University of Calgary Press

DRONES, CLONES AND ALPHA BABES: RETROFITTING *STAR TREK'S* HUMANISM, POST- 9/11
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ISBN 978-1-55238-667-5

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Retrofitting *Star Trek's* Humanism, Post- 9/11

7: Cyborg Emergence

Cyborg is as specific, as general, as powerful, and as useless a term as tool or machine. And it is just as important. Cyborgs are proliferating throughout contemporary culture, and as they do they are redefining many of the most basic political concepts of human existence. – Chris Hables Gray, Cyborg Citizen, 19.

AT THE END of *Star Trek: The Motion Picture*, Captain Kirk and his officers announce the birth of a new species, as they witness the fusion of their first officer with a digitized version of the ship's Deltan navigator, the beautiful Ilea, reconstituted in perfect detail as a machine. Released in December of 1979, the film can perhaps be seen as heralding the coming decade of the cyborg. For although artificial intelligence and artificial life had long been staples of the somewhat marginalized genre of science fiction, it was the 1980s that witnessed the arrival of the cyborg on the horizon of public consciousness. In 1982, Hollywood director Ridley Scott postmodernized Philip K. Dick's *Do Androids Dream of Electric Sheep?* and brought it to the screen as *Blade Runner*. Although James Cameron's *Terminator*, which appeared two years later, would have much wider box office appeal, *Blade Runner* nevertheless "initiated a whole tradition of cult movies later grouped under the label 'cyberpunk'" (Wong). In 1984, inspired by an Internet still in its infancy, William Gibson published *Neuromancer*, followed by *Count Zero* in 1986 and *Mona Lisa Overdrive* in 1988: "The *Neuromancer* trilogy gave a local habitation and a name to the disparate spaces of computer simulations, networks, and hypertext windows that, before Gibson's intervention, had been discussed as separate phenomena. Gibson's novels acted like seed crystals thrown into a supersaturated solution; the time was ripe for the technology known as cyberspace to precipitate into public consciousness" (Hayles 1999 35).

Trekborgian Origins

Among the scientists who helped to move the cyborg into the mainstream was the roboticist Hans Moravec. His *Mind Children*, published in 1988, appealed to cyberpunk readers and critics in its claim that it would soon be possible to download human consciousness into a computer, where it would be preserved intact. It was Moravec's work that shocked Hayles into an awareness of where informatics was taking the posthuman. "How," she asked herself, "was it possible for someone of Moravec's obvious intelligence to believe that mind could be separated from body? Even assuming such a separation was possible, how could anyone think that consciousness in an entirely different medium would remain unchanged, as if it had no connection with embodiment?" (Hayles 1999 1). But Moravec's vision turns out to be not quite so mysterious as these initial questions suggest. As Hayles' trace of the history of cybernetics reveals, Moravec is not alone in his transformation of the Cartesian mind/body split into an information/materiality split, which enfolds within transhumanist discourse the assumptions upon which humanism rests. If, after abstracting the information from its material instantiation, "we can capture the Form of ones and zeros in a nonbiological medium – say, on a computer disk – why do we need the body's superfluous flesh?" asks Hayles, taking the platonic metaphysics of transhumanism to its logical conclusion. "The clear implication is that if we can become the information we have constructed, we can achieve effective immortality" (1999 13).

It wasn't dreams of immortality that were on the minds of *Star Trek*'s writers when, within months of the appearance of *Mind Children*, *The Next Generation* aired "Measure of a Man," in which the android Commander Data is, in effect, declared a legitimate life form with "human" rights. The episode is a superb illustration of the "insight that posthumanist productions are folded together with humanist assumptions." Commander Maddox, Chair of Robotics at the Daystrom Institute, appears aboard the *Enterprise* with news of his intention to dismantle Data for research purposes. Data is unwilling to submit to the procedure, but he has no choice, as he has no legal status as a free agent. This precipitates a hearing in which Picard acts as Counsel for the Defence. Picard's argument is framed in humanist terms: Data is sentient because he possesses intelligence, self-awareness, and consciousness; therefore, he has the right to choose whether or not to submit to experimental refit. In other words, Data is

defined in terms of his mind, rather than his body. Interestingly, however, Picard reinforces his argument by having Data testify to the fact that he has engaged in "intimate" (i.e., sexual) relations. What seems to be in play here is *Star Trek*'s unique way of dealing with the posthuman – namely, by expanding the definition of human so that the posthuman can be embraced within it.

