

processes are now written and programmable, as well as capable of storing and processing data in ways not within digital computers. Further investigating this notion, at the end of the show the altered biblical sentence was decoded and read back to plain English, offering insights into the process of transgenic intellectual communication: 'LET MAN HAVE DOMINION OVER THE FISH OF THE SEA AND OVER THE BIRDS OF THE AIR AND OVER EVERY LIVING THING THAT CRAWLS UPON THE EARTH'. In addition to the verse introduced to parts of the work, the processing of information by the existing faculty replaced 'WILL' with 'CAN' (which suggests a female owner) and added the word 'WILL' (which means 'an indefinitely long period of time') to English before 'THE EARTH'. The translation between culture-based life and digital data are becoming as English as a well understood.

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Techno-Darwinism: artificial selection in the electronic age

Bill Hill

Techno-Darwinism symbolizes a dramatic shift in the evolutionary process of the human species, in the world in which it inhabits and reaches beyond the future of its own concept. As the tool making species increases its reliance upon its own constructs, many residual effects work to alter its progress. And thus the structure of Darwinian evolution transforms into a new construct. Throughout time there is and arguably always will be a universal struggle for existence, but in today's technological society the factors which dictate survival has shifted. Darwinian evolution exists of two distinct theories of development: Natural and Artificial selection. The basis for natural selection put forth by Charles Darwin, states that 'through competition for limited resources only the fittest will survive and through the extension of this competition, generations of a species will transform or adapt itself with those qualities' Jones (1952). By the simplest of genetic distortion, the 'fittest' will survive longer, enabling them to reproduce more often and hence contribute more of their genetic character to the species as a whole. Today, however, due to the increased reliance upon electronic technology and biomechanical engineering, the gene pool itself is shifting. The traits once considered to be assets for survival are now obstacles. As technology further augments the 'natural' with the artificial the more the 'weaker' traits of the species will prevail, further perpetuating the reliance upon the artificial for increased productivity. The tools the human species makes in turn make them. So the notion of a 'natural selection' process touted by Darwin and his followers seems to be increasing transforming itself into an artificial process driven by a social collective which seeks survival through technology.

The distinct between the natural and artificial process seems to be one mainly of consciousness or intent. The most common analogy used to explain artificial selection is

animal breeding. If a collective agrees a certain quality such as long noses are a desirable quality for a specific breed, then only those animals with long noses will be bred and over a period of time the short nose gene will become extinct within the species. This type of genetic alteration is currently occurring within the human species' gene pool, however the quality which propels this shift is technology itself. Those who cannot exist or reproduce naturally are now, through the advent of technological means, living longer and reproducing more. The natural genes which enabled their dependency upon technology is being passed through generations in an increasing abundance fostering a deeper reliance upon the artificial.

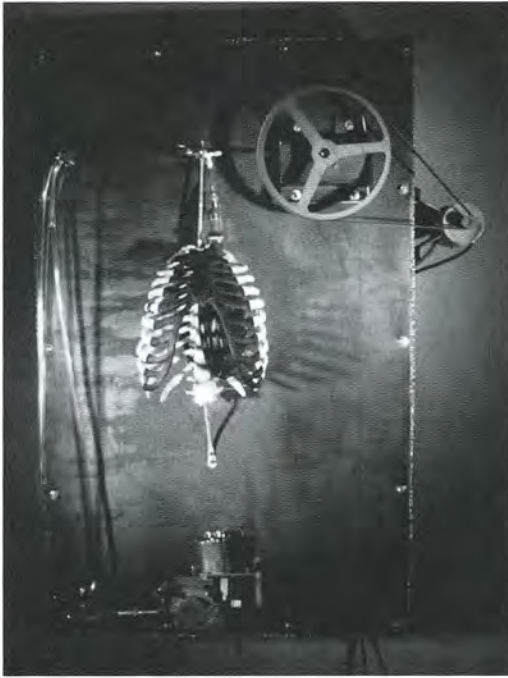
Biomechanical technology seeks to alter the physical body through artificial selection. From the advent of external limbs though the recent developments of genetic engineering, a progressive restructuring of the physical body is occurring. Almost all cultures, both past and present, practice some form of body modification. The oldest human remains found to date, the five thousand year old mummified body of a man frozen in the ice of what is now the Italian Alps, had tattoos. However palatable the current trends of body modifications are, the future offers more exaggerated displacements of the current body image, encouraging a deeper rift between the natural and artificial.

