CYBORG DREAMS: Form Follows Function

John Miller

"Cyborg" is a neologism, short for cybernetic organism.  Curiously, this grafting together of words recalls Dada collage, which, however dated, provides an enduring iconography of the cyborg as an index of shock.  The collage form itself enacts the violence to which Dada – Berlin Dada especially – responded: that of the first, fully mechanized war.  Because a combination of telephone, telegraph, radio and aviation made possible World War I's unprecedented scale and intensity, many blamed technology for the carnage.  Even afterward, the proliferation of prosthetic limbs – a consequence of land mines – became a stubborn reminder of the war.  Dada thematized this, confronting its audience with the prospect of cyborgs long before anyone called them that.  Although Dada ostensibly privileged non-sense, its depictions of human/machine hybrids, in works such as Georg Grosz's "Republikanische Automaten" (1920), Raoul Haussmann's "Dada Messe" (1920) or John Heartfield's "Conquest of the Machines" (1934), were meant as moral allegories.  In all, the integration of the machine into the human body ultimately stood for evil.

Besides recalling death and destruction, widespread amputation also introduced the masses to the "phantom limb" phenomenon.  Typically, this is understood as a sense of still having a missing arm or leg, but it applies to prosthetic extensions – whether worn or not – as well.  It entails either a psychic remapping of the body or a lag in that remapping that is, by definition, uncanny.  This *Unheimlichkeit* is the flipside of Dadaist allegory, perhaps because altering where the body begins and leaves off holds such radical implications for individual subjectivity.  Gregory Bateson considers this, using a more traditional, yet more dramatic example:

> Suppose I am a blind man, and I use a stick.  I go tap, tap, tap.  Where do I start?  Is my mental system bounded by the handle of the stick?  Is it bounded by my skin?  Does it start halfway up the stick?  Does it start at the top of the stick?[1]

Although the liminal body has always been subject to some negotiation, the phantom limb began to destabilize popular, common sense understandings of corporeal definition, especially vis-à-vis an emergent electronic technology.

The Second World War and the Cold War both continued to push technological innovation forward.  In the Space Race especially, technicians began to see the body more as a potential variable than as a insurmountable constant.  Manfred Clynes coined the term "cyborg" in 1960 while working at the Dynamic Simulation Lab in New York's Rockland State Hospital with Nathan Kline.  In tandem with their research, the two published "Cyborgs and Space" in the journal *Astronautics*.  (Kline, in fact, joked that the new word sounded "like a town in Denmark.")[2]  They matter-of-factly proposed that instead of creating an elaborate, artificial environment within a space capsule, it would be more cost-effective to chemically adapt astronauts to less comfortable conditions through homeostatic injections of drugs.  The idea of a self-regulating system, modelled on human metabolism, was central to their conception of what a cyborg could be.  As opposed to most Dada – then sci-fi – depictions, they considered

[1] Gregory Bateson, *Steps Toward an Ecology of the Mind* (Chicago: University of Chicago Press, 2000), p. 465, quoted by William J. Mitchell, *Me++: the Cyborg Self and the Networked City* (Cambridge: the MIT Press, 2003), p. 35.
[2] Manfred E. Klynes and Nathan S. Kline, "Cyborgs and Space," *The Cyborg Handbook*, ed. Chis Hables Gray (New York: Routledge, 1995), pp. 29-33.

the cyborg to be more a systemic entity than a discrete thing per se.  Cybernetics itself concerns the control of information systems.  Norbert Weiner had initiated this field of inquiry in 1946.  He wanted to produce an artificial control mechanism modelled on the human mind, which, relying on positive and negative feedback, could respond to the world around it.  He proposed that a "thinking machine" could be built using servomechanisms.  This goal binds cybernetics to the aims of artificial intelligence.[3]

Artificial intelligence implies transcending the mind/body split.  Early in the 17th century, Renè Descartes postulated the "clockwork paradigm": the possibility of reducing animal bodies to their mechanical function.  This notion forms a curious counterpart to the philosopher's oft-repeated dictum, "I think, therefore I am."  The dialectic between these two ideas informs the fantasy of building a thinking machine, a desire that hearkens back to the 16th century when inventors and tinkerers began to produce androids, i.e., automatons with human faces, that could play musical instruments, write and speak.  These served mostly as amusements for the nobility.  The overriding impulse was to make a machine appear as lifelike as possible. One of the best known was Baron Wolfgang von Kempelen's Great Chess Automaton.  The machine took the form of a man in Turkish garb, and it usually won its matches, even against such illustrious opponents as Benjamin Franklin.  People suspected that the contraption was a hoax, operated by a dwarf concealed inside.  In fact, as von Kempelen finally confessed, it was not a dwarf at all but two fully grown chess masters.[4]  Lest all of this seem quaintly irrelevant, recall the drama that once surrounded competitions between chess champions and computers.   Until recently, the computers usually lost.  Then, in February 1996, Gary Kasparov played IBM's Deep Blue, a state-of-the-art supercomputer.  Although Kasparov won handily the first time, the following year IBM doubled Deep Blue's database and processing power.[5]  After the machine trounced Kasparov, he declared it "played like God."[6]  Chillingly, this not only suggests that thought is reducible to a mechanical operation, but also that perfect calculability is god-like.  It was in this vein that Walter Benjamin referenced von Kempelen's automaton as an allegory of historical determinism in his "Theses on the Philosophy of History."  With automatons, if, on one hand, the fantasy of creating life spawned technological innovation, on the other, living came to be equated with the ability to perform a discrete function.