Data may be grateful to Picard for winning the case in his favour, but Data's sex life notwithstanding, Picard's argument pays little attention to Data's concerns about Commander Maddox's research as described earlier in the episode. The roboticist intends to dump Data's core memory into the Starbase mainframe computer and assures Data that his "memories and knowledge will remain intact." "Reduced to the mere knowledge of events," Data counters: "The substance, the flavour of the moment could be lost…. There is an ineffable quality to memory which I do not believe can survive your procedure." Hans Moravec would disagree, given that Data's memories supposedly exist in the form of ones and zeros. But Maddox isn't given the Moravecian argument – with which he might have won his case – while Data's concerns are virtually identical with those of Katherine Hayles: he is sure that the silicon, bioplastic, molybdenum, and other materials in which his memories are instantiated are inseparable from his posthuman being.

However resistant *Star Trek* is to Moravecian theory in Data's case, the credibility of holographic life forms does owe much to Moravec. Still, it's not his vision that informs *Star Trek*'s most important engagement with the posthuman but rather, the work of Marvin Minsky, who published *Society of Mind* in 1986. "This book," wrote Minsky in his introduction, "tries to explain how minds work. How can intelligence emerge from non-intelligence? To answer that, we'll show that you can build a mind from many little parts, each mindless by itself." Minsky's "society of mind" is a "scheme in which each mind is made of many smaller processes. These we'll call agents. Each mental agent by itself can only do some simple thing that needs no mind or thought at all. Yet when we join these agents in societies – in certain very special ways – this leads to intelligence" (17). MIT roboticist Rodney Brooks developed a computational model that echoed Minsky's biological model of decentralized human intelligence and used it to program a number of simple, insect-like robotic "agents" that slowly began to behave interactively, exhibiting something resembling an emerging intelligence. Brooks published a series of reports on his research, one of

which appeared in April of 1991 and bore the title "Intelligence Without Reason," a challenge to traditional AI models – and to traditional humanist rationalism. That fall, *The Next Generation*, then in its third season, introduced a race of cybernetic organisms whose collective, decentralized intelligence bears a striking resemblance to Minsky's society of mind. "How do you reason with them?" Captain Picard asks Q, the alien who has forced the *Enterprise* into this initial engagement with the Borg. "You don't," Q answers, "I've never known anyone who did." Like one of the "many little parts" of the mind described by Minsky, and like one of Brooks's robotic agents, each Borg is "mindless by itself." Individual Borg are beyond language and reason, beyond communication and understanding. But joined together, they form an intelligence capable of articulating and executing an ominous threat: "We have analyzed your defensive capabilities as being unable to withstand us," they announce in their computer-generated multiple voice, "If you defend yourselves you will be punished." Q describes the Borg as "the ultimate user," uninterested in "political conquest, wealth, or power" as humans know them. Rather, they are interested in the *Enterprise* and its technology, which they have identified as "something they can consume" ("Q-Who?").

Brave New Shopfloor

It should be noted that it's not just the emerging technosciences of the 1980s to which the Borg allude. The collective also resonates with the socio-economic changes sweeping through America – indeed, through all of the Western world during the 1980s. For this was also the decade that featured the shift from an industrial economy to a service economy, a shift that could better accommodate changing patterns in production and consumption requiring the kind of fast and accurate flows of information that only technological innovation could provide. This shift originated in Japan's challenge to the economic supremacy of the United States during the late 1970s and early 1980s, especially in the automobile and electronics sectors. Many American corporations were abandoning the Fordist regime of industrial production and adopting the Japanese model, which harnessed the intellectual as well as the physical capabilities of employees. Conditioned by forty years of anti-Soviet propaganda, most Americans were deeply suspicious of any organizational form that deviated from the American model of "market individualism" – especially a "welfare corporatist" model that

