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## The Work of Art in the Age of Biocybernetic Reproduction

- [W.J.T. Mitchell](#)

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*The current revolutions in biology and computers, and their implications for ethics and politics, raise a host of new questions for which the arts, traditional humanistic disciplines and Enlightenment modes of rationality may seem ill-prepared. Mitchell questions the notion of the post-human age and the ways in which we approach death as more and more a problem to be solved by engineering and adjudicated by lawyers. Mitchell looks at films such as Jurassic Park, The Matrix and Blade Runner in order to explore some of these ideas and discourses.*

The current revolutions in biology and computers, and their implications for ethics and politics, raise a host of new questions for which the arts, traditional humanistic disciplines and Enlightenment modes of rationality may seem ill-prepared. What good is it even to talk about the human if a humanist like Katherine Hayles is right in arguing that we live in a post-human age?

What is the point of asking the great philosophical questions about the meaning of life, when we seem to be on the verge of reducing this most ancient question of metaphysics to what Giorgio Agamben has called 'bare life,' a matter of technical means, a calculable chemical process? And what about the ancient mystery of death in a time of neomorts, indefinitely extended comas, and organ transplants? Is death now merely a problem to be solved by engineering and adjudicated by lawyers? What is the structure of scientific and technical knowledge itself? Is it a set of logically validated statements and propositions, a self-correcting discursive system? Or is it riddled with images, metaphors, and fantasies that take on a life of their own, and turn the dream of absolute rational mastery into a nightmare of confusion and uncontrollable side-effects? To what extent are the widely heralded technical innovations in biology and computation themselves mythic projections or symptoms, rather than determining causes? And, above all, who is in a position to reflect on these questions, or rather, what disciplines have the tools to sort out these issues? Do we call on the artists or the philosophers, the anthropologists or the art historians, or do we turn to the proponents of hybrid formations like 'cultural studies'? Do we rely on the biogenetic engineers and computer hackers to reflect on the ethical and political meaning of their work? Or do we turn to the new field called bioethics, a profession that requires fewer credentials than we expect from a hairdresser, and which is in danger of becoming part of the publicity apparatus of the corporations whose behavior they are supposed to monitor.

I wish that I could promise you clear and unequivocal answers to these questions, a set of dialectical theses on the order of Walter Benjamin's 1935 manifesto, *The Work of Art in the Age of Mechanical Reproduction*. All I can offer, unfortunately, is a target for inquiry, the concept of 'biocybernetic reproduction'. The questions, then, are as follows: what is biocybernetic reproduction? What is being done with it by way of critical and artistic practice, and what could be done?

I will venture a definition. Biocybernetic reproduction is, in its narrowest sense, the combination of computer technology and biological science that makes cloning and genetic engineering possible. In a more extended sense it refers to the new technical media and structures of political economy that are transforming the conditions of all living organisms on this planet. I adopt the polysyllabic tongue-twisting term 'biocybernetics' rather than the more compact 'cybernetics' in order to foreground a fundamental dialectical tension in this concept. The word 'cybernetics' comes from the Greek word for the 'steersman' of a boat, and thus suggests a discipline of control and governance. Norbert Wiener called cybernetics 'the entire field of control and communication theory, whether in the machine or animal' (OED: 1948). 'Bios,' on the other hand, refers to the sphere of living organisms which are to be subjected to control, but which may in one way or another resist that control, insisting on 'a life of their own.' 'Biocybernetics,' then, refers not only to the field of control and communication, but to that which eludes control and refuses to communicate. In other words, I want to question the notion that our time is adequately described as the 'age of information,' the 'digital age,' or the age of the computer, and suggest a more complex and conflicted model, one which sees all these models of calculation and control as interlocked in a struggle with new forms of incalculability and uncontrollability, from computer viruses to terrorism. The digital age, in short, spawns new forms of fleshly, analogue experience, and the age of cybernetics engenders new breeds of biomorphic entities, among which we must number intelligent machines such as 'smart bombs,' and those even more intelligent machines known as 'suicide bombers.' The final result, and the whole tendency, of the smart bomb and the suicide bomber is the same, namely, the creation of a biocybernetic life form, on the one hand, the reduction of a living being to a tool or machine, on the other, the elevation of a mere tool or machine to the level of an intelligent, adaptable creature.

