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Cybofree: Posthuman Bioethics for a Sustainable Humanity

By Dr.V.R.Manoj

Edited by Dr.Darryl Macer
In fond memory of Dr.Jayapaul Azariah

PREFACE

This book is an amalgamation of postmodern thoughts that have emerged from a central concept framed by myself and the late Prof. Dr. Jayapaul Azariah (Founder President, All India Bioethics Association and Former Director, CAS Botany, University of Madras). We felt that human beings are not really liberated by technological innovations meant to achieve human liberation from suffering. With the earnest support of the Eubios Ethics Institute and Prof. Dr. Darryl Macer, we presented our ideas in the Sixth International Tsukuba Bioethics Roundtable (TRT6) 27-29 October 2000 held at the University of Tsukuba, Japan.

I continued my explorations on the concept ever since through my continued association with the All India Bioethics Association, The Eubios Ethics Institute and the World Transhumanist Association (now the Institute of Ethics and Emerging Technologies) and my techno progressive blog "Cyborg fantasies". The collection of articles is now presented in four themed chapters. I welcome feedback to my email: drvrmanoj2015@gmail.com

We must understand the underlying need for Love and Peace within all technological pursuits. Bioethics and any other ethical systems remain within our civilization to preserve the values that ensure that sustainability, altruism and empathy continue to survive in a techno progressive postmodern future. It is with this intention that the book is presented. I strongly recommend that readers please read our paper Cybofree (Manoj and Azariah, 2001¹) to get a proper premise of the ideals behind the articles presented here.



¹ Cybofree-Cyborgs, Fantasy, Reality, Ethics and Education, *Eubios Journal of Asian and International Bioethics* 11 (2001), 178-183 : <https://ieet.org/index.php/IEET2/more/manoj20011108>

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I thank the Founder Presidents Dr.Rangarajan and Dr.Sagunthala Rangarajan, the Vice Chancellor, Directors, Deans, Heads of Departments and my colleagues from Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology; a progressive University; who have constantly given me endless opportunities to develop myself as an academic and as a human being.

I take this moment to remember and thank my Bioethics mentor, the late Prof. Dr. Jayapaul Azariah for his constant inspiration and guidance. I would like to repeat this message for him that I wrote as an obituary *“I liked taking Photographs and Dr.Azariah stopped me when I was about to take a photo of a homeless man sleeping on a sheet of cardboard in the streets of Tokyo. I obeyed my Professor without questioning. We walked in silence for about ten minutes and it was while crossing a bridge that he taught me about “Human Dignity”. I had learnt Bioethics that very instant”*.

I thank my beloved parents who sold their Life Insurance Policy without a moment’s hesitation in order to send me to Japan in order to present the paper on Cybofree in Tsukuba University, Tokyo and Fukui. Their inspiration and foresight continues to inspire me. Their benevolence triggered the cascade of articles that you will find in this book.

I thank my wife and son for their constant encouragement and continued patience during the many late nights and my random philosophical spurts and moments of inspiration.

I believe in a higher power and I only have the faculties to call as God almighty, who has allowed this to exist!

CHAPTER 1

Philosophical Musings on the Cybofree Concept

1.1 The Great Escape!

Is it ever possible to escape technology? Does one have to become a complete ascetic to do so? It seems so. Try switching off your cell phone for a while. Your mind keeps racing towards it to subconsciously think of what calls you might have missed. And just like a hungry drug addict, you race towards the cell phone as the first thing after your tryst with self-control. Leave the cell phone now. Think of the other technologies. Can we escape it? We are meshed.

We are cyborgs. Technology could still be outside the biological body for a majority, but it really makes no big difference. We are continuously exposed to radiation from radio and electrical power supply towers. The "Handsfree" revolution in cell phones has led to a large portion of us walking around talking to conversations in our heads. The first time I came across someone with a Bluetooth headset talking to themselves, I thought that person was mad until I saw the headset. Like it or not, we are already cyborgs.

However, it is still possible to contemplate. A giant electromagnetic pulse could wipe out most electronics. Communications could shut down. If my satellite television feed or the Internet does not come on for even a day, I am left with no regular electronic option to relax myself after a tiring day. However, there is an inner silence which can be reached via meditation. However, I am afraid that too shall be augmented with technology if neurotheology is to be taken++ seriously.

Can we ESCAPE.or RETURN TO INNOCENCE?

1.2 Transcendent Consciousness for Transcendent Technologies

When I was five, I played with my first toy robot. It was my favourite at the time, with flashing lights on its chest. It could travel straight or in circles, was powered by batteries, and made quite a lot of interesting sounds. This incredible range of activities that fascinated me could be switched off at the click of a button. The robot would then stand still, inactive. A moment ago, it was going around flashing its lights, making noises, and fascinating my imagination. The very next moment, it was still when switched off.

Was my robot dead? But my supposed common sense dictated that it was a machine and it is not "dead" and did not come "alive" when switched on. It was merely doing what it is meant to do when you switch it on. As a child, I could always convince myself that my robot toy could come alive at the click of a button and vaporize imagined villains. However as an adult, the

distinction of consciousness between my toy robot and myself often baffles me! So, who am I or rather, who are we?

We are an amazing amalgamation. Beginning from the atom, we go to the molecule and then up to the cell. Many cells form tissues which in turn form organs. Organs, together with a myriad of regulatory networks and systems form an organism. Thus, we have become *Homo sapiens*. We have over the centuries as various civilizations, colonized along fertile valleys and perennial rivers. We have developed social structures, hierarchies, by means of politics and religion.

Incredibly, we have also learned to utilize the resources available to us for our activities. Once we have come to terms with ourselves in ways that transcend our religious and cultural upbringing, we will come to understand and accept our “species” status. No matter how much we believe ourselves to be distinctly intelligent or unique, we are really no different from the multitude of other living organisms that occupy this planet, all competing for survival.

Most of our self proclaimed grandeur and engineering feats are nothing spectacular. As Extropia puts it in her essay on the fallacies of Singularity, We may pride ourselves to think we discovered architecture, engineering, central heating, agriculture, and huge economies from division of labour amongst specialists, but we did not. Termites discovered all these things an exceedingly long time before our species evolved.

If we are to seek a destiny beyond our own bodies and our home planet, we must also be prepared to transcend. At the outset, such transcendence may be immensely glorified by our own cultural memes as being done for superhuman feats and power. However, there is a much deeper and more practical form and reason to our transcendence. It is our basic instinct to survive. Although there may not be an immediate predator or an incredible threat, we as an intelligent species must evolve in order to exist.

We have become capable of travelling vast distances with our tools of transportation even though we do not share the anatomy of the birds that adorn our skies. We have managed to speak and amplify our immense array of vocal communication beyond the vibrations of our throats, across the entire planet and even out to outer space. We can sense and perceive global events as information while physically remaining in one place.

Just about 10,000 years ago, we were hunters and gatherers who knew no agriculture. And yet today, we are contemplating global implementation of genetically modified food to overcome our food crisis. Cockroaches and Locusts have always foraged for food in different locations for all these centuries. However, we have managed to move on from foraging for food to our current status of agriculture.

If the human species survives for another 10,000 years, one is only left to wonder whether glycolytic or other metabolic pathways of obtaining that

precious adenosine triphosphate (ATP) from food would be required at all. We might directly generate energy much like the current autotrophs or even better, become energy itself! We are now contemplating the next stages of our evolution as a species to ensure survival, both on this planet and into the known and unknown parts of the universe. As we contemplate our destiny amongst the stars, we must also observe what we really are.

In the movie *The Matrix*, there is a very chilling dialogue between the human, Morpheus and Agent Smith the artificial intelligence:

"I'd like to share a revelation I've had during my time here. It came to me when I tried to classify your species. I realized that you're not actually mammals. Every mammal on this planet instinctively develops a natural equilibrium with their surrounding environment, but you humans do not. You move to another area, and you multiply, and you multiply, until every natural resource is consumed. The only way you can survive is to spread to another area. There is another organism on this planet that follows the same pattern. Do you know what it is? A virus. Human beings are a disease, a cancer of this planet. You are a plague, and we are the cure."

So, are we a disease? There are a lot of reasons to claim such a state and a lot of reasons to claim otherwise. Our rapid disintegration of the natural environment around us to create "new" environments of our own making such as elaborate cities, the siphoning of earth's natural resources, and the resultant increase in our population are all reasons. This really is no different from what a cockroach or a locust does in this very same planet. We may just be doing it a bit better. There are not many of us who are quite friendly with a cockroach or a locust.

Be that as it may, we must acknowledge that no matter what we throw at them, they keep coming back. Their resilience is almost a parallel to our own in terms of survival. We must understand that a cockroach or a locust is not trying to destroy the world. It is only trying to survive in order to procreate and carry on with its existence. This is what we do as well. We have always tried to continue our existence, in different forms. But, there is a very fine line defining our status as a species or as a parasite from the planet's perspective. James Lovelock defined Gaia in his Gaia Hypothesis as *"a complex entity involving the Earth's biosphere, atmosphere, oceans, and soil; the totality constituting a feedback or cybernetic system which seeks an optimal physical and chemical environment for life on this planet."*

Lovelock's hypothesis also considers that the organism most likely to spread the seeds of Gaia across the universe as evidenced by our pursuits in space exploration. If evolution were to be accepted, then we can comfortably state that we have achieved a good position as a "species" on this planet. Thus, if we are the most favoured organism on the planet, then surely we will accept such a destiny. This destiny is also a responsibility and we must undertake it with surgical precision and a new mindset.

Such a frame of mind definitely calls for a huge change in our collective consciousness. By change, I do not mean a sudden uniformity in consciousness. I would rather call for a gradual sustainable change with long term realizable visions based on current speculations and aspirations. The former president of India, Dr. Abdul Kalam, gave India a most formidable vision to become a developed country by the year 2020. He named it *Vision 2020*.

The most formidable part of his vision is to change the consciousness of people right from the home. He states that a noble citizen is created from a home and goes on to form a noble society and eventually a noble, or in this case, a "conscious" country. It is actually a very cellular approach which merits more attention. It really is the individual who goes on to form an entire system and not the other way around. Every individual brings in his/her survival skills into the system and the system improves or rather evolves as a result of this collective skills. Therefore, we can find very interesting relationships with our own behaviour and that of the computer! Aurobindo and the Mother from India have always called for an Integral Yoga which calls for an integration of work and the pursuit of a higher consciousness for a great transformation.

It is therefore most important that we change the way we think and perceive things around us. The phenomena of globalization has taught us a great deal of how much influence culture and economy can have on totally unrelated communities. Wikipedia defines globalization as "*...the increasing interconnectedness of people and places as a result of advances in transport, communication, and information technologies that cause political, economic, and cultural convergence.*" Convergence is most definitely going to be the catalyst towards a rapid acceleration of human progress. When the human species as a whole progresses, it shall help us maintain our presumed position in the ecological hierarchy within this planet and our survival in the vast universe.

