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Immanence for Transcendence: Confronting the Techno-Theological Eschatology of Posthuman Speculative Science[1]

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Abstract: Posthuman speculative science, typified by the writings of Hans Moravec, Frank Tipler, and Ray Kurzweil, evinces a faith in technology's capacity to transform the future destiny of humankind. For these thinkers technology, and in particular information technology, will provide the means by which present-day humanity or its descendents will participate in their posthuman evolution, thus ushering in an eschatological kingdom marked by the end of human and cosmic finitude. This paper will critique the implied techno-theology of this posthuman eschatology and offer as its counterpoint a theology of technology informed by a Christian hermeneutical framework.

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In the future: "we would become a collective intelligence of a type previously wholly unknown—the final conquest of death and loneliness—as humanity as we know it, would evolve beyond itself" (Stonier 189).

* * *

"See, the home of God is among mortals.

He will dwell with them,

they will be his people,

and God himself will be with them and be their God.

He will wipe every tear from their eyes.

Death will be no more;

mourning and crying and pain will be no more,

for the first things have passed away" (*NRSV*, Rev. 21.3-4).

[1]   In his apocalypse St John of Patmos finds at the end of cosmic judgment a time of universal reconciliation wherein human death and cosmic finitude will be irrevocably undermined. For John true consolation comes in the form of the abiding presence of God, who through Christ has conquered all human iniquity and who ushers in a new epoch that transcends both history and human materiality. Christian eschatology, to paint it in the broadest sense possible, centres on the being and activity of God as the end or fulfilment of cosmic history. The Apostle's Creed, recited around the world as a confession of Catholic faith, concludes by pointing to the future resurrection of the body and life everlasting as the Christian eschatological hope.

[2]   In the previous century the renewed interest in Christian eschatology amongst modern German Theologians (Moltmann and Pannenberg, in particular) responded to the secular eschatologies of late modern thought by reasserting the transcendent language of Christian eschatology as the antidote to immanentism, secularism, or materialism. The secular eschatologies, evidenced by the myth of progress, socialist revolution, or the hope of empire, posited a future utopia that could be realised through sufficient technological development, the actualisation of latent human potential, or adequately powerful and expansive government. In what is now termed a postmodern world—where faith in progress has been replaced with random chance and complexity, where socialist utopias have given way to capitalist nightmares, and where the hegemony of empire has almost been universally abandoned—it would seem that secular eschatologies have come to their end.

[3]   Yet postmodernism has not done away with a basic awareness of finitude and finality which fuels one's desire to pursue a personal and cosmic eschatology. In this paper I will argue that even within a postmodern world there still exists a form of secular eschatology which seeks to satisfy the despair and angst of one's finality with a promise that combines the materialism of modernist secular eschatologies with a chimerical vision of immortality reminiscent of earlier Christian claims. In postmodernism this eschatology is found in a posthuman techno-theology which seeks to answer deep existential questions regarding the nature and destiny of life by appealing to technologically realisable solutions. Within this eschatology the posthuman serves as an answer to the problem of human and indeed to cosmic finitude. For this techno-theology information technology (the primary means of posthuman transformation in the figures noted below) has become a conveyance for ultimate concern inasmuch as it signals the means by which this techno-theological hope can be realised.

[4]   Techno-theology is underpinned by three principal assumptions: 1) a positivistic certainty in the future abilities of information technology to facilitate a techno-theological eschatology; 2) an uncritical acceptance of the myth of technology as a myth of technological progress; and 3) an implied belief that technology is an appropriate focus for ultimate concern. At its heart a techno-theological eschatology grounds its theological aspirations (e.g. hope for a better life, concern over human destiny, notions of the good) in technological realities. By so doing, the techno-theological eschatology attempts to satisfy the human desire for ultimacy, infinity, and the transcendent with a penultimate, finite, and immanent substitute. For the purpose of this paper I will look at such claims as voiced in the pop-science futurology of engineer/inventor Ray Kurzweil, the speculative-robotics of Carnegie

Mellon roboticist Hans Moravec, and the physics of Tulane University mathematics professor Frank Tipler.