I will spare you a detailed argument that something like biocybernetic reproduction is indeed the technical and scientific dominant of our age, that biology has replaced physics at the frontiers of science, and that digital information has replaced the physical quanta of mass and energy as dominant forms of imagined materiality. Anyone who has read Donna Haraway on cyborgs, or watched science fiction movies over the last twenty years cannot fail to be struck by the pervasiveness of this theme. Films like *Blade Runner*, *Alien*, *The Matrix*, *Videodrome*, *The Fly*, *The Sixth Day*, *AI*, and *Jurassic Park* have made clear the host of fantasies and phobias that cluster around biocybernetics: the spectre of the 'living machine,' the re-animation of dead matter and extinct organisms, the de-stabilizing of species identity and difference, the proliferation of prosthetic organs and perceptual apparatuses, and the infinite malleability of the human mind and body have become commonplaces of popular culture. The contrast between the mechanical and biocybernetic model is vividly illustrated by the 'new model' cyborg of Arnold Schwarzenegger's *Terminator 2*. Schwarzenegger plays the role of a traditional robot, a mechanical assembly of gears, pulleys, and pistons driven by a computer brain and the most advanced servo-motors. He is faced, however, with a new model terminator composed of 'living metal,' a shape-shifting chimera that is a universal mimic, capable of taking on any identity. By the end of this film, we are prepared to be nostalgic for the good old days of mechanical men who could express regret for their inability to cry, and to feel horror at the new figure of infinite mutability and mutation, remorselessly pursuing the extinction of the human species.

I will state it as a bald proposition, then, that biocybernetic reproduction has replaced Walter Benjamin's mechanical reproduction as the fundamental technical determinant of our age. If mechanical reproducibility (photography, cinema, and associated industrial processes like the assembly line) dominated the era of modernism, biocybernetic reproduction (high-speed computing, video, digital imaging, virtual reality, the internet, and the industrialization of genetic engineering) dominates the age that we have called 'postmodern.' This term, which played its role as a place-holder in the 1970s and 80s, now seems to have outlived its usefulness, and is ready to be replaced by the more descriptive notion of biocybernetics.

To have a new label, however, is only to begin the inquiry, not to conclude it. If we pursue the question in the spirit of Walter Benjamin's *The Work of Art in the Age of Mechanical Reproduction*, then every term needs to be re-examined. 'Art' or 'kunst,' as Benjamin already saw, does not merely signify the traditional arts of painting, sculpture, and architecture, but the entire range of new technical media (photography, cinema, radio, television) that were emerging in his time. The 'work' itself is highly ambiguous as to the art object (the 'kunstwerk'), the medium of art, or the very task (the work as 'arbeit') to which the arts ought to be committed. 'Reproduction' means something quite different now when the central issues of technology are no longer 'mass production' of commodities or 'mass reproduction' of images, but the reproductive processes of the biological sciences. What does it mean when the object on the assembly line is no longer a mechanism but an engineered organism?

And above all the notion of an 'age' defined by technical determination has a different feel at the threshold of the twenty-first century. Benjamin wrote in the uneasy interim between two world wars that had raised the technologies of mass death and extermination of civil populations to unprecedented heights, a time of crisis and immediate danger punctuated by irreversible catastrophes and dramatic technical innovations. We live in a time that is best described as a limbo of continually deferred expectations and anxieties. Everything is about to happen, or perhaps it has already happened without our noticing it. The ecological catastrophe of Don DeLillo's *White Noise* is a non-event. The Gulf War, according to Jean Baudrillard, did not take place. The human genome—the very 'secret of life' itself --is decoded, and everything remains the same. The heralded new computer you bought last week will be obsolete before you learn to use it properly. Even a simple attempt to rationalize political life with a decisive, calculable event such as an election turns out to be not so simple, and the leadership of the world's most powerful nation is determined by a debate about whether human hands or machines should be trusted to count the vote. Needless to say, the human hands lost.

Even war, the most dramatic and defining historical event human beings can experience, turns out in our time to take on a radically indeterminate and nebulous shape. The United States, in case you haven't noticed, is currently in a state of war, but a new kind of war in which the enemy is nowhere and everywhere, without a definite territory or identity, located in faraway places like Afghanistan, but living among us in Florida, hiding in caves and secret bases, or dwelling in the open, driving their mini-vans to the mall. The onset of this war is experienced as a wrenching, visceral catastrophe of mass death and destruction, and as a media event suffused by unreality and disbelief. The conduct of the war will be, as we can already see, carried out in the shadowy middle ground between espionage, diplomacy, and commando raids. It will be a war without a front, a back, or a middle, a war of indefinite and probably unattainable objectives. It will be a war that cannot ever be 'declared' officially, because that would be to unduly dignify the enemy, who will be treated as mere criminals to be brought to justice. But the criminals will never be tried in any court; they will be given some form of Texas justice, brought back, as our President has put it, 'dead or alive,' and if a few innocent people get hurt along the way, that will be a regrettable side effect.