Although Andy Warhol is not typically associated with cyborgs, his declaration "I want to be a machine" invites such a comparison.  Seen against Abstract Expressionist gesturalism, "being a machine" signalled the photo-mechanical displacement of the artist's hand in the artwork.  It implies a sweeping social shift as well.  Although initially regarded as a form of neo-Dada, Pop embraced – not rejected – the machine as a kind of liberation from humanist ideology.  More specifically with regard to cyborgs, Dan Graham cites Warhol's quip as a paraphrase of *The Creation of the Humanoids* – purportedly one of Warhol's favourite movies.  It follows a staple science fiction plot: more rational and efficient androids take over human civilization from their less dependable creators.  Graham further notes that the film's stiff acting style forces identification with the androids.[7]  For Warhol, the idea of converting oneself into a machine guarantees that the individual will function as a perfect productive apparatus, impervious to irrational emotions.  Thus, the Warholian machine equates

[3] Bruce Grenville,  "The Uncanny: Experiments in Cyborg Culture," *The Uncanny: Experiments in Cyborg Culture*, ed. Bruce Grenville (Vancouver: Vancouver Art Gallery and Arsenal Pulp Press, 2001) p. 27.
[4] Online, "The Great Chess Automaton," http://www.museumofhoaxes.com/chess_auto.html.
[5] Online, "Man versus Machine," http://whyfiles.org/040chess/main2.html.
[6] Online, "Deep Blue Wins Match, " http://www.research.ibm.com/deepblue/home/may11/story_1.html.
[7] Dan Graham, "Cinema, Theater, Power," *Rock My Religion* (Cambridge, Massachusetts: The MIT Press, 1993).

performance, not subjectivity, with genuine existence – or, simply with existence, genuine or not. The system it invokes is political economy. Accordingly, his studio becomes The Factory. Curiously, his philosophy is the exact obverse of Descartes': "I produce, therefore I am." Moreover, its subtle undermining of traditionally gendered subject positions anticipates Donna Haraway's more explicit Cyborg Manifesto. Yet, the figure of the machine as a quasi-autistic entity tempers the futuristic aspect of Warhol's stance, especially given cybernetics' emphasis on the communicative interface. Ultimately, it is the camera, not the robot, which automates Warhol's oeuvre. His paintings, for example, are predominantly photo-silkscreens. Their gridded images of Marilyn Monroe or Elizabeth Taylor suggest that not only are the stars produced and reproduced, but also that they essentially may be replicants. Warhol's films, especially the screen tests, are as much about the camera as they are the actors.

Particularly suggestive with regard to Warhol's work, Villem Flusser's treatise, *Towards a Philosophy of Photography*, casts the camera as a means of social roboticization. Here, photography constitutes a system that serves as an apparatus: in Flusser's words both "a plaything or a game that simulates thought" and "an organization or system that enables something to function." Thus, the camera is a device that programs its users. Flusser distinguishes the camera from both tools and machines. A tool "tears" an object from the natural world for human use. It simulates the body, yet remains a function of the human. Thus, the tool is variable while the human remains constant. Machines are tools informed by scientific theory. As such, they are not limited to simulating the body. Nor are they a function of the human. Instead, the human is variable and the machine becomes a constant. According to Flusser, in sharp contrast to both tools and machines, photography is a system that not only surrounds the human but also incorporates it. Neither the photographic nor the human are constants. Rather, they are variables that dynamically respond to each other. Although the camera is not a cybernetic device per se, the photographic universe is a homeostatic system that, as "a combination game based on chance," brackets out human involvement except to enact the program.[8] In this respect, one may conceive of the entire photographic apparatus cybernetically, namely as a self-regulating system of information management realized through a human, corporeal interface. As such, Flusser's critique ultimately revolves around the elimination of free will, a science fiction trope that has come to characterize the postmodern condition.