Progress of *Homo sapiens* is to be made simultaneously from several angles. If the concept of the singularity were to be embraced with abandon, then it can be said that such a progress would have a tremendous acceleration. I as a human being am worried about one aspect of the singularity. Increasingly, the singularity is being interpreted more from the side of computer science and its technologies than other disciplines. In reality, it would be an integration of several disciplines that can bring about this state of singularity. Otherwise, there would be progress but with a slant towards only one perspective.

This could cause the collapse our entire system. Any tall building needs a strong foundation. For the tallest endeavour of the human species hailed as the singularity, the foundation of the exponential curve, the "S" curve, should have a proper foundation. Only then can the graphical acceleration be

foreseen in the concrete world. It is extremely important for responsible futurists to not get deluded or fantasize about any one state where a collective effort is required.

The purpose and importance of such a precaution is extremely obvious. It is for our very survival. The fruits of transcendent technology may not be seen in our lifetime; however the work done today is the reason for the emergence of a glorious future. In the *Bhagavad Gita*, the sacred holy book for Hinduism, one of the most famous lines from the second chapter is: "*Karmanye Vadhikaraste Ma Phaleshu Kadachana, Ma Karma Phala Hetur Bhurmatey Sangostva Akarmani*" which basically means "*You have a right to perform your prescribed action, but you are not entitled to the fruits of your actions. Never consider yourself the cause of the results of your activities, and never be associated with not doing your duty.*"

This is a good and rather useful saying for the aspiring futurists and visionaries. One cannot predict whether the current efforts at cryonics would successfully enable people to wake up in a distant future. However, such obstacles should not stop us from working towards viable suspended animation of a live human being for extended space travel, medical resuscitation and for other reasons. We have come a long way from the humble ice box to vitrification. Likewise for our visions of the cryogenic and space elevators. Therefore, much like an adult worker ant works tirelessly to feed its colony, so too must we continuously develop technologies for the continued survival of our species.

Our greatest fear is that the technology we develop could one day come back to challenge the collective worth of our existence. This is probably why there are so many efforts to develop friendly forms of artificial intelligence programmes, or "*friendly AI*". But in designing such a conditional form of intelligence, are we practicing a form of techno-eugenics in order to preserve our security? At the outset, the desire to design "friendly" AI is important, but it also challenges our cultural memes of equality and liberty. If artificial intelligence is indeed capable of attaining consciousness, then are we denying the liberty of a radically new form of life? It is a real challenge to choose between an anthropocentric view or an ecocentric point of view. Here is where we go back to the tipping point where we distinguish ourselves from being a boon or a disease on the planet.

The anthropocentric view dictates that we can choose to redesign nature to suit our existence. However, this is very much similar to what a virus does. The virus manipulates the very core of the host cell and forces the cell to use its resources to produce more viruses which ultimately bursts out, destroying the host. A parallel could easily be drawn between a virus using the cell's resources for replication and our own exploitation of our planet's resources to survive and multiply.

If humanity is truly a viral infection of the Earth, then one day we will exhaust all our resources and attempt to colonize other planets in the solar system and beyond. As we contemplate this process, we must ask ourselves if our planet is no longer inhabitable, would we seek to overpower another species in order to colonize a habitable planet? Surely, there are going to be intergalactic wars in the future, and we may not always be the victors nor the heroes. So, why continue this basal existence and eventually destroy our home planet when we can choose to transcend ourselves, ascend our consciousness and live in harmony?

Harmony. It is such a lovely word. John Lennon sang a melancholy dreamy inspiration for all of us in his song "Imagine". If only all of what he aspired for in his song were that easy. Although we humans may have succeeded in becoming the most prominent species on our planet, we are still largely divided amongst ourselves. There are those who have and those who do not. In every aspect of society, there is still, a distinct presence of discrimination; either pronounced or subtle. We compete with each other in ways that would fail to differentiate us from the other animals we have seemingly evolved from. Our history has been riddled with prolonged conflicts, encroachments, slavery, and genocides.

Though we have had great moments in our history and have managed to overcome most of our "evils", we are never far away from reverting back to our old selves; and imposing the age old discriminations that we imposed on each other. When discriminations are complimented with actions, they result once again in the very cruel aspects of "eugenics" and "genocides". Therefore, harmonious existence requires a lot of sacrifices and compromises. It comes somewhere between the anthropocentric and the ecocentric viewpoints. A delicate balance is to be forged between our species and the planet. The greatest challenge for such a bond is for us to accept our position both critically and with humility. Only then can we transform ourselves. Great change must begin with small steps; otherwise it would lead to a rapid collapse.

To begin with, every individual must undergo a change in thinking which is free from the entrapments and preconceived notions imposed by a cultural society. A loving acceptance of one's own species irrespective of sex, colour, race, religion or caste is required. But, this is not so easy. Most often, the individual is too weighed down by the bonds of economic, social and religious obligations to feel the universal love and yearn to transcend to a higher state. It is usually left to the other individuals, the scientist and the philosophers to contemplate the destiny of the technologies consumed by the rest of the crowd. The crowd may be too preoccupied with collecting the most resources for them and their families that they do not have the time to contemplate.

In *3001: The Final Odyssey*, Arthur C. Clarke writes *...whatever godlike powers and personalities lurked beyond the stars, Poole reminded himself, for ordinary humans only two things were important, love and death. Our mortality is our greatest weakness. Knowledge of our own bodies has improved and continues to improve solely to overcome this singular weakness. The pursuit of immortality is not a dream nor a legend anymore. It may be entirely possible to achieve an ageless body, one where the cells would stay young and keep dividing at any lifespan much like that of a child.*

It would also become possible to obtain custom superhuman bodies such as Primo Post Human envisioned by Natasha Vita More. In a posthuman future, we will as a species, "exist" not just as organic life forms but also as data. But such a posthuman future shall not arise unless we address the current problems. A Mayfly lives only for a day compared to a human being who lives much much longer. But the Mayfly is oblivious to this enviable lifespan of a human. Such is our case, with regards to our expectations of a posthuman future. It is in fact very similar to Vernor Vinge's "fish analogy". I do not think it is entirely possible to leapfrog across generations into a posthuman future. It may only be possible to "accelerate" or "encourage" such a future. Therefore in essence, it must be realized that it is more important to contemplate acceptance and development of technologies that help us address the immediate concerns of our kind and those which enhance and preserve the relationships that we have with our home planet.

The alarming impacts of human activities such as global warming and loss of biodiversity has made us realize that we must not only take care of our own kind but also of the entire planet in order to survive. We have the potential to serve as guardians and we have begun doing this already. But, what we do is not enough. We are not united enough. We fight amongst ourselves for food, water and shelter. In the real world, there is no galactic federation to centrally take care of the problems that plague us. The United Nations is so far the only refuge for crisis or conflict. As we realize the urgency of the crisis facing us, we are urged to co-operate and co-exist with the planet to preserve the existence of the generations that would come after us. We will be to blame if the future generation is forced to have membrane filters implanted in addition to their biological lungs.

People who philosophize about the future must act responsibly to bring it to reality. We need thinkers who can bring visions to those who cannot see the rainbows. Personally, I would like the future to be available to all. There is always a lot of fear which is not without truth considering our past history, that genetic technologies, sophisticated biological warfare and other technologies would be used against the weaker sections of humanity.

In today's world, one is weak mostly in terms of economic power. There is a huge difference in available technologies to the rich and the poor and the divide gets bigger each day. Some say that this division is inevitable. However,

I would say that a submission to such presumed "inevitable" would one day consume the hard earned ideals of equality, justice and liberty. If anything does mark our species as being distinct if we are extinct one day, it would be our capacity to love. Our altruistic nature would be the only true achievement that we have acquired from our consciousness.

This capacity to love indefinitely is the reason why revolutions, new political systems and environmental conservation/restoration has been happening throughout history. One can no longer escape by stating "Karma" or "neutrality" for not helping make these technologies available to all sections of people. We must understand that most conflicts are born out of sheer frustration where one section of society enjoys all the fruits of human progress while the other is left to forage or wait for the same. At this point in time, I cannot predict that any one economic or political system/philosophy can offer the solutions. It would not be sensible to do so. But the interconnected "global village" can no longer pretend that problems due to lack of access to life saving and essential technologies are not their concern.

We are becoming so enmeshed that a genocide in Africa, an explosion in Arabia or a flood in Asia would hurt us no matter where we are. Why should we feel this pain for others? It is because, deep down beyond all the scientific and intellectual shrouds, we love each other. We just do not know it. The human species must collectively shed their doubts and their socio-cultural trappings in order to bring universal access to advanced technologies without hindrances of superstition or red tape. Regulations should be framed not with aims to curb progress in any one part of the globe but to regulate against destructive usage. At present, it is not important whether to transform into a flying superman who turns colours faster than a chameleon. It is more important to transform ourselves into beings who lives in disease free bodies and in a clean environment. The future will happen automatically.

Coming back to my robot toy, I have since realized that if I divest myself of my religious and cultural memes, I am really no different from the mechanized robot. I would be active only as long as the switch is turned on. Knowledge of body biochemistry and neuro-biology shows how incredible an organism we are. Once we are humbled by this knowledge and have accepted ourselves as nothing more than another organism, we would see the sense in pursuing technologies that prolong conditions for life in the body and overcome fundamental obstacles namely disease and mortality.

Once we realize the importance of such "transhuman" technologies, we would begin to undergo a dramatic change in consciousness where all people, irrespective of orientation, gender or race would appear to us equally as dignified individuals. Once such an acceptance is born, then we would no longer be bound by assumptions, ego or discrimination. We would also have several options to combat things that we previously felt we could never stop.

We could never have imagined that one day we would dissect the genetic structure of pathogenic viruses for drug design.

This is all just a small measure of the amount of change that can be brought about by emergent futuristic technologies. But, it is important that we tread carefully. Already there are criticisms against futurists who wish to see immortal posthumans walking on the street. But much of such criticism is based on fear from past history where we have gone wrong. I would like the critics of such technologies to come forward and work in cohesion with the next generation of innovators as guardians of our sanity lest we become uncontrollable.



Figure 1: Still from the movie "Planet of the Apes" (1968)

1.3 How to truly become "BetterHumans"

Better humans is a very aspirational word for which the human species has progressed and struggled through several civilizations. An appropriate question would now be: Are we better humans?"Yes" would be the answer any person from the "Developed world" shall give upto a probability of 90%.

Such a believer would say that the human species has learnt to harness the mineral resources and build successive civilizations, enroute also developing culture, improving scientific techniques and gaining better control over the vulnerability to the elements of nature. In fact, many would point out to the incredible increase in life span due to eradication of most diseases and better healthcare, thanks to all the developments from the serendipity of Penicillin to the sheer genius of Genetic Recombination technology.