'Black Lung', a recent kinetic sculpture, responds directly to this technological restructuring of the body. This piece consist of a compressor and a motor driven valve system which allows the artifice to simulate a working lung in the human body. Additionally, a motion detector is added to the compressor to emphasis the need for social approval in order for the machinery to successfully augment the body. This motion detector is hooked solely to the compressor so that without the reinforcement of an audience (the masses) the machinery continues to control the physical body but grinds away unproductively. The single lung expands and contracts inside a human rib cage, pointing to the simplification of the current biological system. The entire work is mounted to the exterior of a steel box, a sign of the industrial revolution. The body becomes the skin of the machine.

As an artist I am concerned with the impact technology has over our collective development and how it further embeds itself inside of us. The notion of socially directed body modification dates back thousands of years. The Greek 'super-anatomical' sculptures helped to invent the ideal form, the 19th century development of moving pictures illustrated the behavior and movement of that form, but it wasn't until the technological development of 'X-Rays' that the real notion of the body changed. Today, through physical examination and reliance upon machines, we can communicate directly with the body. What the patient knows is untrustworthy; what the machine knows is reliable, and those machines are shifting the evolutionary development of our species.

Technology is not just a tool. It is information, in that it shapes how we think and, in the absence of an alternate reality (i.e. nature), what we think about and know. Where evolution was once an interactive process between human beings and a natural, unmediated world, evolution is now an interaction between human beings and our own artifacts.

Cognitive psychologists agree that some sensory-motor activities can be learned to the point they become automatic. As more and more of our time is spent within the artificial



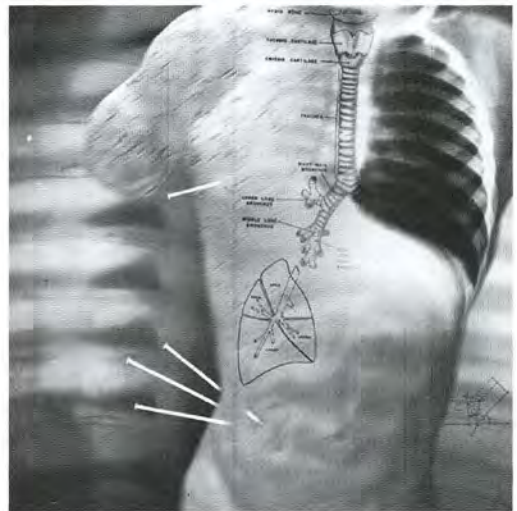
Black Lung

interactive interface resembles the structure of a hangman game, where the user must select the appropriate letters before the figure is fully rendered in the gallows. The user actively consumes electronic technology while revealing the fabrication of electronically published information. By pressing buttons on the apparatus a corresponding letter is revealed on the projected interface. The user must decipher the keypad and decode the electronic information.

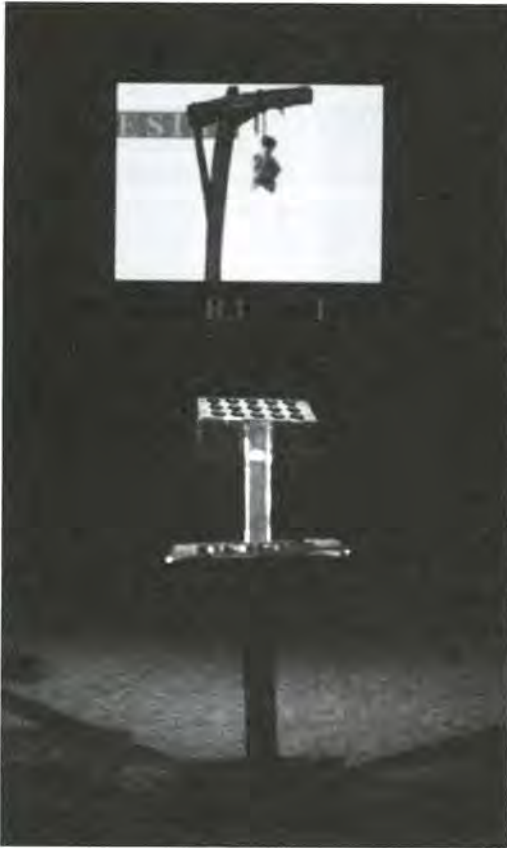
Electronic technology not only invades and alters the physical body through the use of genetic modifications and the displacement of physiological components with prosthesis of all kinds, but more fundamentally the machines are reforming the cognitive processes of the conscious and subconscious mind. As the computer becomes more integrated with the developing human mind, and as it provides

environment of the computer we will begin to synchronize our movement and function with that of the virtual system. We speed up and slow down with the pulse of the computer. There is an increased tendency with graphical user interface design to be transparent; to aid in the human interaction with the computer; to coalesce the human thought and the digital function; for this interaction to feel more natural and ensure the control of the machine. Much like the amputee which remaps his muscular networks to control the prosthesis. However, here the technology is controlling us.

