From HOMO SAPIEN to CYBORG
THE FUTURE OF OUR EVOLUTION

The monster opens the curtains of Victor Frankenstein's bed. Schwarzenegger tears back the skin of his forearm to display a gleaming skeleton of chrome and steel. Tetsuo's skin bubbles as wire and cable burst to the surface. These science fiction fevered dreams stem from our deepest concerns about science, technology, and society. With advances in medicine, robotics, and AI, they're moving inexorably closer to reality. When technology works on the body, our horror always mingles with intense fascination. But exactly how does technology do this work? And how far has it penetrated the membrane of our skin? The answer was still a mystery till recently when scientists at NASA finally got a technical breakthrough. Then a series of such developments have occurred in various parts of the world.

ABSTRACT

Since the time man has been able to understand his senses, he has always tried to make his life better. Began with the invention of wheel, to cars, to computers and now artificial humans. He always tried to make a replica of himself. Some one has a better grasping power, someone with better logic, someone with better memory, someone with more creativity and so on. He is trying to combine all these into one. This struggle to make a perfect human who can control every thing created by God, has led to foundation of all technological advancements of today. Amidst these has come up the idea of making machines not to be slaves of humans (robotics) but a part of them – Cyborg is the result. A combination of man and machine for betterment of humankind. This is the Cyborg – a theoretical concept which has attracted scientists, technologists, philosophers, doctors world over. The day is not far away when we will all be Cyborgs!!!!!

By:
AKASH SAXENA
(CSE)

CYBORG???

Cyborg is a blend of the terms cybernetic and organism meaning “A person whose physical tolerances or capabilities are extended by a machine or other external agency that modifies the body’s functioning; an integrated man-machine system” (OED, cf. “cyborg”). The word “cybernetic” is derived from the Greek word “kubernh’thj” meaning steersman or as a verb “kubernan” meaning to steer. Not coincidentally, the word “kubernan” is also the origin of the modern word “to govern” (OED, cf. “cybernetics”). Hence a cyborg is literally a governed organism just like any other political animal.

The term cyborg first entered the English language in an article in the New York Times in 1960 (OED, cf. “cyborg”). However, I believe that the origins of the concept are much older and are parallel with the birth of the liberal imagination.

A cyborg can be read as the integration between man and his material property. A cyborg is the abstract body of the liberal individual (represented in flesh and individuated mind) tied to his material means of (re)production (represented in metal and universal mechanical thought) in a symbiotic relationship. The cyborg (e.g., Robocop) is generally portrayed as a closed or autarchic body relying on only the most minimal external inputs (e.g., food) for sustenance.

HISTORY

→ The First Cyborg

The world's first cyborg was a white lab rat, part of an experimental program at New York's Rockland State Hospital in the late 1950s. The rat had implanted in its body a tiny osmotic pump that injected precisely controlled doses of chemicals, altering various of its physiological parameters. It was part animal, part machine.

From the start, the cyborg was more than just another technical project; it was a kind of scientific and military daydream. The possibility of escaping its annoying bodily limitations led a generation that grew up on Superman and Captain America to throw the full weight of its grown-up R&D budget into achieving a real-life superpower.

By the mid-1960s, cyborgs were big business, with millions of US Air Force dollars finding their way into projects to build exoskeletons, master-slave robot arms, biofeedback devices, and expert systems. For all the big bucks and high seriousness, the prevailing impression left by old cyborg technical papers is of a rather expensive kind of science fiction. The cyborg was always as much a creature of scientific imagination as of scientific fact.
It wasn't only the military that was captivated by the possibilities of the cyborg. The dream of improving human capabilities through selective breeding had long been a staple of the darker side of Western medical literature.