We have developed our bodies passive immunity (via vaccination / immunization) to such an extent that only the most mutagenic of viruses or the most resistant strains of bacteria can multiply within our bodies. Research

is ongoing against those vulnerabilities as well. We can all see the glory of our species in clear supremacy over much of the hardships that this planet and the immediate outer space can throw at us as a species. We now possess the engineering skills developed from our own experience and from the amalgamation of skills gathered from the other "engineer" species (some examples would be spiders and termites) we share this planet with. We can also grow enormous quantities of food through transgenic and mechanized agriculture. At the time these words are written, Bionics and prosthetic technologies have also developed to an extent where an entire organ or an entire limb can be transplanted / complimented with such technology. In one sense at least we have become "Better Humans".

However, there are some, at least 10%, in any population which would not think so. This is not referring to the technophobes, which will be considered later. One object because they do not have adequate healthcare, cannot afford the latest intravenous injection that can reduce heartache, nor can they stay long enough in a hospital bed with a rapidly escalating bill. Incredibly, this 10 % of the population in a "developed country" is what translates or compares to "90%" of a different population. This population resides in the "Developing world".

I live in one of the countries most rapidly developing, India. However, I share a perspective of the kind that many others in similarly evolving nations fear. Let me use the simple example of an elastic band being stretched from both sides. Eventually, the laws of physics would dictate that the band snap if the band is pulled equally from both sides. If the band is pulled with greater pressure on one side, then the other side would lose its anchor eventually and rapidly accelerate to the other side. Now, if we consider the two sides as the two sides of economic / social growth, then the scenario I am trying to explain is easily visualized in your brains / minds / hearts; whichever you think works for your intellectual consideration. I see an increased contrast between the "haves" and the "have nots". On one side of the global human species spectrum, the human species is experiencing the full benefits of its evolution. On the other side, our species is lagging behind on all these advancements. In the coming years, there will be a very rapid acceleration of technological progress as is predicted by numerous thoughts including the "Singularity".

Most futurists are worried about issues such as the radical transformation / supplementation of the human body, the imminent risks of artificial intelligence systems, even the existential dangers of a nuclear holocaust. While all of these events and scenarios are entirely possible and worth brainstorming over, I fail to understand why the majority of futurists fail to draw predictions on the issues that need immediate attention. Issues such as the eradication of poverty, the unavailability of "essential" foods, the equal generation of intellectual property through education, and the need for free and clean "energy"!

Such issues are usually seen from a global perspective as problems to be solved by governments and not by people. Is the "Government" supposed to be like a corporation that solves certain problems by itself; within its enforcing circle and rakes in profits? Or is it an institution formed by the people with a guiding constitution who contribute their efforts to the government for the benefit of the entire country? Most of us have forgotten the quotes of two people who talked to masses of people in two extremes of the world. One was John F. Kennedy who urged people to ask themselves what they have done for their countries. The other was Mahatma Gandhi who urged people to always think of the benefits or effects their endeavour is going to make on the lowest section of society (Gandhiji's Talisman). The answer to my confusion is very simple, if the question to whether we are really better humans can be answered.

When I listened to my first lecture in 1997 about "Cyborgs" at the University of Madras from a Japanese professor, I was amazed at how advanced prosthetics technology had become. I was one of the people who asked him a question at the end of his lecture. My question was whether these technologies were affordable for amputees in India and his answer was sadly in the negative. He was not expecting such a question since he had focussed all his energy on the "cyborg" concept and how philosophically and technologically sophisticated it was. It truly was, except that it does not mean anything to a poor factory worker in India with a family to support who lost his hands, or to a victim of a land mine blast in a country such as Vietnam. In India as in any other country, sophisticated prosthetic technology is available only to those who can afford it, and that is a bare minimum. The poor still have to go for the "Jaipur leg" which is by my account, the most technologically sound prosthetic for an ordinary indisposed person.

This condition of apathy extends all the way from prosthetics to drug development. Rich people who are rockstars or business tycoons can afford to extend their lifespans inspite of a HIV infection by more than 10 years; thanks to the latest in expensive AIDS drugs. However, a normal member of society who suffers from the HIV virus must take the routinely available medicines that may or may not help his non-immune body.

Most people who write or research about the advancement of the human body or its enhancement are insensitive to whether such advanced technologies are available to every human being. Many among us would shrug a shoulder and say it is "the way the world works, so deal with it". But sadly, most of us do not realize that all of this can change if there is a small effort to change our consciousness.

The most important philosophical and an existential reality that we must bore into our collective consciousness is that tides can change very quickly even if we ourselves do not change. The consequences of our indifference to NOT making and developing technology that is equitably

available to all members of our species will overwhelm us one day. Already, there are conspiracy theories that a great percentage of the "undeveloped" world will be conveniently re-exploited leaving an "elite" population to dictate terms. Deep inside all of your hearts, you know that this is wrong. So, with all of our gadgetry and medical miracles, are we better humans? NO.

In order to be "Betterhumans", we must first become "Better Persons". We are well on our path in terms of the desire if the number of huge online memberships to social causes could be assessed. However, technologies that are being developed must become accessible to all spectrums of our species. It is time to stop thinking of ourselves as members of a country or a race or even a gender. Even now, we look back and wonder if it really was this same human kind which was responsible for genocides or colonialism or slavery! If we were appalled by such past discriminations and exploitations, we must have learnt our lessons by now.

It is therefore important for every aspirant of the better human race to develop and support technology that is affordable and of benefit to all sections of the human race. Only when we fully develop such a compassionate outlook to our own species; can we fully mature to take care of the other species and eventually the planet and the universe. Such is the power of our destiny.

1.4 Saving the "Humanism" in Transhumanism

Should a person become a transhumanist before he is a humanist or is he to become a humanist first before becoming a transhumanist? A well crafted question but one that deserves serious thought as to its purpose!

If you ask me, I would say that we are becoming transhumanists at a faster rate rather than the other way! Humanism, ethics and other associated emotionally charged wellness packages have taken a back seat. The front row seats to the brave new world is filled with recombinant genes, neural interfaces and supremely destructive weaponry. Thanks to virtual worlds and virtual conferences, we no longer have to travel long distances and feel the physical comfort of a handshake or a comrade's embrace. We can just as well sit in our recliners and keep getting obese on high energy GMO foods while we blog, chat and even tweet our way into the future. Soon, you need not be bothered with the racing of the heart when confronting a live human being in a vile argument. You might as well throw a few disgusting emoticons from the comfort of your home, office or even your car!

It is more of the same regret being addressed again. Technology is replacing raw physical presence in the matter of human relationships. I cite all these usual complaints since I feel transhumanism in its original definition is slowly fading away. Let's see how Wikipedia defines transhumanism and humanism.

Transhumanism: "Transhumanism is an international intellectual and cultural movement supporting the use of science and technology to improve human mental and physical characteristics and capacities. The movement regards aspects of the human condition, such as disability, suffering, disease, aging, and involuntary death as unnecessary and undesirable. Transhumanists look to biotechnologies and other emerging technologies for these purposes. Dangers, as well as benefits, are also of concern to the transhumanist movement".

Humanism: "Humanism is an approach in study, philosophy, or practice that focuses on human values and concerns".

I feel both definitions somehow have drifted apart instead of a favourable fusion. When I first became exposed to the transhumanist gravy train, I thought the advanced technologies being addressed or promoted would be for the betterment of all human civilization. However, as each year passes into the next great revolution, the transhumanist movement is increasingly becoming a passive observer in face of the rapid acceleration of technology. In fact, I guess the singularity movement has played it safe by stating that the wolf would come and it would come so fast that it would eat you up before you had time to react..The wolf being the singularity.

Before transhumanism, there was bioethics. It is easy to see in the form of committees and legislations. However, the acceleration is so rapid that there is apparently now no time to say we should proceed with caution. The one thing I can find comfort in is the fact that someone somewhere would have coined a word, a movement and even a well balanced definition for this condition.

We are losing the battle to a safe utopia for all of us. We are losing track of what it means to be "us" anymore. Our fascination with social networking websites and self proclamations with "status messages" has replaced live conversations. We project our personas with the aid of cellular phones, portable music players onto a vast multitude of like minded personas which really have no bearing beyond their pixelated existence. All of these are only stimulants of the senses without permanent purpose.

At best, we can say that we have effectively become "slaves" to the technology we create. The technology that is created is still inaccessible to the large majority of humanity. Even more disturbing is the fact that the technology being created is rapidly being owned not by governments but by corporations which reaffirm the fears initially expressed by dystopian movies. We may not place much importance to the impacts of technology on our environment, but with every cough and toxic exposure, we do pay the price and will continue to do so.

This far, I have addressed very briefly the incredible promises of transhumanism and how distant it really is from humanism. Technological acceleration need not be regulated or curbed. However, it would be better if it headed in a direction where everybody benefited instead of a minority of

developed nations. All humans have the right to become transhumans. If not, then the transhumanist movement is no longer humanist. It is something else for which I am sure a new word will be framed.



Figure 2: A picture of the famous sculpture by Auguste Rodin “The Thinker”²

So what is the solution? The easiest solution is to come back to ground reality. While it may be fanciful to imagine that we are living in a matrix like world and are dissociated from all of our peers; it would only take one simple power cut or an EMP pulse to sever all of the technologies to which we are so desperately tied up for self expression. While it is important to embrace technology and the Cyborg fantasy, it is even more important to realize the value of our individual "self" . Let us try to understand the real value of emergent technologies to the whole of humanity instead of hedonistically experiencing them. Think about it.

1.5 The First "body slaves" : how ready are we for the posthuman body?

It was less than five years ago when I thought a person speaking with a mobile handsfree set was probably mad and talking to himself! Today we see telephones transported from their cradles onto trendy Bluetooth ear sets! Around us, we have seen our technological creations mould itself closer to our lives and most importantly, our bodies. However, there is now also a reverse trend happening where the fantasy is to mould our bodies towards the

² Source url: https://en.wikipedia.org/wiki/The_Thinker

technological. Perhaps it is a form of expression or perhaps an extreme fantasy. Two of the recent pictures to hit the internet are shown in Figure 3.