appeared to derive its team-based philosophy from cultural factors such as homogeneity, familism, and group loyalty (see Florida and Kenny). Images of Japanese office and factory employees performing early morning group calisthenics and repeating in unison an oath of allegiance to the corporation proliferated in the American media. Such images, combined with increasing Japanese participation in cross-national joint ventures located in the United States, played into American fears of a Japanese takeover of the American economy. Not only does this transnational corporatism form the context for Gibson's cyberpunk novels, American fears of Japanese economic power were also exploited by Hollywood in such SF films as *Johnny Mnemonic*, based on one of Gibson's short stories, *Freejack*, depicting America's loss of the U.S.-Japan "trade wars," and *Robocop III*, whose plot involves a Japanese takeover of the Detroit automobile industry. These same fears, further fuelled by the long-standing racist myth of the inscrutable Oriental, helped to make the unintelligible Borg collective the epitome of absolute Otherness.

Borg Subjectivity

The move from Minsky's single human mind composed of many little parts to the Borg collective, a single mind composed of many bodies, is, as Brooks' insect-like robots suggest, via the science of entomology, specifically studies of social insect colonies as "superorganisms." For American transhumanist Eugene Ott, a naturalist and environmentalist, the Borg exemplify his theoretical species *Homo multifarious*. Ott tells of introducing his concept in 1980 at the World Future Society's Global Conference held in Toronto, where he also circulated copies of two papers: "Future Humans: An Hypothesis" and "*Homo multifarious*: A Practical Approach to Achieving Life After Death." Arguing that "personal identity [is] our concept of continued life," and that this "concept exists only in our minds," Ott makes the case that a collective mind, like the one modelled by the Borg, would achieve the continuation of identity after individual human bodies joined in the collective have died. Thus does multifarianism, like transhumanism more generally, privilege mind over body as the essence of human being.

While Ott's naturalist and environmentalist bias makes him a marginal figure in the transhumanist movement, Anders Sandberg, a computational neuroscientist, is more prominent. A founding member

of the Swedish Transhumanist Association, he has been an active debater in transhumanist circles for many years. In a paper entitled "We, Borg: Speculations on Hive Minds as a Posthuman State," he discusses "borganization" from a cybernetic point of view, beginning with the following quotation from the *Encyclopaedia Gallactica*:

> Borganism: 1) An organization of formerly autonomous beings who have merged their individual wills to create one, collectively conscious being: 2) The social and political theory that advocates the creation of borganisms. Borganise: To form a borganism, to organise its structure. (quoted in Sandberg)

Both borganization and multifarianism might qualify as a kind of transitional step in the direction of one of several Moravecian fantasies – a transition from an embodied collective mind to a disembodied one. As Mark Dery reports: "Moravec imagines the subsumption of 'downloaded' cyberbeings into a 'community mind,' omniscient and omnivorous, which spreads 'outwards from the solar system, converting non-life into mind' through some form of data conversion. This process, suggests Moravec, 'might convert the entire universe into an extended thinking unity'" (309).

But not all transhumanists share in either Sandberg's dream of borganization or Moravec's fantasy of a universal community mind. For example, in a recent discussion with Sandberg and others, T.O. Morrow (pun intended), an Extropian philosopher and a key founder of the Extropy Institute, says: "Though I cannot pretend to speak for every self-proclaimed Extropian, I for one do not aim at Borganization. I certainly aim to change and grow, understand; I do not aim to obliterate my individuality, however." Another participant in this discussion is Mark Walker, research fellow at Trinity College, Toronto, and Editor-in-Chief of the transhumanist *Journal of Evolution and Technology*. On "the question of individual identity," Walker contrasts the Borg, "meat creatures with a collective identity," with "the denizens of the virtual world of *The Matrix*" who "are individuals with virtual bodies" to make the point that "technology promises to allow any number of experiments in living and experiments in identity," implying that anyone will be able to opt in or out of any number of posthuman technologies (Turner).