Now there was the possibility of making better humans by augmenting them with artificial devices. Insulin drips had been used to regulate the metabolisms of diabetics since the 1920s. A heart-lung machine was used to control the blood circulation of an 18-year-old girl during an operation in 1953. A 43-year-old man received the first heart pacemaker implant in 1958. Of course robots, automata, and artificial people have been part of the Western imagination since at least as far back as the Enlightenment. Legendary automaton builder Wolfgang von Kempelen built a chess-playing tin Turk and became the toast of Napoleonic Europe. Mary Shelley's Frankenstein built a monster out of body parts and activated it with electricity. Even the Indian national epic, the Mahabharata, composed in about 300 BC, features a lion automation.
The '90s cyborg is both a more sophisticated creature than its '50s ancestor - and a more domestic one. Artificial hip joints, cochlear implants for the deaf, retinal implants for the blind, and all kinds of cosmetic surgery are part of the medical repertoire. Online information retrieval systems are used as prosthetics for limited human memories. In the closed world of advanced warfare, cyborg assemblages of humans and machines are used to pilot fighter aircraft - the response times and sensory apparatus of unaided humans are inadequate for the demands of supersonic air combat. These eerie military cyborgs may be harbingers of a new world stranger than any we have yet experienced

→ Recent Cyborg Breakthrough- March 22, 2002

A British university professor has been fitted with cyborg technology enabling his nervous system to be linked to a computer.

The ground-breaking surgery on Professor Kevin Warwick effectively makes him the world's first cyborg -- part human, part machine.Surgeons implanted a silicon square about 3mm wide into an incision in Warwick's left wrist and attached its 100 electrodes, each as thin as a hair, into the median nerve. Connecting wires were fed under the skin of the forearm and out from a skin puncture and the wounds were sewn up. The wires will be linked to a transmitter/receiver device to relay nerve messages to a computer by radio signal.

In 1998 a silicon chip, which turned on lights and opened doors when he walked into his office, was implanted in his arm.

Such has been the advancements till date in the fiction turned reality technology-the Cyborg technology.

Truth about cyborgs: Cyborgs Are Already Here!

1. Cyborgs actually do exist; about 12% of current Indian population and 10% of the current U.S. population are estimated to be cyborgs in the technical sense, including people with electronic pacemakers, artificial joints, drug implant systems, implanted corneal lenses, and artificial skin. A much higher percentage participates in occupations that make them into metaphoric cyborgs, including the computer keyboarder joined in a cybernetic circuit with the screen, the neurosurgeon guided by fiber optic microscopy during an operation, and the teen gameplayer in the local videogame arcarde. "Terminal identity" Scott Bukatman has named this condition, calling it an "unmistakably doubled articulation" that signals the end of traditional concepts of identity even as it points toward the cybernetic loop that generates a new kind of subjectivity.

2. This merging of the evolved and the developed, this integration of the constructor and the constructed, these systems of dying flesh and undead circuits, and of living and artificial cells. have been called many things: bionic systems, vital machines, cyborgs. They are a central figure of the late Twentieth Century. . . . But the story of cyborgs is not just a tale told around the glow of the televised fire. There are many actual cyborgs among us in society. Anyone with an artificial organ, limb or supplement (like a pacemaker), anyone reprogrammed to resist disease (immunized) or drugged to think/behave/feel better (psychopharmacology) is technically a cyborg. The range of these intimate human-machine relationships is mind-boggling. It's not just Robocop, it is our grandmother with a pacemaker.

TYPES OF CYBORGS

In "Cyborgology: Constructing the Knowledge of Cybernetic Organisms", cyborgs are said to be of four types:

1) ***Restorative Cyborgs***
   These are ones which have been made of Cyborg technology to restore lost functions and restore lost organs and limbs.

2) ***Normalizing Cyborgs***
   These are creatures that have got indistinguishable normality as a blessing from Cyborg technology.

3) ***Reconfiguring Cyborgs***
   These are posthuman creatures equal to but different from humans, like what one is now when interacting with other creatures in cyberspace or, in the future, the type of modifications proto-humans will undergo to live in space or under the sea having given up the comforts of terrestrial existence.

4) ***Enhancing Cyborgs***
   The aim of most military and industrial research, and what those with cyborg envy or even cyborgphilia fantasize. The latter category seeks to construct everything from factories controlled by a handful of "worker-pilots" and infantrymen in mind-controlled exoskeletons to the dream many computer scientists have-downloading their consciousness into

immortal computers.