Finding Our Bearings

[5]   The terms *speculative science* and *posthumanism* are prone to ambiguity. Speculative science is often erroneously conflated with science fiction, and posthumanism is itself a polyvalent term which can connote Foucault's subordination of the body to power structures, Latour's postmodern scientific epistemology, Harraway's cyborgs as ironic symbols of gender subversion, or the hopes of fringe transhumanist groups such as the Extropian Institute. In light of this semantic obscurity, before proceeding with an analysis of Moravec, Tipler, and Kurzweil, this paper will first propose operating definitions of speculative science and posthumanism.

Speculative Science

[6]   Although not realized as "science," Moravec's vision of intelligent robots, Kurzweil's hope for immanent human immorality, and Tipler's description of human-like von Neumann probes are apt sites for analysis and inquiry when considered under the rubric of the speculative sciences. I use the term *speculative science* to refer to a form of scientific reflection where the *imagined future* of scientific discovery is the primary object.

[7]   Of course, fiction plays a central role in the construction of this speculative world, and science fiction certainly serves as a source of language and inspiration for posthuman speculative science.[2] Although our contemporary image of the posthuman finds its beginnings in the characters of science fiction literature and film, one could most certainly argue that the idea of a posthuman finds representation in the late enlightenment fascination with mechanical automata such as Vaucanson's duck, Kempelen's chess player, or later,

Edison's talking doll (Wood 24-30; 61; 113-18). In science fiction film the idea of an

artificial person appears as early as Fritz Lang's *Metropolis* (1927), where the masters of

Metropolis seek to subvert the workers' liberation movement by replacing their leader Maria

with a mechanical replacement programmed to do their will. This is preceded even earlier by

the stage plays of Karel Čapek, whose *RUR* (Rossum's Universal Robot), first published in

1920, was perhaps the earliest 20th century example of fictively represented human-like

robotics.

[8]   The chief difference between the posthumanism in science fiction and the

posthumanism in speculative science can be found by differentiating between the role played

by imagination within science fiction and the role played by speculation within speculative

science. In the imagination of science fiction science "tends to slip away, to evade its own

evidence or facticity," making way for the creation of a fictive world where the means-ends

system of technological control and scientific reasoning can be challenged and undermined

by a concern for the ethical (Telotte 3). Although science fiction is "manifestly about science

and scientific possibility," these elements are only devices used in the service of a larger

narrative in which the implications of human inventiveness are explored on a stage set in

either this world or another (*ibid.*). As a result posthumans portrayed in science fiction are

used to problematise dominant assumptions about the human use of science and technology

through unfettered fictive imagining.[3]

[9]   By contrast, speculation, at least in the way in which the term is employed in the context of

posthuman speculative science, is grounded in a familiarity with the present which projects onto the

future an informed guess of what *could* be in light of what *is*. Speculative science grounds its vision of

the future on the trajectory that is set by the present. It represents an unwavering faith in the myth of

progress, looks to the future for its ultimate goal, and, in so doing, views the present only in terms of

its ability to procure this future goal. Speculative science represents an unwavering faith in the myth of progress which prompts the figures described below to combine a hope for a technologically improved future with their formidable scientific expertise. It would seem that speculative science is limited to merely a futurological projection which invests the future, as an extension of the present, with utmost significance. Whereas the imagination of science fiction serves to confront the reader/viewer with the uncanny (one who is both similar yet terrifyingly different), in the presence of the posthuman of speculative science, one only sees a projection of oneself.[4]

Posthumanism

[10] Posthumanism can be defined as the belief that through a union of human technical ability and human will, human beings will progress towards (or be the progenitors of) the next stage of human evolution, resulting in the "post-human." In practice, posthumanism is facilitated by a desire to improve upon the human condition by implementing advanced technologies which generally fall under the category of cybernetic or information technologies.