'Preprogramming' exists as an interactive installation where the viewers/participants are taught to remap linguistic symbols into letters, words, and meanings. The installation consists of a physical apparatus and a virtual interactive interface. The physical apparatus is made of a steel construction and stands 3 feet tall. Each of the cryptic buttons correspond to a letter of the english alphabet. The



E-Examination



Pre-Programming

the interface with knowledge, it shapes not only our understanding of the world around us but our understanding of ourselves. However, humans must first be trained to understand things in a certain specific way before they can extract information from the artificial stimulus. We, therefore, are becoming more and more a hybrid of the machines we use. 'Preprogramming' points directly to this conscious willingness for our species to adapt to the modes of the machine – to allow the machine to control the way we process information, communicate with other, and understand ourselves.

According to Donna Haraway in her *Cyborg Manifesto*, 'Late twentieth-century machines have made thoroughly ambiguous the difference between the natural and the artificial, mind and body, self-developing and externally designed.... Our Machines are disturbingly lively, and we ourselves frighteningly inert.' Haraway (1991) Nowhere is this more evident than in the simulated environments of recent network games, like *Doom* and *Quake*. Here combatants are immersed in a kind of remotely exhilarating tele-action. They take on virtual identities and navigate virtual

worlds. After a period of time users come to imagine themselves in the terms of the mechanical or cybernetic qualities that are designed into the computers. The operator behaves as a virtual cyborg in the real-time, man-machine interface.

What profoundly impacts me is the ease at which many can remap their physical and mental functions to blend with the machine. Moving beyond the conscious usage of the instrument towards a subconscious amalgamation with the electronic impulses. A fundamental shift occurs in the evolutionary status of the species as the mind binds at this level. Jean Baudrillard, in *Simulacra and Simulation*, addresses just such a shift. 'Whoever fakes an illness can simply stay in bed and make everyone believe he is ill. Whoever simulates an illness produces in himself some of the symptoms.' Baudrillard (1994) His focus is more on the simulation – the artificial, mine is more on the effect – the illness. As the artificial invades the body, specifically the mind and alters the way we process information on the conscious and subconscious level it begins to take control of us.

By using Classical Conditioning, the installation 'Apparatus 3957' acts a biomechanical device to alter the human reaction toward electronic technology. As a kinetic installation,

Beyond Boundaries



Apparatus 3957

Apparatus 3957 consists of a motor driven device which controls the movement of a human specimen, and a body apparatus containing a LCD panel, which limits the movement of the specimen.

A person is locked into the apparatus with their arms positioned at their sides and the LCD panel positioned directly in front of their vision. This apparatus is then locked to the motor driven wheel which forces the person to move in one direction. During this performance the LCD panel displays the functions of an operating system in a continuously, monotonous fashion.

In theory, the human specimen will be conditioned by the machine to become physically nauseous when confronted with a computer's operating system. By hooking the specimen into the apparatus and locking them into a circular motion, forced upon them by the machine; their body will produce a physical reaction associated with the visual and audio stimulus. Over a period of controlled interaction the body and mind becomes subconsciously conditioned to respond/ behave in specific way. The result is one of conflict; an aversion to the user's computer is generated within the user. The specimen has an innate conscious desire to interact with the technology while subconsciously the body resists.

The innate desire inside of 'Apparatus 3957' is built upon the principle foundations of Darwinian evolution; the desire to survive. As our species seeks to survive it adapts to its environment, it clings to the qualities suited best for survival. But at what point do we give up what makes us human? At what point are humans no longer evolving but being cannibalized by a new organism? At what point does our fusion with technology displace us? The concern of Techno-Darwinism is the mutation of the artificial into the natural. As evolution propels us forward we may not merely be adapting but instead becoming displaced.

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