell's visit to Alcor, a preservation facility located in the desert outside Phoenix, Arizona. Here, people can pay a fee to be "vitrified" shortly after they die in the hope that one day technology will allow for reanimation and reinstitution into existence, ideally by being transferred into a more durable substrate than the bodies that had failed them in the first place. Clients can opt for the preservation of the whole body or just the head, in a procedure that, rather than freezing, "forms a kind of resinous block that just holds everything in place," Max More explains.

As O'Connell is being led through the compound that houses these human remains, he notes that the severed heads he passes are referred to as *cephalons*, a term inexplicably borrowed from zoology for the head section of certain animals (many of them extinct). Throughout the text, the terms "human" and "biological" seem to be used quite interchangeably. But then, in illustrating the biohacker community's ethos of the necessity of merging with machines as quickly as possible, O'Connell writes, that "If we want to be more than mere animals, we need to embrace technology's potential to make us machines." There is a dichotomy in transhumanist thinking: man as an animal or man as a machine, *tertium non datur*; there is no third way.

It would have been interesting to see more pages dedicated to a reflection on the human as neither merely animal nor machine, distinct from the animal and biological world on the one hand and the realm of technology on the other. What is this third way? The book does hint at the possibility. O'Connell cites Ray Kurzweil, Google's director of engineering and prophet of the Singularity—the supposedly looming prospect of exponential technological growth and the total merging of man and machine. For Kurzweil, that future moment would be "a final achievement of the human project, an ultimate vindication of the very quality that has always defined and distinguished us as a species—our constant yearning for a transcendence of our physical and mental limitations."

We get another glimpse of the distinctly human in the author's reflection on our laughter when we watch anthropomorphic devices trip and fall while negotiating an obstacle course. "There is something deeply human, and humane, about the relationship between the body undergoing a pratfall and the body observing. There is cruelty in this laughter, but also empathy." If these human traits can be recognized, then maybe there



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is room for a broader reflection on how else we are already something other than mere animals.

Another recurring motif is an equation of intelligence with computational power and of matter with information. This theme first emerges in O'Connell's conversation with Anders Sandberg, a scholar at Oxford's Future of Humanity Institute. Sandberg lays out his version of a "nice scenario" for the human future that would culminate in "whole brain emulation," or the uploading of human minds onto technological substrates—as O'Connell puts it, a "literal aspiration towards a condition of hardware." Whole brain emulation would allow the mind's computational power to be radically increased, which in turn would mean an unbridled advance in our understanding of the universe.

Across the pond, O'Connell meets with Randal Koene, founder of Carboncopies, a San Francisco–based organization that is actively pursuing the advancement of technologies with the aim of making whole brain emulation possible. In Koene's view, in the age of digital reproduction, human beings too can be transformed into "substrate independent minds" (as O'Connell puts it). In other words, if we can make music be the same regardless of whether it's stored on a CD or an MP3, we ought to be able to do something similar for minds. One of Koene's collaborators is Bryan Johnson, founder of the OS Fund, an organization rooted in the belief that "everything in life has an operating system." Once the programming language is known, the operating system can be re-written.

O'Connell finds this metaphor of "the mind as a piece of software, an application running on the platform of flesh" indicative of a certain conception of the human being that is spreading well beyond the handful of Bay Area tech entrepreneurs he meets. This conception is typically optimistic about brain emulation despite our severely limited understanding of minds. It equates the person with the mind, the mind with intelligence, and intelligence with information processing, and argues that large-scale information processing rarely needs to be fully understood by anyone to be effective. Moreover, it tolerates imprecision: To be a machine means in part that we can select certain aspects of our current human state and discard others as irrelevant.

Uploading the mind to a nonbiological, technological substrate would be the ultimate triumph of mind over matter. In O'Connell's view, this breed of instrumentalist rhetoric belongs to a paradigm in which

> humans could very well be replaced, versioned out by more powerful machines, because the fate of all technologies was, in the end, to be succeeded by some device that was more sophisticated,



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more useful, more effective in its execution of its given tasks.

O'Connell cites a paper titled "Brain Metaphor and Brain Theory," in which computer scientist John G. Daugman observes that throughout history humans have tended to narrate themselves through the lens of the predominant technology of the time. Thus from ancient water technologies emerged the theory of the four humors, whereas in the Renaissance humans described themselves as made of the delicate, ticking mechanisms of clockwork. Even Freud's theory of the unconscious can be read in the context of the Industrial Revolution as a metaphor derived from steam engines and internal pressure.

Similarly, the prevailing symbol of technology today is the computer, with its data-processing software running on a platform of hardware. This leads naturally to a vision of the human as information, with the device itself on which the information is processed being incidental. As O'Connell writes, "information has become an unbodied abstraction now, and so the material through which that information is transmitted is of secondary importance to its content, which can be endlessly transferred, duplicated, preserved."

One of the stops in O'Connell's journey is the headquarters of Grindhouse Wetware. It's a small company located outside of Pittsburgh that acts as a physical meeting point for the otherwise mostly online community of biohackers. Also known as "practical transhumanists," biohackers are the extreme fringe of transhumanists who don't want to wait around for engineers to bring about the man–machine integration—so they are actively taking first steps toward that end by installing devices into their own bodies.