[11]   Although my concern with posthuman speculative science is far more theological than philosophical, I would be remiss not to acknowledge the use of the term as a reference for post-*Humanism* in the sense of a critique of Humanist philosophy. The posthuman, cyborg, or so-called "non-modern" critique of humanism cites the historical use of technology and its ubiquitous presence in contemporary life to argue that human goals—the "good life," society, and value—can only be understood in terms of the human use and creation of technology (Feenberg 28-30).[5] To this end posthumanism as anti-humanism argues that human beings can only be understood in terms of hybridisation rather than in terms of the "purely" human.[6] Whereas humanism tends to advance the cause of the individual and his or her place within the community, posthumanism is characteristically oriented towards the dissolution of the

individual in favour of a networked society (Latour 258). Despite the anti-humanism of posthuman *theory,* I argue that posthuman discourse—whether posthumanism *as* anti-humanism or posthumanism *as* futurology—is an extension of the broader posthuman condition which is identified as a striving after that which is beyond *Homo sapiens* and not simply that which is beyond Humanism as a philosophy.

[12]   By pursuing the next step in human evolution, those who rest their eschatological hope on the claims of a posthumanity invest the technologies used to facilitate this evolutionary transformation with utmost significance. Central to the techno-theological world of posthuman speculative science is the belief that advanced forms of information technology will, in the future, be able to accommodate radical forms of life extension. The ability to employ technology to stave off death as long as possible has given the posthuman speculative scientists noted below a sense of confidence in their craft's ability to bring an ultimate solution to the problem of finitude, especially when cast in terms of personal mortality. As we shall see, however, the possibility of eliminating death is rather different than the possibility of systemic redemption or salvation" (Fukuyama 67, 71).

Posthuman Speculative Scientists

[13]   Having defined speculative science as a future-oriented form of scientific reflection and posthumanism as an unwavering faith in future human-technology co-emergence, we may now engage specific examples of posthuman speculative science in Moravec, Tipler, and Kurzweil, noting the techno-theological eschatology conveyed by each.

Moravec: Mind Children--Future of Human Evolution

[14]   Hans Moravec, a research professor at the Robotics Institute of the Carnegie Melon University, specialises in autonomous robot mobility. Moravec's work evinces a faith in the

trajectory of robot evolution, which he believes will one day provide the technology for the instantiation of human consciousness into a computerised and robotic medium.[7] Consistent with other contemporary applications of robot technology, from the Mars Rover to robots used in industrial manufacturing, the robots currently being developed by Moravec are intended to be put to use in environments where humans have traditionally been unable to thrive. Such robots are employed in order to free their human users and designers from the lethal repercussions of fate or bad judgment. As devices that extend the horizon of human action, Moravec views robots not merely as tools for the manipulation of the physical world, but as devices which enable their human operators to skirt around the basic limits of human finitude. By plunging robots into distant outer-space or even into the forges and assembly lines of contemporary industry, he would argue that human will and agency are extended into domains that are only knowable through their technological mediations. Seen as extensions of human beings, robots in the present are only quantitatively distinct from what Moravec describes as a postbiological future of human-robotic "mind children."[8]

[15]   Moravec views this future as the consummation of humanity's historical courtship with technology. From the first stone tools to the most advanced forms of robotics and artificial intelligence, humanity has lived as a hybrid species whose will and agency have been partly instantiated within a biological body and partly instantiated within an ever-developing technological body. Put tersely, Moravec describes present-day humanity as "uncomfortable half-breeds" (Moravec 2). Thus in the future, faced with an increasingly inhospitable environment and an unquenchable desire for longevity, humanity will be forced to divest itself from its natural situation in the world and surrender completely to a purely technological mode of being created *by* humanity *for* humanity.

[16]   Though philosophically we could dismiss Moravec's faith in the myth of technological progress, and perhaps even technologically we could undermine the feasibility of his plans, a more pressing question is one which explores the intent behind such a blatantly eschatological reading of future information technologies. Indeed, Moravec signals a trend followed by other posthuman speculative scientists such as Tipler and Kurzweil. He invests present-day technologies with eschatological significance. In so doing, posthuman speculative science aims to fulfil existential concerns with immanently realisable solutions.