What strikes me as curious about this exchange is that, while these men enumerate the technological choices that will supposedly be available to us in the posthuman future, the point of the representations they use to exemplify these new technologies is that these options are likely not the ones from which the rest of us would wish to choose. The social, political, and ethical questions raised by *The Matrix* and *Star Trek* seem to have gone right over their heads. If the future is anything like the present, these SF narratives say, some new technologies may well take away more choices than they deliver. Indeed, today, among those of us who operate computers, use telephones, or even drive automobiles, what degree of individual choice is involved? And for most of the 70 percent of the world's population that has never made a telephone call (Hayles 1999 20), choice probably doesn't enter into it. Reading this bizarre Extropian conversation, I am reminded again of Hayles: "When Moravec imagines 'you' choosing to download yourself into a computer, thereby obtaining through technological mastery the ultimate privilege of immortality, he is not abandoning the autonomous liberal subject but is expanding its prerogatives into the realm of the posthuman" (1999 287).

Locutus of Borg

Moravic must have missed "Best of Both Worlds," the episode of *The Next Generation* in which the Borg forcibly download Picard's mind, transform his body into a man-machine hybrid, and merge his subjectivity with a new identity, "Locutus of Borg." Or perhaps, because Extropians regard any resistance to their techno-vision as Ludditism, Moravec might read this frightening episode as *Star Trek*'s uncharacteristic lapse into a "passive reliance on Luddite ideologies" (Thacker 76). SF critics take a different view. In "The Erotics of the (cy)Borg," Anne Cranny-Francis offers a summary of the way in which "Best of Both Worlds" has been interpreted:

> Claudia Springer remarks that "Picard's abduction by the Borg was a type of seduction. Picard resists talking about his experience with the Borg, as if he were ashamed of a sexual transgression." She continues: "Popular culture often represents a collapse of the boundary between human and technological as a sex act." In "The Cyborg Body Politic and the New World Order" Chris Hables Gray and Steven Mentor describe Picard's experience: "This technological rape takes its toll on

the body and psyche: for two episodes (an eternity on TV) he wrestles with the shame, the sense of having lost his integrity and self: He says, in effect, they took everything I had." (147)

Cranny-Francis builds her own interpretation upon this eroticization of Picard's experience in terms of "the 'third term' status of Picard/Locutus. Like the transvestite or transsexual, or like the bisexual, he/it represents a breaking down of boundaries" (148–49). But she also notes "the crisis of authority" embodied by the Picard/Locutus cyborg. As part of the process of assimilation, "Picard's white male body is actually blanched to bone-white." Noting that "the most literal reading of this transformation is that the loss of pigmentation signifies the elimination of humanity," Cranny-Francis also reads this as "an overdetermined reference to the 'white male body' of liberal humanism – the site of ultimate authority" (149). While this reading works from the postmodernist side of the modern/postmodern binary, speaking from the perspective of the humanist/trans-humanist divide, I would give more credence to the "literal reading" as a legitimate concern for the loss of agency and choice and, in turn, a logical consequence of transhumanism. Extropian celebrations of "Man as the teleological animal" slide all too easily into Man the technologically determined animal. Similarly, Extropian anarcho-capitalism easily morphs into consumerism for its own sake. Add into the mix the wholly unfounded assumption that "'intelligence' and 'sentience' will remain constants over time and through successive transformations," and the Borg become a consequence of Extropianism's lack of clarity about "the extent to which the human can be transformed and still remain 'human.'" In other words, the Borg are a logical extrapolation of Extropian ideology. Extropianism's confident assumption that "new technologies will continue to be used in an unambiguously beneficial way" is ironically articulated by Locutus of Borg: "Why do you resist us?" he asks the *Enterprise* crew, "We only seek to improve quality of life for all species." Thus does he illustrate "that the situated, contingent effects of technologies are indissociable from the subjects that 'use' those technologies" (Thacker 76). In sum, if the Federation is an unambiguous celebration of the autonomous liberal subject of humanism, then the Borg, who clearly signify the impossibility of "expanding [that subject's] prerogatives into the realm of the posthuman" (Hayles 1999 287), certainly qualify as an explicit critique of transhumanism.