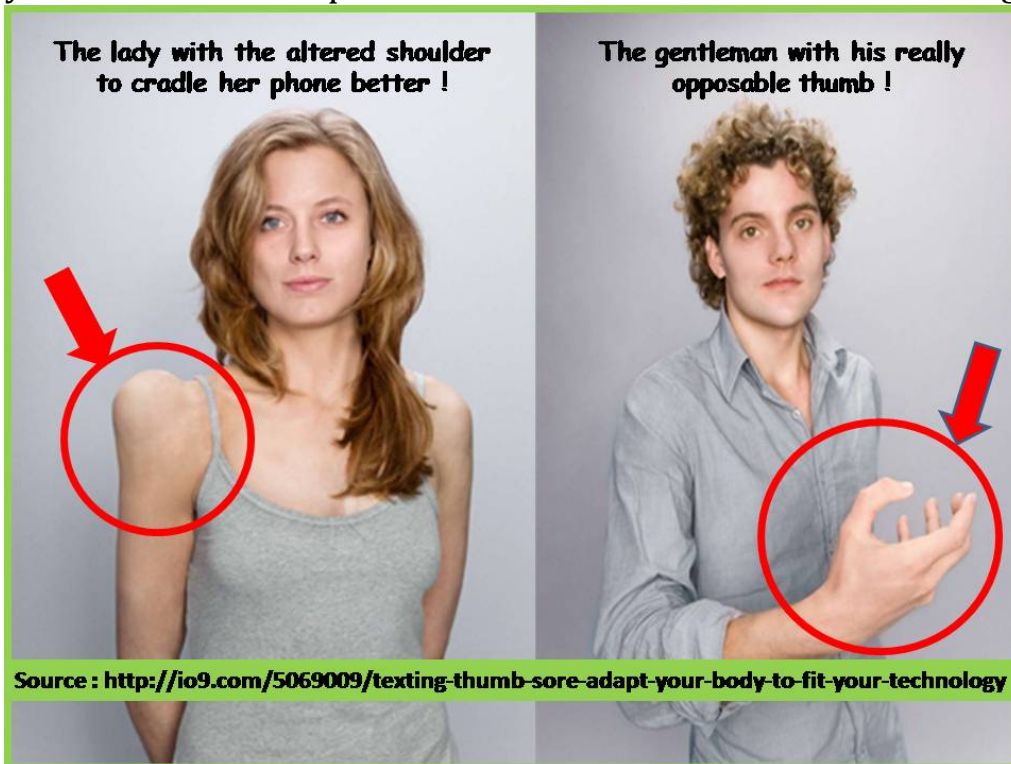


Figure 3: Pictorial representations of body evolving due to technology usage (Source embedded in picture)

I think that this artistic expression (Figure 3) is in fact a remarkable mark of significant frustration towards the increasing inadequacy of the biological body when compared to the ease offered by technological solutions. Stellarc once commented that "the body is obsolete" and it shows how impatient we are as a species to wait for generations of genetic recombination to take us forward as it has in the past.

Somehow technology has seduced us so completely that we have such "cyborg fantasies" to become body-altered to suit technology rather than the other way around. Will we then be willing "body slaves" to technology?

Or perhaps all this is a passing "trend" where people calling themselves "transhumanists" would just huddle together discussing such fantasies? Alas, if only such an excuse were true as transhumanism is no longer the realm of fantasy any more. Come to think of it, we have all come to appreciate how the radical biological advantages have complimented Michael Phelps in the global swimming arena!

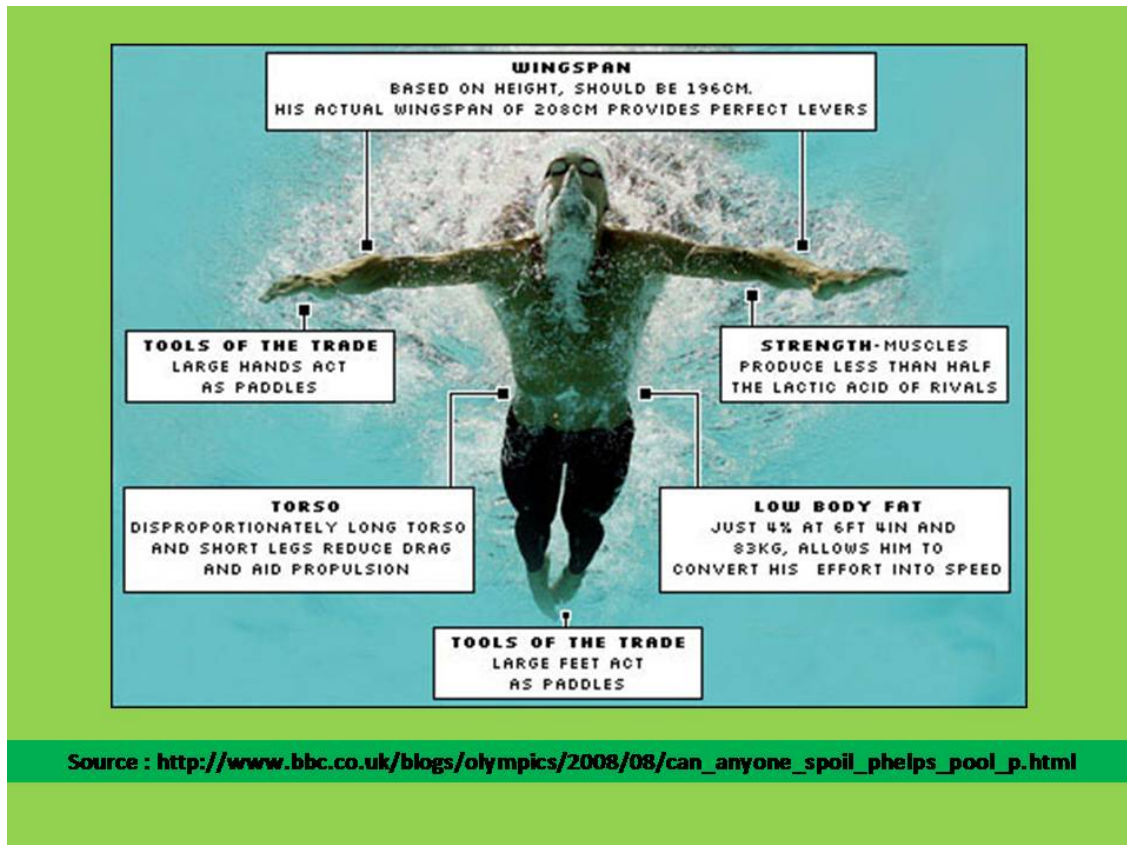


Figure 4: Photograph of Anatomical advantages of Olympic Swimmer Michael Phelps from the USA (Source: BBC)

In a plausible future, we would want different bodies to suit different environments. We would want our bodies to better withstand the intense pressures of deeper oceans so we could live there when the earth we know gets too hot (which it is apparently!). But the biggest challenge facing us is whether we are quite sure as to what we are? It is a very spiritual question when we begin to question the nature of our bodies or the worthiness of it to support our sentient existence! And thus we come to the immortal question "Who am I?"

Because; once we begin to consciously explore the modifications to our own bodies, we begin to indirectly declare the battling lines between the body and the mind. For the first time, we are beginning to truly appreciate that we are an organism in need of help. But are we ready yet? are we there yet? I think we are smack in the middle of things and do not realize just how deep we have stepped into directing our own evolutionary process! Everything will change, everything!



Figure 5: Still from the Charlie Chaplin movie “Modern times”³



Figure 6: Still from the movie “Bicentennial Man” ⁴

1.6 Man turns to Bot - Bot turns to Man!

It is almost an irony about how most transhumanist aspirants wish to transform their biological bodies with technological extensions or supplements. Why? We created these machines in the first place. Once we have grown so accustomed to it, and addicted, we wish to merge. Is this love? love for the machine which causes us to have such a "cyborg" merger?

The desire to transform into amazing cybernetic organisms is not new to human nature. We have always idolized machines and what they mean to us. I need not repeat how much we have accommodated machines into our lives. It is now time to design our own evolution i.e., our biological body evolution with the help of machines.



Figure 7: Still from the Star Trek series showing the Android “Data”⁵

³ Source url: [https://en.wikipedia.org/wiki/Modern_Times_\(film\)](https://en.wikipedia.org/wiki/Modern_Times_(film))

⁴ Source url: [https://en.wikipedia.org/wiki/Bicentennial_Man_\(film\)](https://en.wikipedia.org/wiki/Bicentennial_Man_(film))

⁵ Source url: [https://en.wikipedia.org/wiki/Data_\(Star_Trek\)](https://en.wikipedia.org/wiki/Data_(Star_Trek))

Now, there is another tangent being drawn as man tries to convert himself into a robot or a cyborg. The robots are increasingly becoming human like. Androids have always been made to idolize the human body which is its creator. In the television series Star Trek, DATA is an android who looks exactly like his maker.

There is another elaborate movie on this theme and it is *The Bicentennial Man*. In this movie, the robot with an advanced positronic brain is amazed by human lives and transforms into a human, eventually dying of old age too! Is there a desire in robots to become humans as there is a desire in humans to turn into robots?

1.7. Bicentennial Man - A Movie of Inverse Transhumanist Aspirations

In a far future as the story usually goes, a robot is accidentally constructed differently. Instead of being a household robot, it begins to get curious and acquires skills. Soon, it becomes fascinated with all that is human and yearns for freedom. Then it yearns to become a mortal human. Such is the story of the movie "Bicentennial man" starring Robin Williams as the robot who becomes human. It is a moving movie which holds much to offer to the transhumanist.

The robot, trades immortality, invincibility and cold calculative logic for mortality, a human body and to fall blindly into such wonderful emotions as LOVE. Every transhumanist aspires to transform their bodies to an immortal, disease free happy body. However, this movie shows us the struggles that a robot undertakes to revert back from the pinnacle of physical perfection to become a normal human being. This helps us to wonder what wonderful qualities must reside in us humans to be worthy of being subjects of inspiration.

The movie also explores how humans react to a robot who wishes to become human. The robot's owner cannot understand why a robot would wish for freedom. The people who made him see him as a faulted positronic brain which needs to be scrapped and replaced. He appears before delegates of the world to accept him as a human being. They refuse him till the end and when they finally do, he had already achieved death.

In fact, it could be said that he was more human than the rest of us since he was able to realize and yearn for those human qualities that we take for granted. He yearns to have tears so he may be able to express his sorrow and he yearns to understand why immortality is not being embraced by his one true love.

Transhumanist philosophy describes an ascension into becoming more than human. I have always believed that such ascension should not detach us from what we have already achieved.. the ability to love one another, the ability to understand the soul of our planet and the ability to imagine and dream infinitely. If we could increase our sensitivity to the things around us, if

we could arouse the senses so much that we could feel the beauty of a blooming flower in every nerve of our bodies, then I believe that we have truly ascended.

Is immortality really that important to a transhumanist? I wonder if the mere eradication of suffering and sorrow that is associated with the physical body is enough to satisfy us. Are we humans mature enough to accept the price of immortality? It would be truly wonderful to live forever in such a beautiful planet and in a universe which continues to fascinate us with its immense complexities. The possibilities are endless once we arrive at a place where the word "disease" is no more.

But in the achievement of immortality, would we again yearn for mortality? Would it really come to be that transhumans would want to become human? or does this all sound totally absurd. Either way, it is important for futurists to think about such ideals. Movies such as Bicentennial man explores our human character and helps the transhumanist re-evaluate the dimensions of his transcendence.