Tipler: Immortality as the Colonisation of the Cosmos

[17]   The radical extension of human life through Moravec's "mind children" pales in comparison to the cosmic implications of Tulane University physicist Frank Tipler's *Physics of Immortality*. Like Moravec, Tipler takes up the possibility of a posthuman future through the rubric of technology-enabled life extension. For Tipler human finitude—and indeed, cosmic finitude—is an existential concern to which information technology may provide an ultimate solution. Rather brashly, he begins his study by arguing that "theology is a branch of physics [and that] physicists can infer by calculation the existence of God and the likelihood of the resurrection of the dead to eternal life . . . " (Tipler iv).

[18]   As was the case with Moravec, Tipler is concerned with promoting a form of life extension wherein one's subjective experiences and consciousness can be embodied in a form other than one's own physical body. Tipler appeals to a pattern-based understanding of identity in which one's mind is understood as a composite of one's neuropathology. Echoing Moravec, he writes, "the pattern is what's important, not the substrate" (Tipler 127). Human mind can exist forever, assuming that the machines which house and embody the human mind can last forever as well" (Tipler 125).

[19]   For Tipler life and the human soul are synonymous with information processing and so the complexities of subjectivity can be readily modelled and replicated by information processing devices, of which the human mind is but one of any number of possible forms (Tipler 125). Indeed, Tipler envisions a posthuman future where space probes containing the living human information will one day colonise the material fabric of the cosmos long after the natural end of our solar system has come to a close" (Tipler 218). As such, his vision of a cosmic, posthuman transformation is more than a matter of human intelligence experiencing a personal life after death. For Tipler, the cosmic implications of posthumanism are tantamount to deification. Tipler posits that "the creation of [. . .] intelligent machines will be a matter not of 'man playing God,' but rather, of humanity ensuring a union with God (Tipler 21). This is to say that upon enveloping the whole of the cosmos with intelligent life, humanity will become omnipresent, omniscient, omnitemporal, and omnipotent. (Tipler 135ff.). The God which humanity becomes is no monolithic divine, but rather an emergent characteristic which develops within a cosmos that has been transformed by human intelligence.

[20]   The faith in technical progress and the transformative power of technology evinced by both Moravec and Tipler reveals the underlying techno-theological eschatology which is endemic to the posthuman speculative sciences. This is especially clear in Tipler, who regards the human or posthuman subject as a potentially infinite entity. Like the modern secular eschatologies noted in the introduction to this essay, posthuman eschatology seeks to satisfy the desire for a utopia by appealing to the positive outcome of persistent human effort. Yet far beyond the ideologies underpinning modernist secular eschatologies, the posthuman techno-theological eschatology seeks to secure for humanity the promise of immortality.

[21]   I wish to argue that the immortality offered by the posthuman techno-theological

eschatology is qualitatively different from that conferred through the notion of the

"resurrection of the body and the life everlasting" confessed by creedal orthodox Christians.

Tipler's posthuman speculative science advocates a purely immanentist theology which

grounds hope (theological or otherwise) on speculated technological mythologies rather than

hoped-for transcendental symbols. In keeping with our understanding of speculation as a faith

in the extension of the present into a hoped-for future, Tipler's eschatology replaces the

symbolic and transcendent object of faith (eternal life, union with the Divine, transfiguration)

with an eschatological vision that is attainable by finite means. Tipler may predict a

resurrection into immortality, but it is an immortality restricted to continued finitude. The

techno-theological eschatology of posthuman speculative science transforms eschatology

itself into a technology by making eschatological hope into something which is controllable,

controlling, and de-mystified. By contrast, Christian eschatology is a reminder that human

destiny is contingent upon the being and activity of the infinite and mysterious Divine.[9]

Kurzweil: Spiritual Machines and the Singularity

[22]   We conclude this survey of posthuman speculative science by briefly looking at the

work of futurologist and entrepreneur Ray Kurzweil. Like Moravec and Tipler, Kurzweil

views the posthuman union of technology and humanity as the next inevitable step in human

evolution and sees this final stage of development as the solution to the problem of personal

human death. Like Moravec, who considered humanity to be a hybrid species partially

composed of a technological body and partially composed of a biological body, Kurzweil

points to a twofold evolutionary process which, in creating humans and technology,

anticipates the synergistic human-technology merger of the "technology-inventing species

with the computational technology it initiated the creation of" (*Spiritual Machines* 155-56).