Meanwhile, at the same moment that terrorism is defined as the greatest evil of our age, the most popular movie of our time is a film called *Matrix*, that glorifies a small band of hacker terrorists who are determined to bring down the entire world economic and political system because they resent the fact that computers are controlling human life. We live in a very peculiar time, indeed, one in which Walter Benjamin's prediction that the human race might be capable of viewing its own destruction as an aesthetic experience of the first order has come true in a spate of apocalyptic disaster films. The scenes broadcast last year from New York had, as many observers noted, been anticipated numerous times by Hollywood, and it was even suggested that the terrorists timed the second plane's collision with the south tower of the World Trade Center in the full expectation that hundreds of video cameras would capture the event live, and broadcast it over and over again around the world.

Every present moment has to define itself against some notion of the past, and ours is no exception. Benjamin noted that modernity and mechanical reproduction seemed to bring along with them a revival of primitive and archaic formations, that modernist painting, for instance, was riddled with traces of fetishism, and that modern cinema was fulfilling the ancient dream of a universal hieroglyphic language that would repair the damage done at the Tower of Babel. Now our sense of the revived past is even deeper, and paleontology, the study of ancient extinct life-forms (most notably the dinosaur) looms as the temporal framework for the of the most innovative achievements in art, media, and technology. A raptor from *Jurassic Park*, like a petrified fossil extracted from the stream of living time, captures the paradox of biocybernetics perfectly. With its skin lit up with the DNA codes that brought it to life it is a dialectical image of the most up-to-date and the most archaic forms of life. The inseparable but contrary twins of biotechnology, constant innovation and constant obsolescence, the creation and extinction of life, reproductive cloning and the annihilation of a species, are fused here in a single gestalt.

Art historian T. J. Clark has recently written about the modern era, the time of Benjamin and Picasso and Lenin, as an era so remote from our present as to require an 'archaeology' to understand it. My own view is that the present is, in a very real sense, even more remote from our understanding, and that we need a 'paleontology of the present,' a rethinking of our condition in the perspective of deep time, in order to produce a synthesis of the arts and sciences adequate to the challenges we face. Artists such as Robert Smithson and Allan McCollum, who have pioneered the introduction of natural history themes into their art practices have given us some guidance in thinking about the task of art in relation to issues of deep ecology and the spectre of extinction. Smithson saw his *Spiral Jetty* as a cosmic hieroglyphic, a product of modern earth-moving technologies, and a geological trace, like the footprints of the dinosaurs, spiralling into a 'deep time' which makes our own historical and even archaeological time-sense seem brief and shallow by comparison. Allan McCollum brought painted concrete castings of dinosaur thigh bones into the classical atrium of the Carnegie Museum in Pittsburgh to evoke the way in which America's sense of the past has, at

least since Thomas Jefferson, simultaneously evoked the classical past of Greece and the Roman Empire, and the even deeper past of a natural history that links our nation's past to the fate of the giant erect reptiles that once ruled the world as America does now.

The first conclusion of such a paleontology of the present might be summed up by Fred Jameson's remark: 'it is now easier to imagine the death of the human species than the end of capitalism.' In Walter Benjamin's time, the greatest accumulations of power were located in the nation-state, the collective life-forms symbolized by Hobbes' Leviathan. Adorno called the dinosaur a monument to the monstrous total state, but in our time, it has become a figure for a new monster, the multi-national corporation, locked in a Darwinian struggle of survival of the fittest, in which new strategies of downsizing, flexibility, and rapid adaptation (the virtues of the Velociraptor) have replaced the emphasis on giantism of the old corporate giants (the power of the T. Rex). I do not mean to demonize corporations. Needless to say, I work for one myself (the University of Chicago) and I am speaking inside the belly of another one today. I only mean to call attention to the real-world political and economic framework within which biocybernetic reproduction acquires its power over human life. Any critique of this mode of production that does not address the corporation as life-form and kunstwerk, and multi-national capitalism as its habitat, will miss the outer frame of this subject.

What, then, is the 'work' of art in this era? What is its task in the face of biocybernetics?