The Littlest Robot

Nanotechnology is another innovation that made its public appearance in the 1980s, in the form of Eric Drexler's *Engines of Creation: The Coming Era of Nanotechnology* (1986). A founding text of the Extropian movement, Drexler's book introduces the idea of building robotic machines (nanobots) smaller than living cells, machines that can travel along capillaries to enter and repair living cells, reverse the ravages of age, make the body speedier and stronger, revive and repair the cryonically suspended, and even replicate biomolecules and assemble them into intelligent machines. Of all the new technologies that have influenced the construction of *Star Trek*'s cyborgs, nanotech is perhaps the most important – and the most intriguing. Its special attraction for writers of science fiction is explained by Colin Milburn, who argues that

> …nanotechnology is an active site of … cyborg boundary confusions and posthuman productivity, for within the technoscapes and dreamscapes of nanotechnology the biological and the technological interpenetrate, science and science fiction merge, and our lives are rewritten by the imaginative gaze – the new "nanological" way of seeing – resulting from the splice. The possible parameters of human subjectivities and human bodies, the limits of somatic existence, are transformed by the invisible machinations of nanotechnology – both the nanowriting of today and the nanoengineering of the future – facilitating the eclipse of man and the dawning of the posthuman condition. (Milburn 271)

Milburn singles out Drexler's work as a primary example of this merging of science and science fiction, describing *Engines of Creation* as "a series of science-fictional vignettes. From spaceships to smart fabrics, from AI to immortality, *Engines of Creation* is a veritable checklist of science-fictional clichés – Drexler's insistence on scientificity notwithstanding – and the narrative structure of the book unfolds like a space opera: watch as brilliant nanoscientists seize control of the atom and lead humankind across the universe … and beyond!" (271, ellipsis in original).

Ray Kurzweil's prose is similarly extravagant in its transgression of the boundary between present and future, science and science fiction:

The union of human and machine is well on its way. Almost every part of the body can already be enhanced or replaced, even some of our brain functions. Subminiature drug delivery systems can now precisely target tumors or individual cells. Within two to three decades, our brains will have been "reverse-engineered": nanobots will give us full-immersion virtual reality and direct brain connection with the Internet. Soon after, we will vastly expand our intellect as we merge our biological brains with non-biological intelligence. (2002).

Despite this "operatic excess of nanowriting," as Milburn calls it – an excess of rhetoric that discloses nanotechnology's "scandalous proximity to science fiction" (278) – nanotech is a real science and, like all major technologies that preceded it, it's bound to have negative as well as positive consequences. Indeed, nanotech promises to rival biotech for first place on the list of new technologies that terrify the public and constrain politicians to get involved in their regulation. For, as a truly postmodern technoscience, the dangers of nanotechnology are as great as the benefits it promises.

In 2001, an article entitled "Microscopic Doctors and Molecular Black Bags" appeared in the journal *Literature and Medicine*. Its author, Tony Miksanek, family physician, SF author, and co-editor of the Literature, Arts, and Medicine Database at New York University, traces the impact of nanotechnology on science fiction. Among the novels he examines is Neal Stephenson's *The Diamond Age* (1996), which Miksanek finds "somewhat disappointing" because it "tends to concentrate on the more sinister developments achieved by the use of nanotechnology. Instead of highlighting possible nanotechnological breakthroughs such as eradicating cancer and aids [*sic*], Stephenson chooses to focus on some disturbing medical applications of this amazing technology." In addition, the novel "refers to 'nanotech warfare' and recounts an incident where, in a single night, fifteen thousand men were 'wiped out by an infestation of nanosites'" (60). Stephenson's apocalyptic view is in keeping with that of nanotech watchdogs, who fear an amplification of weapons of mass destruction far beyond the capability of anything in current nuclear, chemical, or biological arsenals. Miksanek much prefers James Halperin's pedestrian *The First Immortal* (1998), which envisions "a very positive and beneficent use of nanotechnology in the future, imagining ways in which it will alter and enhance modern medicine." The novel not only predicts "that scientists and society will possess the ability and ethical framework to harness and control nanotechnology,"

but also anticipates "a twenty-first century essentially devoid of death, in which biological immortality becomes a reality" (62).