This event is described by Kurzweil as the "singularity," the point at which human-

technology evolution will converge and accelerate to infinite progress. For Kurzweil, this human-technology merger will result in the creation of two distinct types of mind: an artificial mind which will emerge from the computer itself and a subjective mind which is transferred from the substrate of the human brain to the substrate of the computer. Thus, the title of his principal book on the subject, *The Spiritual Age of Machines,* reflects both the emergence of an independent machine-mind and the spiritual instantiation of the human mind in the computers of the future. Such machines, according to Kurzweil, would consider themselves to be fully human (*Spiritual Machines* 234). More than simply artificial intelligence (an attribute which he ascribes to current computers), Kurzweil argues that his spiritual machines will possess a true self awareness and consciousness which he regards as being functionally equivalent to the human mind or spirit.

[23]   It would seem that Kurzweil's vision, like that of the other posthuman scientists discussed here, places its hope on the pure dispersal of human mind into the cosmos as the goal of evolution and the key to cosmic salvation.[10]

> I regard the freeing of the human mind from its severe physical limitations of scope
> and duration as the necessary next step in evolution. Evolution, in my view, represents
> the purpose of life. That is, the purpose of life—and of our lives—is to evolve.
> ("Endangered Species")

Unlike Christian eschatology, which relies upon a faith in the sovereign in-breaking of the Divine to accomplish cosmic salvation, Kurzweil's postbiological future circumvents the need for the divine by giving the individual the ultimate degree of "power and depth" in shaping this future (*Spiritual Machines* 153). For Kurzweil, human technology is the medium by which human mind can be liberated from its bondage within an ever decaying body, making evolution the means by which pure spirit is freed into the cosmos.[11]

Conclusion: A Theological Critique of Technological Posthumanism

[24]   The examples from posthuman speculative science discussed in this article can be critiqued on a variety of grounds: technical, socio-political, psychological, biological, and philosophical (de Mul 247; Fukuyama 168). As has been illustrated, posthuman speculative science indicates its techno-theological eschatology by making three principal assumptions: 1) a positivistic certainty in the future abilities of information technology to facilitate a techno-theological eschatology; 2) an uncritical acceptance of the myth of technology and technological progress; 3) the view that technology, as myth, is an appropriate focus for ultimate concern.

[24]   As has been argued, the theological model which is preferred by techno-theology is purely immanentist and finds as its object of faith penultimate and immanent solutions to finitude that are themselves finite. If we follow Tillich's definition of religion as ultimate concern, we may judge a theological model's authenticity on the basis of its ability to point beyond itself to the unconditioned absolute. One could rightly ask, *What difference does it make if theological model is ultimately self-fulfilling? Are there any practical implications if a theology or quasi-theology fails to point beyond itself to the ultimate or the unconditioned?* I would argue that at least in the example of posthuman speculative science, the answer to this question would be a resounding affirmative: a theology's depth directly correlates to a theology's ethics and practice.

[25]   In fact, from a Tillichian perspective and a creedal Christian hermeneutic, the practical limitations of posthuman techno-theology's eschatology are apparent in terms of three specific ethical and philosophical problems: 1) the avoidance of physical death as ultimate concern and as equivalent to "real living" in a qualitative sense; 2) the elevation of

the individual over the collective good; 3) the degradation of humanity's present in favour of a future eschatology.

[26]   First, by desperately seeking personal longevity posthuman speculative science pits the value of one's own life over and against the life of the other. The belief in radical life extension within posthuman speculative science is an active denial of death which reveals what is an ultimately selfish and self-centred enterprise. As Fukuyama notes, "A person who has not confronted suffering or death has no depth. Our ability to experience these emotions is what connects us potentially to all other human beings, both living and dead" (Fukuyama 173).