1.8 Cyborgs and Human Evolution

At its most fundamental and obvious level, the "Cyborg Fantasy" is really all about Human Evolution. We now have enough proof that we have come from apes. We know that our ancestors had bodies different from our own. We know that it has taken a long time to walk erect. In essence, we know that we have come a long way.

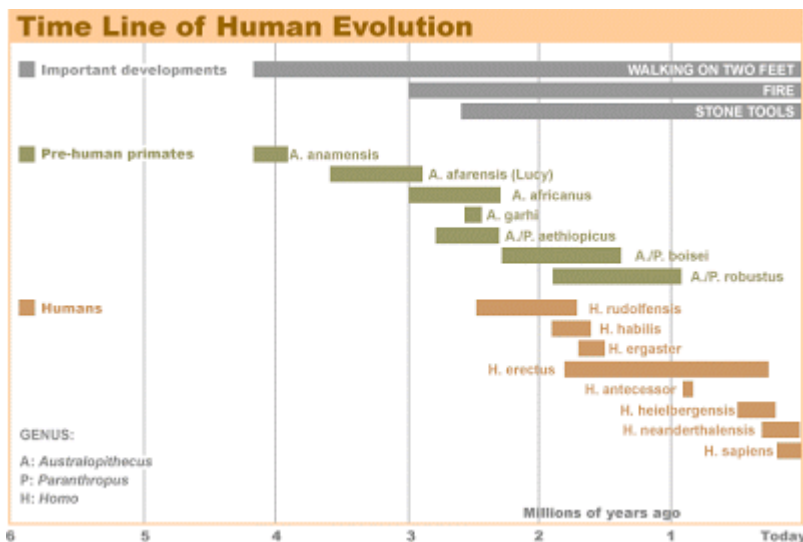


Figure 8: Timeline of Human Evolution⁶

The science that we as a species have developed has made us understand that we must continue to evolve to overcome further limitations in our continued interaction with the known universe. This is very simply put as the posthuman destiny or the responsibility that we have taken upon

⁶ http://www.ling.upenn.edu/courses/Summer_2003/ling001/images/human_evolution.gif

ourselves to design our own evolution. Why? The two most important reasons right now are to live indefinitely and to eliminate disease. The other requirements shall mould themselves around these two reasons as time progresses. But, we do realize that our efforts at genetic engineering, nanotechnology, human-cybernetics interfacing is going to radically alter the human body. Already, those of us who read this article are modified to some extent. Almost all of us have received immunization of some sort against diseases due to which we shall have antibodies against diseases which we would not have otherwise. Our individual bodies are modified in many other ways too. As a civilization, we have found new ways of expressing our bodies through tattoos, clothing, armour, and many others.

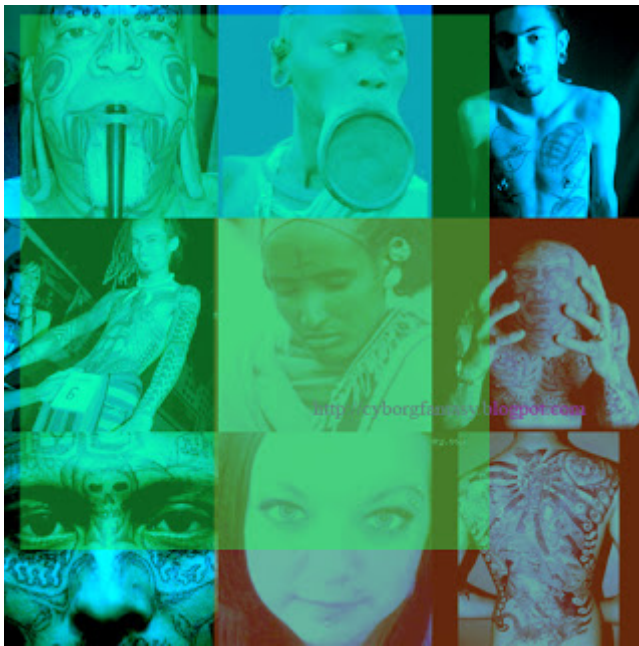


Figure 9: Images of Body modification⁷

Self expression has different objectives in different cultures. At the heart of every form of self expression is the desire to be noticed and set oneself apart from others. This is not in all cases. Some like to modify their bodies in ways that completely escape any reference to established cultures or customs!

It is quite difficult then to say where the cyborg fits in to all this. I have classified the cyborg with reference to how humans and machines would merge in relation to matters of necessity and matters of convenience.⁸ Here is how I have classified them in a neat flowchart :

⁷ Source url: https://en.wikipedia.org/wiki/Body_modification

⁸<http://ieet.org/index.php/IEET/more/manoj20011108/>

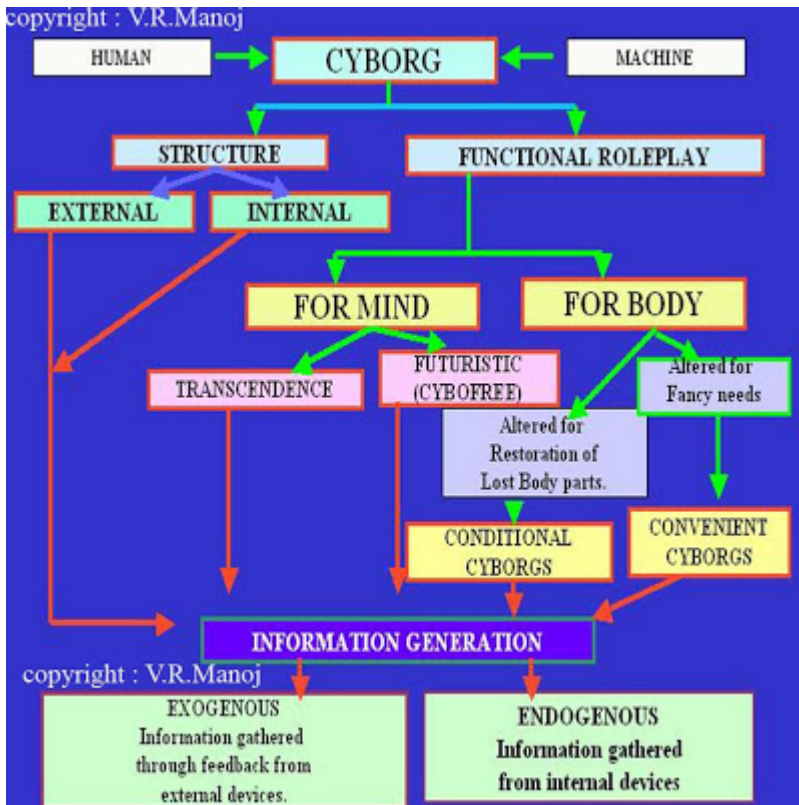


Figure 10: Classification flowchart for Cyborgs (Manoj and Azariah, 2000)

So human beings could evolve into human machine cyborgs for a whole lot of reasons; some of which have already started happening. But the lines are blurring and it is very difficult not to hurt somebody's ego. In that light, it might sound insulting to call someone who wears spectacles as a cyborg. I think the word Cyborg will not be used as a general term to describe certain members of our species until such a time comes where we are all so different from each other in terms of physical bodies. Until such time, the cyborg is an interesting concept to identify with the rapidly increasing technological merger with the human biological body. That merger and the resultant evolution of Homo sapiens into a posthuman state is happening right now as each day passes into night. It may not be obvious now, but it will be after a few hundred years or even less than that! Check out this clip I found in youtube about the evolution of the human being..that nicely sums up what I am trying to say.. it is a clip from the movie "Waking Life".

1.9 Cyborg what, Cyborg who and Cyborg HOW?

Do you think we can tell the difference between a human and a cyborg? To do that, we must first see the "what", the "who" and the "how" of a cyborg. This is sort of like the Good, the bad and the ugly; but not necessarily in that order or even the intended meaning! The word "Cyborg" currently has evolved into having too many meanings with reference to its social and philosophical implications. Cyborg technology is largely happening every day with Bionics, prosthetics, feedback systems, artificial technologies,

nanotechnologies, etc. The integration of man and machine is essential to overcome deficiencies. It is essential to evolve.

What is a Cyborg? The most simplest definition of a cyborg would be "part human, part machine". This definition is a classic one and gives you the most basic idea of a cyborg. However, it is to me a cultural definition since upon it's invocation, my mind immediately fills up with images of half man, half machines, robocops and terminators. Terminator is not really a cyborg since he is a cybernetic organism. hmmm.. Cybernetic organism. Cybernetics is a term which basically means the study of feedback and derived concepts such as communication and control in living organisms, machines and organisations. This would then suit a definition of the cyborg perfectly. And that is exactly the most reliable academic reference "Cyborg Manifesto" by Donna Haraway has said; *"A cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction"*.

Coming back to culture, you would see that I and a thousand others often use the "Cyborg" to explain my feelings for social and philosophical memes. This is because the cyborg directly addresses the human condition. The Industrial revolution has been used time and again to define the trends in our civilization. Likewise, the Cyborg will be used time and again to get across messages of bioethics, human dignity, and liberty of the body politics in general.

The definition of the cyborg is therefore a definition of the culture in non-technological memes. It is scarcely used in the definition for prosthetic / bionic technologies. However, our subconscious mind (those tuned to the English language) makes the connection back to the Cyborg word with reference to cyberpunk inspirations.

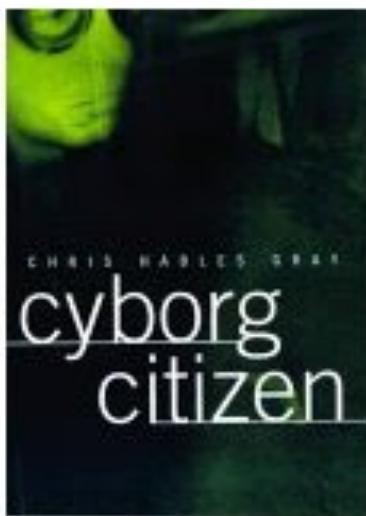


Figure 11: Book cover of Chris Hables Grey's "Citizen Cyborg"⁹

⁹ Source url: <https://www.amazon.com/Cyborg-Citizen-Politics-Posthuman-Age/dp/0415919797>

Who is a Cyborg? After having defined a Cyborg, it would become important to find out who exactly is a Cyborg. Chris Hables Gray immediately comes to mind with his book, *Cyborg Citizen: politics in the posthuman age*. Let me quote from there:

"Signs of our cyborg society are all around. The few of us who are not in some way already borged through immunizations, interfaces, or prosthetics are embedded nonetheless in countless machinic/organic cybernetic systems. From the moment your clock radio wakes you in the morning, your life is infinitely shaped by machines. Some of them we merge with almost unconsciously, such as the car we drive, the computer we work with, or the television we zone out in front of. Others involve more conscious interfacing. Overall the effect is an extraordinary symbiosis of humans and machines".