CYBORG PHILOSOPHY

Donna Haraway, was the first lady to write a paper on Cyborgology named “A Cyborg Manifesto”. In her paper, she clearly stated the political, social, economical, and every possible aspect of Cyborgology. She actually shattered the cultural foundations of flesh, death and soul into merging of flesh and meat and resulting immortality.

Donna Haraway's provocative argument that deploys the idea of the cyborg as a possible hybrid being without a fixed social, political, or gendered identity, an image of nature/culture combination that resists the traditional categories of late-capitalist society and science.

Haraway on the Cyborg:

> "A cyborg is a cybernetic mechanism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction. Social reality is lived social relations, our most important political construction, a world-changing fiction. The international women's movements have constructed 'women's experience', as well as uncovered or discovered this crucial collective object. This experience is a fiction and fact of the most crucial, political kind."
>
> "The cyborg is a cybernetic organism, a fusion of the organic and the technical forged in particular, historical, cultural practices. Cyborgs are not about the Machine and the Human, as if such Things and Subjects universally existed. Instead, cyborgs are about specific historical machines and people in interaction that often turns out to be painfully counterintuitive for the analyst of technoscience."

→Cyborg as boundary breaker, boundary spanner, multiple sexual idenitities.

→Conflcits between/among scientific and cultural knowledges, biology as fact vs. biology as discourse.

→Cyborg as icon of naturalized technology, or technology in nature, as nature.

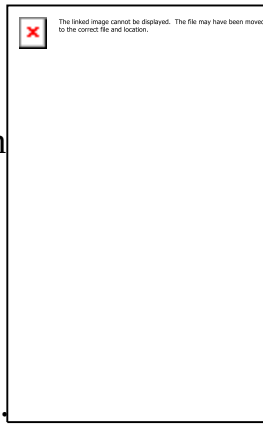
Traditional Outlook

→Necessity of a study of the cultural archive on the body, flesh, meat, death.

→Long cultural tradition on the body as perishable container of the soul: body=death, soul/spirit=life.

→Sex associated with the body and death in Greek and Christian thought.

→The body and flesh in the Bible.



- Example: Genesis12: "And God looked upon the earth, and, behold, it was corrupt; for all **flesh** had corrupted his way upon the earth."

- Most common adjective paired with "body" in the Bible is "dead", as in "dead body".

- Western Philosophy of Meat: sarx, carnis, flesh, meat, corpus, corpse.

- Philosophy of the Body: St. Augustine (From *De Doctrina Christiana*)
  "When we shall have reached that peace, this mortal life shall give place to one that is eternal, and our body shall be no more this animal body which by its corruption weighs down the soul, but a spiritual body feeling no want, and in all its members subjected to the will."

- Problem of inside and outside, life and death: body dualisms, traditional binary oppositions (the long shadow of Plato).

Fusion with the Machine: The Body Electric Desires Immortality

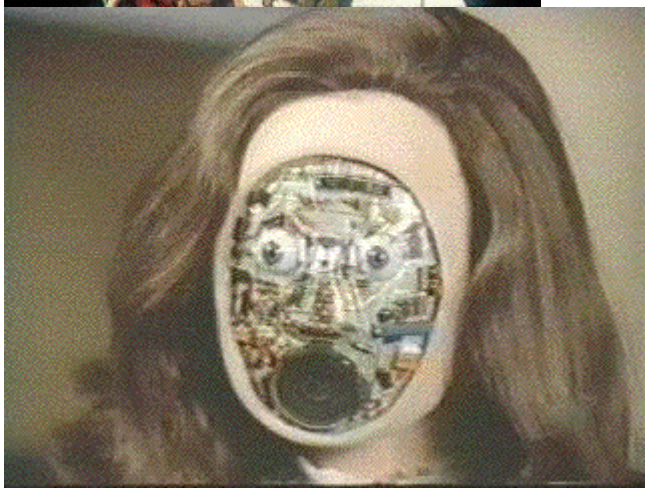
→Plato's return: the animate machine transcends the limits if flesh, meat, body, death.