[27]   Posthuman eschatological hopes are at best a call for a radical extension of life. Yet the postponement of death is quite a different from the idea of death being conquered or vanquished as a whole. Paul's laud of victory over death is saturated in Christological overtones that stress that death must first be embraced. Death is made impotent precisely because it has been conquered by Christ's own movement through death to resurrection. For Paul, it is through the example of Christ's death and resurrection that the Corinthians can be confident in their own fate through death (1 Cor 15:12-26). Indeed, for the Christian the avoidance of death is tantamount to an avoidance of salvation. At the end of posthuman life extension through technology, death postponed still awaits its claim. Christian eschatology paradoxically calls death a defeated foe while embracing death as the transition into life eternal as the means by which the symbol of eternity is realised through the resurrection of the body.

[28]   Second, by failing to look outwards, away from technically realisable solutions, posthuman speculative science posits an unwavering faith in technical progress. Such an essentialist reading of technology makes the creation and use of technology the normative force by which humanity understands itself and its destiny, thereby making technology the norm by which good and value are determined. Technology is invested with the whole of human hopes, making technology itself the driving force behind human evolution. This immanentist orientation stands in clear tension with the relationship between humanity and worldly possessions advocated by a Lukan and Matthean ethic, which situates the Kingdom of God, rather than the mammon of material culture, as the locus of meaning and value (Matt 6.24; Luke 16.13). To be sure, we cannot forgo the productive and positive abilities of technology merely because of the risks associated with a techno-theology. Instead, a theology of technology must be approached which embraces "the possibilities of information technology without being seduced by the fantasies of unlimited power and disembodied immortality" (Hayles 5). As such, the place of technology must be grounded in life lived in community and governed by shared narratives and common values.

[29]   Third and finally, the posthuman drive to transcend finitude as a defining characteristic of human life undermines present humanity for the sake of a distant post humanity. The posthuman ethos is less concerned with the present state of human being than with the destiny of future humanity in terms of posthuman potential. If humanity is nothing but latent potential which will eventually become actualised in a future context, then the present state of humanity only receives its value as a point of transition along the way to the future.

[30]   On the one hand, a correlate for the posthuman preference for becoming can be found in strands of Pauline-influenced Christian theology, which likewise emphasises becoming over being. In a twentieth century theological context, particularly by both Teilhard de Chardin and Wolfhart Pannenberg, it is the future state of the universe, either described in terms of the omega point (Teilhard *Future of Man*) or the future Kingdom of God (Pannenberg *Theology and the Kingdom of God*), which functions as both end and ground of human being and gives impetuous to human action in the present. Moreover, just as the posthuman connotes the perfection of the human, so too does the Christian doctrine of the incarnation or the resurrection of the body speak to the metamorphic transformation of human flesh into a divinely fashioned posthumanity.

[31]   On the other hand, a theological posthumanism differs significantly from secular posthumanism in that whereas a secular posthumanism may regard the present as merely a stepping stone on the way to a future destiny, some interpreters of Christian eschatology see the present as an expression of an already accomplished future reality. For Pannenberg in particular, the present is not potentiality but rather is plenipotentiary, inasmuch as the present Kingdom of God reflects a reality that is fully invested with the power and the authority of the completed eschaton.

[32]   In contrast to a futurological secular posthuman subjectivity wherein being is subordinate to becoming, a Christian posthuman subjectivity is undeniably eschatological inasmuch as "being" contains both the being of the present as well as eschatological becoming. The present takes part in and receives identity from a future that is both immanent and transcendent (Pannenberg 44, 76-77; Fee 876ff.) Though one could argue that the Christian doctrine of the resurrection of the dead does speak to a form of posthuman reality, it

is a reality that is already experienced in the present, evidenced by the bodily resurrection of Jesus Christ himself. Yet, in keeping with a theological model which is considered to be authentic by pointing towards an unconditioned absolute, the Christian posthuman hope for a resurrected body is not expected to be accomplished by a means other than a radical breaking through of divine activity. Christian posthumanism affirms present humanity and hopes for a transcendent consummation of human destiny, whereas secular posthumanism denigrates the present in the hopes for an immanently realisable technological self-actualisation.