Right. This is currently the most popular manner in which the "Who is a Cyborg" is depicted in conferences or gatherings of futurists and non futurists . Like Giulio Prisco, who in his address at the public debate on transhumanism at the University of Lausanne on January 24, 2007 notes :

"I gave a simple and non threatening introduction to transhumanism trying to present clear concepts with simple language and without too many big words. Shortly after the beginning I wore my glasses and said that glasses are an example of "transhumanist" technology invented centuries ago. Glasses are, indeed, a simple means to overcome a typical human limitation. In Umberto Eco's "The Name of the Rose", monks react to the recently invented eyeglasses as to an invention of the devil and a means to cheat god's will (nothing new under the sun)".

Okay! He did not use the word Cyborg. However, it is an example of how people use common terminologies and examples to depict futuristic concepts such as transhumanism. Chris Hables Gray has used a similar method to get across the cyborg message to his readers by suggesting that we could already be cyborgs. This is partly true and untrue depending on which perspective you wish to adopt. But, we have to be very careful not to discriminate people with cybernetic integrations with their biological bodies. This is would be akin to a new form of discrimination.



Figure 12: Photographs of Cyborg pioneers Prof. Kevin Warwick, Stellarc and Prof. Steve Mann (from left to right)

However, there are some who choose to break the barriers of social etiquette with their bold moves into Cyborg technologies. These people will be remembered in the history of our species as the pioneers. Some of the most popular among them are Prof. Kevin Warwick, STELLARC and Dr. Steve Mann. Notably, Prof. Kevin Warwick has actually placed an implant into his own physical body and uses it as an interactive extension to technology all around him! Such people as him are not afraid to explore this frontier. They are resistant to pressure from a conservative society. Prof. Kevin Warwick may perhaps be the first Cyborg to actually upload himself into a virtual space (second life)!

Therefore, although a person with a pacemaker or a steel knee joint may be technically termed as a cyborg, it is not yet socially acceptable as it appears to directly affect the dignity of the person and hence, discriminate that person.

HOW is a Cyborg? How does a person become a Cyborg? Very difficult question if one has to be politically correct. At the most fundamental level, a person becomes in essence a cyborg if he/she integrates the biological body temporarily / permanently with cybernetic systems. By Cybernetic systems, I would like to mean all feedback systems including most forms of homeostatic control systems currently used for the body.

In whatever manner we choose, we can interpret the Cyborg. But it is always important to remember that we must respect human dignity. For example, it is downright insulting to term a person in a wheelchair as a cyborg. In case you do refer to such a person in this manner, then it is important to thoroughly explain the context of the reference.

I would like to bring into focus lyrics from a song by Pink Floyd called "*Wish you were here*"

*So, so you think you can tell Heaven from Hell,
blue skies from pain.*

Can you tell a green field from a cold steel rail?

A smile from a veil?

Do you think you can tell?

And did they get you to trade your heroes for ghosts?

Hot ashes for trees?

Hot air for a cool breeze?

Cold comfort for change?

And did you exchange a walk on part in the war for a lead role in a cage?

How I wish, how I wish you were here.

We're just two lost souls swimming in a fish bowl, year after year,

Running over the same old ground.

What have we found? The same old fears.

Wish you were here.

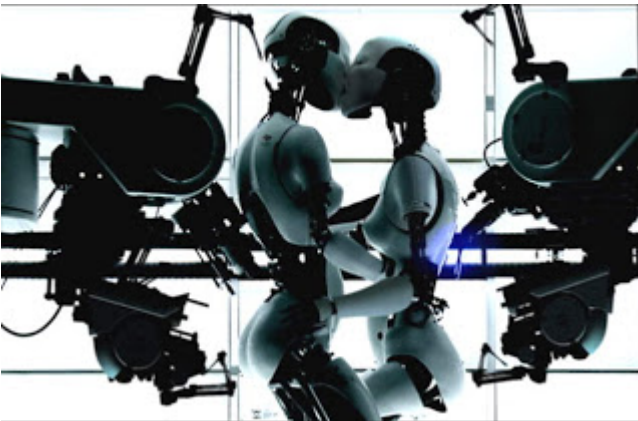


Figure 13: Pictorial representation of robots kissing¹⁰

1.10 Should Cyborgs have sex?

Lovely idea is it not? The fantasy of two cyborgs with smooth sensitive exoskeletons making love with each other! The above images have become very popular thanks to "*Bjork All is Full of Love*" short film. This got me thinking. Would cyborgs really feel the need for love? If we were to look at love as a pre-requisite emotional trait for procreation (reproduction), then yes Cyborgs would need to fall in love. But do we stay faithful as cyborgs or are we free to indulge in as many fantasies as we desire? Would it be cheating if I made love to multiple women, aliens and artificial robots while I was making love to my one true love?

¹⁰ http://bp3.blogger.com/_lawXq-xzYRU/RpCBsiFbyNI/AAAAAAAAAFc/FiczVsuJjBc/s1600-h/bjork-love05.jpg

Already these issues are cropping up in our present day world. People all over the known cyberspace routinely indulge in sexual relationships online. The unfulfilled fantasies of sexual nature are often fulfilled by finding like-minded invisible partners (invisible as in real world identity) in cyberspace. In second life, sex has become as popular as in the real world but with a wild twist. Here, human beings such as you and me indulge in the wildest sexual orgies with bodies that they construct (avatars). The internet and especially these shadowy alleys of cyberspace are the places where a silent rebellion against pre-conceived social norms are being broken. In second life or in any sex chat room, it is almost impossible to say if the person you are interacting with is really of a gender that is advertised. And then there are "furies" who have sex with each other and they have devised their own subculture of sex. [click here](#) for a radical news article about a teledildonics device developed by second life residents.

Now, would there ever be a time period where sexual relations are completely obsolete? Since the time of man, reproduction has been a central part of our culture. But why would a cyborg want to reproduce?

In the future of the completely transhuman cyborg, the essence of reproduction may completely escape the need for sex. It may not be necessary for two bodies to come together and merge at all. We could remotely transfer our genetic information in real time, our partner could use software to stream and filter it in real time and upload it to his/her/it's mainframe at their own convenience. Orgasms may be replaced by other forms of rewards such as extremely high information credits!!! I wonder if we will need offspring once we have indefinite lifespans in an indestructible body?

The complete escape from the dependence on sex for reproduction would mean that we could evolve into a species which has time to devote to other activities. People need not anymore be concerned that they need to find a partner real fast before their biological clocks stop ticking.

For the present, I would want radical technology to develop the following for better cyborg sex amongst the still humans (that's you and me): Incredibly cheap and easy to use teledildonics.

1. Better contraceptives made from nanotechnology which can effectively filter out sexually transmitted viruses while not compromising on pleasure.
2. Bionic implants that can help people with inability to have sexual relations.
3. Hormonal switches for voluntary control of functions.
4. Drugs to effectively help people who find abstinence for religious purposes difficult to handle.

So, the cyborg world could certainly become "sexless". But, I sure hope it would not become "LOVELESS".

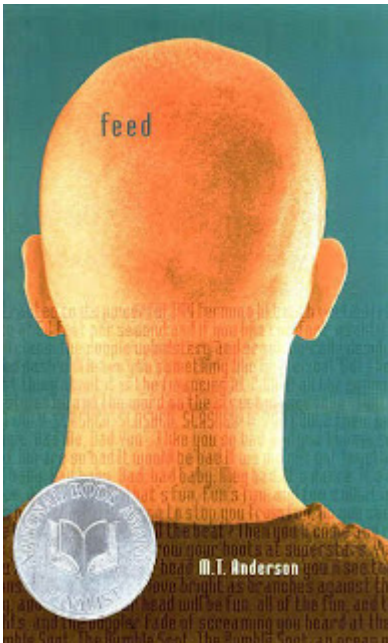


Figure 14: Book cover of M.T. Anderson's *Feed*¹¹

1.11 Book Review : *Feed* by M.T. Anderson

I was born into a world where the telephone was still wired and had a circular dial to ring up someone. As I grew up, I had to get used to cordless phones and eventually cellular phones. Today, I cannot help being amazed as I, along with a million billion others around this planet, walk around with pocket-sized telephones! And now there is an increasing tendency to not hold the phone at all. The hands-free Bluetooth revolution has already become quite popular. The children of today are born into this world of instantaneous communication and satellite navigation. Wonder where the phone will go next? I for one would not be surprised if the phone, along with all its gimmicks, enters our sanctum sanctorum, the brain.

It is around this thought that M.T. Anderson has based his book *Feed*. The book portrays yet a world set in the future. The inhabitants of this world are very much like us, enmeshed within the webs of commercialism and peer pressure. There is, however, one difference. While we can still choose to shut ourselves away from the corporate leeching, the characters in *Feed* cannot. They all have brain implants with feeds from companies swamping their heads with the latest in everything on the market. They are implanted right from birth and have absolutely no control over the contents of the feed.

Inevitably, their thoughts and desires are carefully monitored by corporate interests via these implants and advertisements are fed based on this feedback to completely swamp their thoughts — forcing them to buy, buy, and buy. In fact, the teenagers of Anderson's world become so obsessed that their every whim and desire is shaped by the endless stream of

¹¹ Source url: <https://www.amazon.com/Feed-M-T-Anderson/dp/0763662623>

advertisements. The utter helplessness is highlighted by the characters' peer pressures to accept disfiguring lesions as the latest fashion statement.

The similarity between the fictional and this present world is very scary. Today, we are increasingly swamped with advertisements from companies from all forms of media, making us subconsciously unwilling consumers. Our fashion sense and culture shocks are heavily influenced by what is pumped to our minds by external television sets, radios, and the Internet. I try switching from one radio station to another and cannot help but get irritated with the repetitive monotonous advertisements which I have even managed to unwillingly memorize!

Even the technologically savvy are often overwhelmed with the number of feeds they inevitably end up subscribing to and try to read using their feed fetchers or newsreaders. But we need the media. We need our daily dosage of entertainment. Just imagine if this goes on inside your head and you can't even turn it off. The people in M.T.Anderson's *Feed* also feel the same way. They are so dependent on the incredible benefits of the "feed" such as memorization, having immense databanks, search engines, and chat facilities that they are forced to bear the brunt of the advertisements which eventually take over their likes and dislikes. It is consumerism taken to its extreme end where the consumer's dignity and sanity are expendable in light of commercial success.

The language in this book is quite different from other books I have come across. You feel like a teenager again. On the back cover, I read that the author had indeed spent quite a considerable amount of time in supermarkets to pick up the phrases used by teenagers. You actually feel yourself becoming young Titus with the feed inside your head, confused over your feelings for Violet.