Probing the moral and social implications of cybernetics is one of the earmarks of Phillip K. Dick's science fiction. For example, the film *Blade Runner*, now canonized as a postmodern classic, is based on Dick's short story, *Do Androids Dream of Electric Sheep?* It concerns a bounty hunter whose job is to eliminate androids from "planet Earth." After a fellow bounty hunter turns out to be an android, he begins to wonder if he himself is human. *The Minority Report*, another short story by Dick, focuses on the question of free will in cybernetics. The protagonist, John Anderton, has initiated a system of Precrime in Washington, D.C. By harnessing three clairvoyant individuals – Precogs – to a computer, Anderton and his police unit can detect and thwart crimes before they happen. The system works so well that murder in the D.C. area plummets by 95%, but Precrime, of course, flies in the face of the judicial principle, innocent until proven guilty. When the Precogs predict that Anderton himself will commit murder, he breaks with his own system, hoping to save his life. He steals a copy of the report only to find that the Precogs' predictions were not unanimous. One of the three finds him innocent; that is the minority report. Further complicating matters is the fact that knowledge of the reports can affect their outcome. This, after all, is the very premise of Precrime. Nonetheless, Anderton goes on to commit the murder as the majority predicted,

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[8] Villem Flusser, *Towards a Philosophy of Photography* (London: Reaktion Books, 1983).

leaving the reader to wrestle with the premises of Precrime and – more broadly – automated society.

Part of the pleasure afforded by Phillip K. Dick stories is that a typically childish premise raises such unsettling questions about contemporary culture's dependence on technology. The premise demands that the reader suspend disbelief. The stories themselves are allegories or parables. The childishness of the premise – in the case of *The Minority Report*, the clairvoyants – guarantees that. What *The Minority Report* examines is not so much an exact cybernetic apparatus, but rather its effects. Precrime turns out to be a kind of homeostatic system and, like Flusser's understanding of photography, it serves to robotize society. Its determinist underpinnings do away with intentionality. For example, under Precrime, murder and manslaughter become virtually indistinguishable. As with Descartes' clockwork paradigm, Precrime reduces humans to their behavioural function. This gives rise to a certain fatalism; in its inevitability, the plot itself seems automated, despite the protagonist's struggles against the outcome.

Despite cybernetic advances in medicine, for the time being at least, the vast majority of the world's population does without artificial organs, artificial joints, pacemakers or even contact lenses. In other words, the physical integration of machinery and devices into the human body remains the exception rather than the rule. A totalizing, human-mechanical mutation has not come to pass. After all, in Dada these were allegorical figures. Instead, a Warholian ethos of artifice predominates. Rather than becoming cybernetic organisms, the masses have become organisms embedded within overarching cybernetic apparatuses. In a sense, the individual body is unbounded and spread over a neural communications web. Whether or not this makes them cyborgs is largely a semantic point, even if, in the wake of Donna Haraway's polemics, a whole host of critics and theorists have been quick to lay claim to cyborg identities. Yet, as William J. Mitchell maintains, it is networking – not hybridization – that automates a cyborg to its maximum capacity. [9] A network can enable a cybernetic condition without having to physically alter the bodies it subsumes. This makes it extremely efficient. Mitchell further argues, contra William Gibson, that virtual and material realms are not separate, but superimposed.[10] Thus, manipulating virtual information produces palpable, material results. Nonetheless, Mitchell overlooks the coding that enables such a superimposition. Coding, moreover, is one of Flusser's key concerns. For him, it is prerequisite to programming. Through coding, the network can enact social programming. Thus, an examination of the networked condition becomes especially important with regard to cybernetics.

Ever since 1850, when people began to use the term network for a spatial communication system, they have imbued it with utopian aspirations. This holds true for the railroad, the telegraph, the telephone, the Internet and other technologies as well. By allowing for new kinds of exchange, the network is supposed to epitomize democracy. Yet, as Armand Mattelart maintains, the network is both a symbol and a tool of economic and social relations that ultimately serves the elite. He goes on to argue that an Internet-driven techno-utopia is the ideological weapon of choice for global "free" marketeers, citing Bill Gates who heralded a "network of networks" that would create the ultimate market for "frictionless capitalism." In contrast, Mattelart cites Adolphe Quentelet's (1796-1874) ominous system of statistical analysis: "social physics." Quentelet was the first to claim that one could measure and classify the probability of an individual to commit crime by evaluating such factors as season,

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[9] William J. Mitchell, "Connecting Creatures," *Me++: the Cyborg Self and the Networked City* (Cambridge: the MIT Press, 2003), p. 19-39.
[10] Mitchell, "Prologue, " p. 3.

sex, age, social class, nationality, geographical locale and so forth.[1112]  In this vein, even the otherwise buoyant William J. Mitchell, sees potential for such abuse with current information technology:

> Precrime does not require mutants floating in vats, as in *The Minority Report* – just a database, rules and profiles, inference engines, and data mining algorithms.  And, if the conclusions they draw are not one hundred percent accurate, then that can always be dismissed as collateral damage – unfortunate, but justified by the end result.[13]

As harrowing as that prospect might seem, it lacks incentive, especially compared to frictionless capital.  The free market may be the perfect haven for the social cyborg, a phantasmagoria of demographics.  In contrast, freedom may become the ability to slip under the demographic radar.  Finally, this growing informaticization of political economy helps put into context one more of Warhol's quips: "My mind is like a tape recorder with one button: erase" – a Dada device if there ever was one.

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[11] Armand Mattelart, "Mapping Modernity: Utopia and Communications Networks, " *Mappings*, ed. Denis Cosgrove, (London: Reaktion Books, 1999).

[13] Mitchell, "Logic Prisons," p. 200.