→*Neuromancer*'s dualism of meat-machine and mind-matrix-soul-AI

→Cyborg as image of the body cheating death, incorporating the machine-which-cannot-die into the meat machine of the body-which-will-die.

- Compare with Frankenstein's monster, the nameless first cyborg, formed with electricity to cheat death.

→Cyborg as fantasized "reborn" body, the body of resurrection?



Problems in Cyborgology

→Social/historical background and context: legacy of the nature/culture dichotomy, the Rousseauistic moral valuing of "nature" over against human culture, social systems, machines, technology in all forms.

→Significance of ongoing cultural representations of robots, androids, cyborgs, and all forms of human-machine (organic-inorganic) combinantions.

→Cyborg as body being penetrated or colonized by machines, computers, artificial substances.

→Computer technology as prostheses: we're all cyborgs.

→Cyborg as projection of po-mo hysteria? The ultimate self-destructive conclusion of the Frankenstein effect?

- Ultimate computer interface: computing internalized in the body.

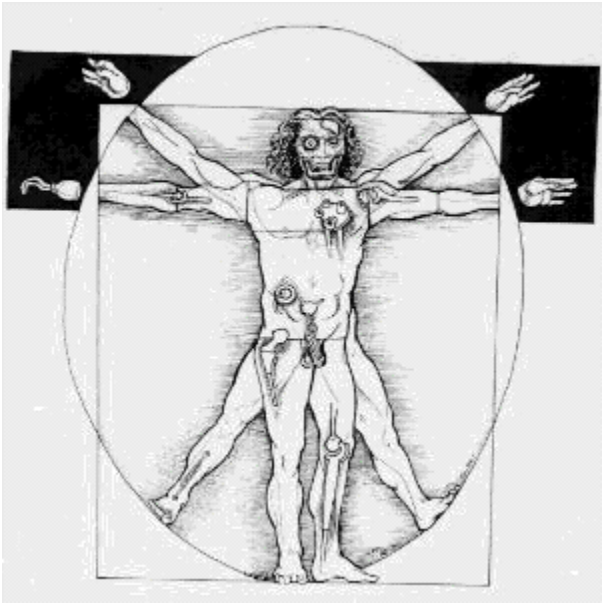
- Cyborgs and androids force question of human, gender, sex, racial identity.

→In late 20th century, all nature is mediated by technology.

→Technology as part of nature and part of culture: the cyborg can be read as an image of technology ***in*** nature and ***as*** nature.

→Combination of anxiety and pleasure in the imagined cyborg: fetishizing the body and recombinant parts of the body.

THE FUTURE AHEAD **: Earth – Planet of Cyborgs**



Cyborg People:

Super Human Capabilities: People will have more strength, immortality, night vision, more stamina, control over bodily functions etc. Hence each one will be a Robocop. More memory using artificial memory storage techniques.

Artificial Body Parts: The technology is still in its novice stage. People (esp amputees) will have artificial limbs which will do exactly the same job as the natural one. They will have artificial organs like artificial heart, artificial liver etc. Thus anatomy of a person will never be incomplete.

Medical Breakthroughs: A blind person can be implanted with a chip receiving and transmitting Ultra Sound waves , hence navigating his way like the bats do. Discarding curing diseases using chemical drugs and resorting to do the same electronically. Artificial nervous system linked to a computer for people who have damaged nervous system (multiple sclerosis).

Control over emotions: People in future will have machine implants added to their body to make them control various emotions. If a man suffers from acute depression at one stage, then by controlling his emotions, by use of a chip implanted coupled with his spinal cord, makes him feel relaxed and happy by de-exciting the neurons, which were causing the depression.

World of Cyborgs:

→ No diseases
→ Better Life
→ No pain
→ No starvation
→ Better industrial production
→ Better Economy
→ No death

" *Technology can be a boon or a curse depending on how we use it. Cyborgization is definitely heading to change the course of human life into a more glorified and happy life to the contentment of every human converted cyborg."*

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