Since the appearance of Miksanek's article, two novels have appeared that promise to move the nanotechnology debate closer to the centre of public consciousness: Michael Crichton's *Prey* (2002) and Margaret Atwood's *Oryx and Crake* (2003). *Prey* is typical Crichton: as in *Jurassic Park*, the only things scarier than the monsters created in the lab are the arrogant and hubristic scientists who create them. The monsters in *Prey* are a swarm of microscopic machines – a product of a scientific *ménage à trois* that includes nanotechnology, biotechnology, and infotechnology. This swarm of self-organizing, self-replicating, rapidly evolving nanoparticles has been released into the desert, where it preys on animals and generally imperils the environment – not to mention the corporate scientists who have engineered it in accordance with U.S. military specifications. Although not as scientifically explicit in terms of the integration of bio- and nanotech, Atwood's *Oryx and Crake* pursues a similar theme, and even features a race of designer (post)humans, who turn out to be the only humanoid creatures capable of surviving a global biotechnological holocaust perpetrated by a scientist who embodies all the characteristics of the typical Extropian male as described by both Thacker and Hughes – white, well-educated, radically libertarian, anarcho-capitalist – and who exhibits that streak of adolescent fantasy and irresponsibility implicit in the info- and biotechnologists described in Hayles' and Thacker's critiques.

Although not quite as relentless as Crichton and Atwood, *Star Trek* writers are much more critical of nanotechnologies than either James Halperin or Tony Miksanek. To cite just one example, they do not share Halperin's confidence that future humans will possess the wisdom to resist developing nanotech weapons. This is the theme of *Voyager*'s "Scorpion," in which audiences first learn about the role of nanotech in the process used by the Borg to assimilate other species. The assimilation process – a process that "facilitat[es] the eclipse of man and the dawning of the post-human condition," to borrow Milburn's celebratory phrase – relates to a particular variation on the theme of reverse-engineering called "uploading by nanoreplacement," a procedure in which billions of nanobots are injected into the brain, where they take up residence in or near the neurons. Each machine monitors the input/output activity of its neuron, until it is able to predict perfectly how the neuron will respond. At that point, it kills the neuron and takes its place (Strout). The Extropian expectation is that,

despite this complete replacement of the medium, the message will remain the same: human consciousness will survive intact, although significantly enhanced in speed, agility, intelligence, and longevity. I read the Borg as a commentary on that confident – and contradictory – assumption. As Starfleet's variety of interactions with the collective seem to suggest, "the posthuman condition" is not as universalist as that phrase implies.

Weapons of Mass Consumption

Terrorism and consumerism are at war in post-9/11 America. The dust had not yet settled on the ruins of the World Trade Center when New York's mayor and the American president called upon patriotic Americans to fight terrorism with their credit cards. In a gesture of sympathy and solidarity with our American cousins, our prime minister travelled to New York with a busload of Canadian tourists for a shopping spree. What better way to commiserate with a kindred nation whose twin phalluses of economic domination had just been castrated? By contrast, in *Star Trek*, destruction and consumption are not at war. Rather, they are collapsed into each other, the borderline between them as effectively deconstructed as the ones between biology and technology, science fiction and science. The Borg destroy whole cities by consuming everything in them. Our first hard evidence of this is the immense empty crater where New Providence Colony used to be before it was raided by the Borg. "Why do you resist us?" asks Locutus of Borg, "We only seek to improve quality of life for all species." Today, Locutus sounds a lot like President Bush, bewildered because his troops were not welcomed in Iraq as liberators after they had Shocked and Awed the Iraqis into submission. Vastly out-manned, out-gunned, and out-technologized, its fleet in ruins at Wolf 359, what the Federation learns in "Best of Both Worlds" is a simple truth observed by Chris Hables Gray in *Cyborg Citizen*: "wars are not won by technology" (64). "By maximizing computerization and perfecting the warrior-weapon interface, military analysts expect to make war useful again" (56), writes Gray; thus the "U.S. military is perhaps the most cyborged in the world" (59). It's therefore hardly a stretch to read *Star Trek*'s writers as constructing an army of cyborgs for the purpose of mirroring the ways in which we have already transgressed the boundary between humanism and the posthuman.