The author has quite brilliantly split this book's message between Titus and Violet, the principal characters of this book. While Titus is the bashful teenager amazed at the futuristic world and quite at ease with his feed, Violet represents the protagonist. She represents the disadvantaged and discriminated against section of society. She even tries rebelling but the world has already lost its ethical consideration for such rebellion and instead very conveniently represses her self-proclaimed revolt as a technical glitch. Eventually, the reader is left alone with the consequences of this technology as it effects both Titus and Violet differently. In Violet (and in her father) we see that resistance to such a commercial world is futile. In Titus, we see a remorse that cannot be easily be forgotten.

On the whole, the book is both an entertainment bonanza about a fantasy world set in the future and a carefully constructed projection of our deepest, darkest fears of information overload.

Read it. This is the feed telling you!

1.12 The Rebellious Voyeur in our Society

I recently saw the movie, *Evano Oruvan*. It is a Tamil language movie about the futile rebellion waged by a middle class bank employee against the monotony of his life and the callous nature of the society that engulfs him. In the end, he is killed by its very guardians and his end is mourned in his killer's introspective reflections. Poetic and bloody ironic!

Most of us do not like the world we live in. There is some problem or the other with which we are not happy. From the penniless wanderer in the street to the ultimate millionaire, everybody complains. Perhaps it is a genetic disease that compels us to never be satisfied.

The city dweller endlessly circuits the educational system, the social ladder, the health system leaving a trail of mechanical doings reflected in equal measure in paperwork and documentation. It is very easy to snap from pressure as did happen with the protagonist of this movie.

What I loved in it was the futility of his protest rather than the nature of it. Most historic figures who have dared to raise their voices have been tragically silenced (Mahatma Gandhi, Martin Luther King Jr).

Movies have this unique quality of awakening the voyeur in all of us. In the end of the movie, the hero is exalted and the rest of the human population who quickly forgets him are compared to flies feasting on a dead rat, competing in a mad rush to have a bite of the decaying morsel. I agree that we may be no different.

What can be done about this? Does the answer lie in superhuman bodies and immortal lives? I do not think so. This is why I believe that the system in which an immortal shall come into being should itself be rich in its disposition. If we become perfectly alike in our genetic perfection, would it make us any different from what we are now? We would still need money. We would still need love, a family, a social acceptance amongst our peers for our values. Is this not why we constantly seek out this hyperbola of online communities and pen friends? Virtual worlds and real worlds still are going to be filled with people. Artificially intelligent life forms that emerge shall also base itself on our nature. Just what is our nature. Are we really as innocent as Alice in Wonderland? Hardly!

In the quest for immortality, I somehow fail to see our social structure evolving. We may become more intelligent. But will we become more human...or rather.. more humane? I ask this because there are a lot of futurists who are already on the slippery slope that we can escape the need to be moral. I hope we direct our evolution properly and not in the current monotonous direction we are experiencing.

CHAPTER 2

Cyborg Existence is a Social Construct

2.1 Citizen Cyborg or Cyborg Citizen?

The thirty fifth president of the United States of America, John. F.Kennedy famously said *“Ask not what your country can do for you; ask what you can do for your country.”* A very nice and inspiring quote which has almost lost its meaning today. How should a cyborg react? No. I am not talking about the people with pacemakers or other bionic implants in the present world. I am talking about the millions of cybernetically integrated human beings (a whole new species of ourselves) in the not so distant future.



Figure 15: Photo of late American president John F. Kennedy¹²



Figure 16: Photograph of E.M. Forster, author of *“The Machine Stops”*¹³

The Cyborg Citizen would live in a completely networked world. Everything will be connected. Instant connectivity would mean instant feedback about any opinion and every action. Take the present for an example. As soon as you read this article, you may choose to save it, or assimilate it into a bookmark for later reference or just plain scrap it. It is all in the click of a button. Imagine yourself doing similar things in the future, a hundred years from now!

Our cyborg fantasies are already manifest in our movies. Like the cybernetic organism Terminator, we also want to get live statistics of the world around us as we walk along. We already do that with our cell phones to some extent. I have friends who snap pictures of almost every moment that I think they have some sort of addiction!

Political thoughts are also like mental snapshots. In a rapidly accelerating world, we may be exposed to so much content that we may no longer feel obliged to stay faithful to any one political ideal or society. In fact,

¹² Source url: https://en.wikipedia.org/wiki/John_F._Kennedy

¹³ Source url: https://en.wikipedia.org/wiki/The_Machine_Stops

boundaries would blur and governments would merge. This is inevitable. It would be networks, networks and more networks... we will form new communities in ways we have never imagined before. The Internet communities that we inevitably seek and become a part of is just a start. We will get bored of them easily, seeking new integrations. Even I got bored of my Orkut account and deleted it. I like stability but I hate stereotypes. There should be spontaneity displacing monotony. The majority of us are happy in being part of the crowd. However, it is important not to lose our identity.

Why would our identity be important? Who would care about your individual value except for the ones who love you? And would love exist in a world which has little time for emotions? Would your emotions be reduced to nothing more than biochemical formulations that can be delivered to your veins via the universal fluid network? heh.. this is just about the point where Cyborg Fantasy turns into Cyborg Nightmare... and this is also the point where self identity would dissolve in order to blend in for mutual benefit in a networked society. When self identity dissolves, we become mindless automatons ready to do whatever the crowd does... here is the point where we turn into the borgs seen in Star Trek. Think!

When you eat more burgers, the burger companies get rich..you just get fat!In one of my favourite books " The best Science Fiction Stories" from Hamlyn publishers ; one of the most interesting stories I have read in it was *The Machine Stops* by E.M. Forster. It remarks very nicely on today's cyberpunk culture and where it is headed if we do not direct technology to go our way. And, it amazes me to think that this guy wrote it as far back as in 1909. Here is an excerpt of an opening line from the story.....

*"Imagine, if you can, a small room, hexagonal in shape, like the cell of a bee. It is lighted neither by window nor by lamp, yet it is filled with a soft radiance. There are no apertures for ventilation, yet the air is fresh. There are no musical instruments, and yet, at the moment that my meditation opens, this room is throbbing with melodious sounds. An armchair is in the centre, by its side a reading-desk-that is all the furniture. And in the armchair there sits a swaddled lump of flesh-a woman, about five feet high, with a face as white as a fungus. It is to her that the little room belongs."*¹⁴

So, do you want to be a CYBORG CITIZEN or a CITIZEN CYBORG? I have one very simple inspiration which satisfies me and answers Kennedy's comment. It is the Talisman given by Mahatma Gandhi.

¹⁴You can read the entire story online here



Figure 17: Photo of Mahatma Gandhi spinning the wheel (Source: Time¹⁵)

"I will give you a talisman. Whenever you are in doubt, or when the self becomes too much with you, apply the following test. Recall the face of the poorest and the weakest man [woman] whom you may have seen, and ask yourself, if the step you contemplate is going to be of any use to him [her]. Will he [she] gain anything by it? Will it restore him [her] to a control over his [her] own life and destiny? In other words, will it lead to swaraj [freedom] for the hungry and spiritually starving millions?

Then you will find your doubts and yourself melt away."

This is a very good ideal to follow indeed!

Incidentally, I should mention that the words "Cyborg Citizen" and "Citizen Cyborg" are both famous books on the cyborg culture written by Chris Hables Gray and the latter by James Hughes respectively.

2.2 Cyborg Exploitation : Body welfare or welfare Body?

Let us first make the assumption that Cyborg here means a completely cybernetic organism who is one of the forms the posthuman would assume. Now, what Political system would suit a cyborg the best? Does it really matter? The reason I ask this is whether we need to seek newer forms of social governance systems to deal with new biologies?

Let us step back a little and observe the social systems of today. Most, if not all social systems are designed to offer equality in welfare and opportunity combined with the respect to human dignity to all under its umbrella. To me, the most important part of the social system is that it cares for you, no matter who you are. In developed countries and developing countries, there exist systems which help protect the member of its respective society against ending up on the street. Such systems work or don't work,

¹⁵ Source: <http://time.com/3639043/gandhi-and-his-spinning-wheel-the-story-behind-an-iconic-photo/>

depending largely on the way the systems are implemented or the manner in which the people/policy makers take advantage of such systems. I understand that in my own country, India; there are many who are not adequately protected by social systems. But, I am commenting on the existence of such systems in terms of human species as a whole.

I would like to know if a person who wishes to enhance himself/herself with Bionics would still be considered an equal player in terms of social welfare, security or just plain insurance for life. Do we have rules in our present system which can accommodate cyborgs? We do have systems in place for people who are differently abled within our individual societies. However, do we have social systems for an enhanced posthuman society?

Let us think of this in normal, ground level terms. If you were an immortal with an indestructible physical body and a self sustaining energy source that never runs out, why would I endorse a social security for you? You probably won't need any support from society to sustain your life. However, questions about quality of life is a little different? Should I give you more welfare money since you need even better quality of life than a normal non-enhanced person?

The Cyborgs of the posthuman world would either be discriminated or given equal status on par with non enhanced humans. However, this situation is in the humans favour only as long as the cyborgs don't come to power. Once Cyborgs lobby power, would a higher intelligence dictate that lower resources be allocated to humans who are not enhanced?

The time for guesswork about social welfare equality between humans and cyborgs (if there is such a distinction) may not yet have arrived. But our present systems are a reflection of what is to follow.

It is important to note if an enhanced member of society be given less or more welfare. Otherwise, Cyborgs would feel exploited. Once they do feel in such a manner, then this will lead to further divisions in an already confusing political matrix.

2.3 Cyborg Discrimination and the promise of Technology

What good is a Cyborg fantasy if the Cyborg exists in a postmodern future where discrimination is still ripe? Discrimination is an interesting word if you apply it in a social context. In our current world (year 2007), discrimination has come a long way towards removing itself (an example would be the absence of slavery) . However, our species as a whole has a long way on the road towards removing discrimination. I am of the view that our cyborg fantasies in postmodern philosophies is also due to our desire to exponentially extrapolate our escape from discrimination. The discrimination of bodies based on colour, race, gender still persist either directly or indirectly.

"In the future, everything will be fixed. In the future, everything will be OK..."and on goes the monologue. I do not care that much about the future as I care about the present. While it may be an elegant pursuit to hope for a fantastic future, it is not more important that preparing for that future by creating the present. I mean, who gives a dime about whether nanotechnology would power the next pair of bionics when your physically challenged neighbour struggles with his/her manual wheelchair just because they cannot afford a battery powered one?

Advanced prosthetics means increased costs. Increased costs means reduced availability. The number of disabled people who need prosthetics for essential functioning would far outscale the number of disabled people who require prosthetics for cosmetic/social reasons. How do I put this into simpler terms? Ok. I think it is more important to make advanced prosthetics accessible to a person who needs to be dextrous since his livelihood depended on it, rather than a person who needs prosthetics simply to hold a can of beer. However, I can just write this rather simply and close my ears to the practical difficulties of offering a product at low cost that actually took billions of investment in terms of money and research. So, how best we balance cost and ethics?