[33]   For creedal Christian theology a productive engagement with technology starts with a move away from blind faith in the posthuman myth of unceasing technological progress and a move towards a hermeneutics of technology that centres on a concern for a technology's appropriateness. This indicates a transition away from a techno-theology towards a theology of technology which roots technology in the symbols of faith, with a keen awareness of human fallenness.

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[2] Ray Kurzweil and Hans Moravec have both commented on the important role played by science fiction in their understanding of future posthuman technologies. (*Spiritual Machines* 143; Bertocchini).

[3] Theology and religion have only occasionally engaged with the topic of the science fiction imagination, at least in contrast to other literary genres. One exception to this is the May 2005 issue of *Stardust and Ashes*.

[4] It should be noted that my use of speculative science is distinct from the use of the term as a synonym for theoretical knowledge. For Thomas Aquinas, theology was a speculative science because it taught of a substance (God) which could only be affirmed but not verified (Aquinas 285-88). Likewise, in this sense, Schleiermacher distinguished between speculative science and religion, noting that for the former the object was pure theory, whereas for the latter the object was the feeling of ultimate dependence (Martensen 125).

[5] For Feenberg, the posthuman as anti-humanism prosecution is indicative of Foucault, Harraway, and Latour, who would wish to use the technological elements of posthuman rhetoric to attack the humanist ideology of the "Left."

   [6] An example of this is Michel Foucault, *Politics, Philosophy, Culture: Interviews and Other Writings*. London: Routledge, 1998. Here, the shifting form Foucault's thought about technology from this most fecund era (1977-84) is discussed by Foucault himself in detail. As is indicative of this sort of anti-humanist philosophy, Foucault argues that technology, either in terms material or authorial, is among the most influential forces shaping society. See the following citations: pastoral technologies in Christianity (63); technologies of power in government (68, 77); technology as central to the shaping of European modernity (94); and "technologies of the self" shaping aesthetics and art (255).

   [7] Moravec's work does not focus exclusively on the technical hurdles which stand in the way of viable robotic life, but rather it is centred on the religious and social implications of AL/AI. This is in contrast to Maureen Caudil whose work, though operating from a similar perspective as Moravec's, argues from purely a technological perspective.

   [8] Moravec's vision of future robotic technology hopes for more than the extension of agency and will, but also a time when robotic 'life' will surpass human life as the more durable and malleable incarnation of human evolution: "What awaits is not oblivion but rather a future which, from our present vantage point, is best described by the words 'postbiological' or even 'supernatural.' It is a world in which the human race has been swept away by the tide of cultural change, usurped by its own artificial potency" (Moravec 1).

   [9] Christian eschatology constitutes a faith in the faithfulness of God to act on the behalf of humanity as vouchsafed for by the incarnation of God in Christ. Accordingly, Christ signals the inexplicable entrance of the Divine into the affairs of humanity and embodies (literally) the hope of resurrection of the dead. By meditating upon his wounded side, which bears continuity with his previous life and signals his transfigured post-resurrection state, faith in Christian eschatology offers a proleptic sign of humanity's own resurrection. This eschatology establishes the ultimate power of God as the source and sustainer of life,

revealing to humanity that the future of human history is determined by the yet unknowable plan of God.

[10] This is a theme echoed in Isaac Asimov's short story, "The Last Question," where future computers are able to span the distance between material creation and the transcendent spirit.

[11] Though *The Age of Spiritual Machines* was written over six years ago, Kurzweil still maintains his commitment to this vision of the postbiological future. In his recent work with Terry Grossman, *The Fantastic Voyage*, Kurzweil frames his futurological speculations within easily-applicable common sense health practices which are aimed at assisting the living to survive until the future day when spiritual machines are able to host human minds. The book lays out a holistic strategy of diet, weight-loss, and smart lifestyle choices that can extend human life until "radical life-extension" technologies become available. For Kurzweil wise "lifestyle choices will maximise" one's ability to live long enough to "take full advantage of the radical life-extending therapies that lie just ahead" (Kurzweil and Grossman 260).