There is nothing like a consensus or unified vision of the task of art in the face of biocybernetics. What we find is a convergence on a common theme with the full range of strategies available to visual artists today: painting, sculpture, photography, video, conceptualism, installations, and forms of interactive media are deployed with a wide range of affective charges. The works express wonder, horror, deadpan humor, sympathy, political and ethical critique, euphoric enthusiasm at exploring the 'cutting edge' of technology, and the sense of crossing a threshold into an unknown world and a new millennium. What we do not find in them is the fierce sense of certainty and purpose of the modernist avant gardes, the feeling of connection to a broad-based social movement, or the identification of a clear antagonist like 'the bourgeoisie' who must be shocked into consciousness. Most movie-goers have already seen much more vivid images and narratives of biocybernetics in popular science fiction films, and are unlikely to be dazzled by art works in galleries. This is not to disparage the creativity or talent of these artists, only to recognize that there are certain objective constraints on their activity, and that this may not be a time when art can play a leading role in cultural evolution. A recent report in Nature magazine on 'bioartists' in the Boston area suggests that those artists who wish to work in close proximity to actual scientific research are tolerated by the scientists as amusing distractions at best, and annoying pests at worst. MIT biologists particularly complain that the work of bioartists takes up valuable 'bench space' that would better be used for real research, and that the bioartists' work 'is not evaluated with the same scrutiny' as that of the scientists. (vol 407: 12 October 2000, p. 669).

There are artists who have established a kind of reflective distance on biocybernetic reproduction and have made telling comments through their work. Since the pathbreaking Paradise Now at Exit Art in Soho in 2000, I'm told that no less than nine separate exhibitions on this theme were staged in the subsequent year, and Australia seems especially rich in artists who are thinking about bios.

In a different way the exhibition The Greenhouse Effect in London assembled a range of bioartists in an ensemble that suggested a kind of spaceship earth or natural history ark, with specimens fabricated and nourished from the bodies of the artists – tiny animal skeletons fabricated from fingernail parings, a fly constructed entirely out of human hair and epoxy, an aviary with parrots who have been taught to mimic the language of a vanished Amazonian Indian tribe, a planter filled with orchids watered by the artist's urine. The show seems premised on a simple question: how would you construct a reliquary of the natural world if all you had to work with was the detritus of industrial civilization and the waste products of your own body? Like the famed Museum of Jurassic Technology in Los Angeles, The Greenhouse Effect put the technologies of biocybernetics in the frame of a more capacious natural history, offering a perspective that is not quite so obsessed with the present moment of technical hype and anxiety, but looks back on it with a whimsical virtuosity.

Returning to the 'digital raptor' of Spielberg's Jurassic Park, this image captures the dream of cybernetics, but carries it to the final illusion. The dream of Jurassic Park is not just the indefinite maintenance of a life form in perfect self-regulating equilibrium, but the resurrection of extinct life with cybernetic codes. The dream of control over life, its reduction to calculable, mechanical processes, is here projected as the ultimate fantasy: not just the conquest of death (as in Frankenstein) but the conquest of species death by cloning the DNA of extinct creatures. This fantasy of cybernetic control is, of course, exactly what the film's narrative puts into question. The raptor has just broken into the control room and is looking to devour the controllers. The DNA codes which express their mastery over the reproductive processes of the cloned dinosaurs have unleashed real flesh and blood creatures who have taken over their own means of reproduction.

The digital dinosaur is a biocybernetic updating of the oldest myth about the creation of life, that life begins with the word of god, and the word is made flesh, a corporeal image of the creator—an image that, as we know, inevitably rebels against its creator. Biocybernetics is about the attempt to control bodies with codes, images with language. The analogy between biogenetic engineering of organisms and digital animation of graphic images is perfected in this figure, as if someone had hit the 'reveal codes' button to expose the digital basis of both the creature itself, and its cinematic representation.

Perhaps this, then, is one task of art in the age of biocybernetic reproduction, to reveal the codes and expose the illusion of the ultimate mastery of life. Walter Benjamin concluded his meditation on mechanical reproduction with the spectre of mass destruction. The dangerous aesthetic pleasure of our time is not mass destruction but mass creation, the fantasy of unlimited and controlled production and reproduction, accompanied by an ever-widening spiral of consumption. The epithet for our times, then, is not the modernist saying, 'things fall apart,' but the even more ominous slogan: 'things come alive.' Artists, technicians, and scientists have always been united in the imitation of life, the production of images and mechanisms that have, as we say, 'lives of their own.' Perhaps this moment of stillness in history, when we feel caught between the utopian fantasies of biocybernetics and the dystopian realities of biopolitics, between the rhetoric of the post-human and the real urgency of universal human rights, is a moment given to us for rethinking just what our lives, and our arts, are for.

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