Transhumanists' disdain for our fleshed condition is probably nowhere more apparent than in biohackers. Tim Cannon, the company's Chief Information Officer, in many ways embodies this disdain. "People have this magic-in-the-meat mentality," he declares. "People have this idea that because something is natural to our bodies, it's therefore somehow more real, more authentic." O'Connell counters, "I felt that embodiment was an irreducible and unquantifiable element of existence.... I talked about my son, and how my love for him was largely, even fundamentally, a bodily experience, a mammalian phenomenon." Cannon agrees that he knows those feelings too, but insists that he is not attached to any part of his body. Indeed, he has decided not to have any more children of his own, with the aim of "not participating in the problem anymore."

To the transhumanist, embodiment is a contingent evolutionary trait that is incidental to our experience. A paradox that emerges here is that nature is somehow unnatural, not the way it



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is supposed to be. Cannon compares the embodied state in its wrongness to the experience of a transgender person, someone who feels trapped in the wrong body—except that for Cannon, "*all* bodies are the wrong body." The body is an obsolete appendix that needs to be retired.

A sharp contrast to this sentiment appears earlier in the book, when O'Connell recalls a moment of charming domesticity he witnessed at home and remarks that his wife's and son's "beauty was bodily, in the most profound sense, in the saddest and most wonderful sense. I never loved my wife and our little boy more, I realized, than when I thought of them as mammals."

Yet another indication that transhumanists think of human nature as a problem is their reliance on the word "solve." Ed Boyden, a neuro-engineer at M.I.T. Media Lab, reveals that his team's ambition is ultimately "to solve the brain." O'Connell finds this choice of words noteworthy—he is "struck by the mathematical implications of the term *solve*, as though the brain could, in the end, be *worked out* like an equation or a crossword puzzle."

Later in the book, O'Connell finds himself at the DARPA Robotics Challenge, a competition run by the Pentagon's technology research agency to promote the advancement of robotics. After the competition, he wanders into the "DARPA Through the Decades" exhibit. Here, the attendant of a prototype for a house robot earnestly admits the trickiness of teaching robots how to perform basic, toddler-level skills—a conundrum known in robotics as Moravec's paradox. "You would be surprised," he says, "how difficult it is to solve the problem of hugging."

And yet, machines impress and even humble us. The twentieth-century Austrian philosopher Günther Anders wrote about human "obsolescence" and about a sense of "Promethean shame" we feel before our machines, an inferiority complex toward the superior speed and efficiency of man-made objects. In some ways, it is a shame that arises from the very quality of not being made, of being a seemingly blind and uncalculated result of procreation rather than deliberate design.

Though there is no explicit reference to Anders in the book, the themes of the Promethean myth as well as of the obsolescence of human beings appear in several places. "There is, obviously, something about the idea of intelligent robots that frightens and titillates us, that fuels our feverish visions of omnipotence and obsolescence," O'Connell writes. "The technological imagination projects a fantasy of godhood, with its attendant Promethean anxieties, onto the figure of the automaton." O'Connell also mentions a peculiar sort of tension manifest in the desire to produce anthropomorphic machines. "Frustrated gods that we are, we have always dreamt of



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creating machines in our own image, and of re-creating ourselves in the image of these machines."

While the transhumanist's relationship with current technology largely plays out in a desire to merge with it, to acquire the mechanistically superior traits of speed and efficiency in a liberation from the limits of a physical body, O'Connell does not dwell much on the obsolescence already felt by workers who have been replaced by machines, or who will be soon. Some elaboration on this concern—on the contrast between the dreams of the techno-utopians and the present reality of our relationship with machines—would have been apt.

Finally, O'Connell draws an important parallel between religion and transhumanism. Both address a dissatisfaction with our current state of affairs, with human vulnerability and finitude. But where religion resolves this yearning for transcendence outside of nature, transhumanism hopes to achieve a sort of immanent transcendence, an escape from nature while staying in it, albeit in a different form.

O'Connell encounters the phrase "morphological freedom"—the idea that mind uploading is a means of liberation from our current "carbon-based" state, perhaps even an inherent right like freedom of speech. Natasha Vita-More has created a project called Primo Posthuman, a "design concept" aimed at creating a "platform diverse body"—a whole-body prosthetic that would substitute for the "feeble and treacherous mechanism" that is our human body.

Vita-More is categorical in her stance on mortality: "You could die at any moment, and that's unnecessary and unacceptable. As a transhumanist, I have no regard for death." But O'Connell, in his way, does. Speaking to Zoltan Istvan about whether or not a life that is destined to end is futile, he makes a case for what transhumanists call "deathist" ideology:

> Wasn't it the fact that life ended, I asked, that gave it what meaning it had? Wasn't it the very fact that we were here for so brief a time, that we could be gone at any moment, that made life so intensely beautiful and terrifying and strange?

*To Be a Machine* is above all a deeply honest book. O'Connell seems hardly less troubled by death or frailty than his subjects, but he is more appreciative of what would be lost in attempting to rid ourselves finally of these limitations. Because of this sensitivity, even though O'Connell ultimately remains unpersuaded by the transhumanists, he offers a moving depiction of their lives and of why they seek to overcome their own nature. Even in the struggle to be so no longer, there is a poignant image of what it means to be human.

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