One of the most important answers lies with Technology. Just last week, I bought a 1 GB USB pen drive for Rupees five hundred and seventy five (Indian currency). However, just a few months earlier, it was nearly twice that price. Technology is becoming cheaper as it advances. Thus, we could hope that advanced products in all areas would gradually or rather eventually become affordable to the people who need it the most. This is both the promise and expected outcome of future technologies. Let us hope the promise is kept.

Meanwhile, I place my hopes on the further development of Indigenous technologies. In the postmodern future, we would expect that our borders would dissolve. There is already the European Union. I do not wish to comment on whether it is effective or not. The system is still not perfect. However, the process of unions have started. A world council of nations imagined so vividly in science fiction already exists as the United Nations.

However, the mere existence of world body unions is not enough. Their existence must mean something to the people. The most important meaning is faith. People should have faith in the Institutions to which they belong. For this, the Institutions must in turn respect the dignity of its population. But this is strangely not happening. I often find a comic repetition of George Orwell's "Animal Farm".

Therefore, our Cyborg Fantasy is actually a desire to overcome all of this. The philosophical meanings of the cyborg often hint at indefinite freedom for the self. Free from the bonds of country, community, and most importantly, the limitations of mortality; the Cyborg shall then participate in a

whole new world. One without discrimination. One without prejudice. At least, this is what a cyborg society hopes to achieve.

I have written many diverse thoughts which seem highly disorganized. But, to sum it all up, here is the very beautiful song from John Lennon and the lyrics of the same. In the music video, you see the lady opening windows and letting the light in. Will the cyborg fantasies inspire the present world to open windows too? Let us see.

The following are the lyrics from John Lennon's song "Imagine"¹⁶

Imagine there's no Heaven

It's easy if you try

No hell below us

Above us only sky

Imagine all the people

Living for today

Imagine there's no countries

It isn't hard to do

Nothing to kill or die for

And no religion too

Imagine all the people

Living life in peace

You may say that I'm a dreamer

But I'm not the only one

I hope someday you'll join us

And the world will be as one

Imagine no possessions

I wonder if you can

No need for greed or hunger

A brotherhood of man

Imagine all the people

Sharing all the world

You may say that I'm a dreamer

But I'm not the only one

I hope someday you'll join us

And the world will live as one

¹⁶(Lyrics from this website)

2.4 Emerging Technologies for we the People!

While we all put our focus on how much ethics is there in emerging technologies, we are increasing our distance from the issues that require immediate attention. I welcome the study of ethical issues in emerging technologies with a reason. How best to explain this reason is difficult. But it can best be said that if a guy is suffering from severe pain, then why should we not use controversial and radical technology to save his life? The answer to this question is not so simple if you ask me. In fact, no answer exists as of now. no matter how many theories about society are thrown our way.

Let us begin with the generation of a new technology. Every piece of technology; in order to be developed, requires access to information. Information is not so cheap. For example, much of the libraries and websites which offer information via journals and databases restrict access to those who are privileged either by means of restricted membership or by means of money (access fee). What this means is that not everybody has access to information or atleast, equal access. This would mean that technology gets developed faster in places where information is available more openly. Such are the inequalities of this world. My own country, India has faced several of such information restrictions while developing its nuclear programme. Each and every single developing country has to face stiff competition from already developed countries in the international market place for information, equal opportunities,. Then, there is the question of how much such technologies cost.

I like to put things as simple as can be. Dr.James Hughes of IET has written in his article "Ensuring Universal Access to Enhancing Technologies": *"Sewers, running water, electricity, telephones and books have been around for a century and still aren't available to a substantial fraction of the world's population. The inexorable working of market competition has churned away, and still those fruits of modernity, not to mention penicillin, organ transplantation, and so on, are not within the budget of families with an average annual income of \$300/year."*

At the time I am writing this particular line of the article (1 January2019), the currency exchange rate is Rupees 69 for one US dollar. This means for 300 Dollars, it is approximately Rupees 20,000. Divide it by 12 for all the months of the year and you get roughly Rupees 1,600. This is quite true considering that many people's salary in India, especially in the lower rungs of the economic ladder, only earn this much per month. But things are changing rapidly. As of now, a fresh graduate in India can join a call centre and hope to earn a starting salary of about an average monthly salary of Rs.10,000/- and upwards if competent enough. That's about 145 US dollars (rounded off) . Multiply it for a year comprising of 12 months and you get 1,740 US dollars. This is the new economy. But, I have only written about the fraction of people working within the country. Now, there is an increasing

trend in my country to go abroad and work. They earn more and bring back immense amounts of money owing to the incredible differences in the exchange rates. Many multinational companies know this dependency on money and therefore take advantage by outsourcing their work and by hiring foreign workforce into their country.

Come to think of it, more money means that people directly and indirectly pay more taxes and thus the country gets more revenue and thus is able to pump it back where it is needed. Thus, a country develops. But, it is not so simple. When more and more people driven by the desire to make money take up jobs which are stereotypical and mechanical, the amount of people who opt for skill based jobs steadily reduces. I can see it happening in my own country where students spend years doing a course in Environmental Sciences or Civil engineering, only to end up working for a multinational company that makes software for accounts. This choice is taken purely because such a job pays better.

Coming back to technologies, when people are able to afford more, better technologies come and set up shop. Just a few years ago, eye surgery was very crude in India. But now with a rapidly expanding economy, the latest technologies are becoming available, such as the Intralase Laser Equipment in Dr. Agarwal's eye Clinic in Chennai, India.

"IntraLase laser makes LASIK safer by replacing the hand-held Microkeratome blade with the computer-guided precision of a laser, virtually eliminating almost all the most severe, sight-threatening blade-related LASIK complications as a result."¹⁷

Technology is thus becoming increasingly available. But, this has happened to India after 72 years of Independence and only after we have come to a position where we are able to afford it. This therefore means in a nutshell that the world has not become a better place. One still needs financial strength rather than human compassion to have better technology. As globalization seeps in deeper and deeper, cultures are eroded step by step. Read more about this in an article called "Erosion of Ethnic Identity: Is Globalisation to Blame?"

People in Western countries have very little idea of what poverty really means. I was in conversation with a good American friend of mine who is usually sensitive to several social issues. I simply asked him, "have you ever experienced hunger which so many poor people suffer from every day?". His reply was "Yes. I am on calorie restriction"!!!! I was taken aback since it is such an insensitive comment, though unintentional. Calorie restriction is something one does to prolong one's lifespan when one has a wide variety of foods to choose from. Poverty means you do not have basic access to food. There are three basic requirements to any human being's quality of life and they are FOOD, CLOTHING and SHELTER.

¹⁷<http://www.dragarwal.com/intra.html>

I would consider myself and my country very lucky if I were to draw a comparison with Africa. Africa is a great continent. In fact, anthropology would say that we have all come from there initially (Boost for 'Out of Africa' theory). It is our birthplace and yet it is such a bad shape. Why? exploitation.

I am angry at those who sit in Ivory towers and comment so freely on matters such as poverty. We need real solutions. In India, we need self-sustenance. Recently, I had the opportunity to meet Dr. Sakthivel, one of the greatest figures in Indian Aquaculture. He now heads the Aquaculture Foundation of India and has launched a mega programme for seaweed culture in coastal areas of India. This rehabilitates entire families and during my visit, he told me that so far he has succeeded in rehabilitating 600 families and is now aiming for 1,000 families. Bravo to such people. I quote from his foundation website :

“Aquaculture Foundation of India is actively promoting Kappaphycus seaweed cultivation in Tamilnadu, Kerala and Andhra Pradesh. An agreement has been executed between the State Bank of India, Local Head Office, Chennai and PepsiCo for assured loan and buyback of the produce. AFI has successfully completed the first phase of the seaweed culture project under the tsunami relief programme of the Department of Biotechnology, Government of India.

132 members of 24 self help women groups have been economically rehabilitated with each member earning Rs.5000 to 6000 per month. The second phase of the project is going to be implemented shortly in Tanjore Coast of Tamilnadu. A total of 500 families are in Kappaphycus seaweed cultivation today in Ramnad and Tuticorin districts. A successful economic model for the rehabilitation of the coastal poor has been worked out.

AFI provides free technology to the coastal communities and help them to avail bank loan and subsidy from the government. AFI liase with PepsiCo for assured buy back of the produce. Technicians from AFI and PepsiCo monitor the cultivation continuously and help the cultivators in problem solving. The loan availed from SBI includes subsistence allowance for coastal poor in the initial period and insurance both for life and materials. The loan is repayable in three years @ 7% interest for the tsunami affected coastal communities, other wise 9%. Three months in a year (October to December) is declared as rough seasons and repayment is waived. Many cultivators have started repayment of loan from the income generated through seaweed cultivation.”

To quote from the THE HINDU :

“According to data available with the Aquaculture Foundation of India (AFI), the shallow waters of the Gulf of Mannar and the Pak Strait have the potential of producing one million tonnes of seaweed, worth Rs.20 billion”.

There are several such initiatives at making technology that is usable by the population that immediately needs it. Forget the ipods and the latest 3d immersion technologies. Those are for people who have the luxury of money.

I have seen that technology can also be used to give something back to the community. One such example was the seaweed technology which rehabilitates entire families after natural calamities such as the Tsunami. Some other examples I found are in Figure 18,19 and 20.



Figure 18: Picture of Laptop from the One laptop per child project¹⁸



Figure 19: Picture of the Lifesraw filter¹⁹



Dr. P.K. Sethi talks with a double amputee who has been fitted with Jaipur limbs at the Center in Jaipur, India. Many ideas for improving the limbs come from the users.

Figure 20: Photo of Dr.P.K.Sethi (standing right) with a recipient of the Jaipur leg (Source: Werner, 1998²⁰)

One laptop per child project : This project has developed a very simplistic laptop that does not require much power at all and has a unique interface to enable children in developing nations access basic computing power!

Lifestraw: From surface water to drinking water, Lifesraw is a very simple portable water purifier! It is a 25 cm long, 29 mm diameter, plastic pipe filter which can be used at very low cost by people without basic access to clean drinking water to drink potable water.

Jaipur Leg : This is an indigenous prosthetic leg developed in India by Dr.P.K.Sethi. It was developed in the late 1960's for landmine victims when conventional western prosthetics were found to be unsuitable for conventional Indian habits such as barefoot walking or squatting. More

¹⁸ One laptop per child project website: <http://one.laptop.org/>

¹⁹ Source url: www.lifestraw.com

²⁰ Source url: <http://www.avemariasongs.org/projimo/NAUWU/index.html>

information on this leg can be found at : "culturally adapted limbs in India". An excerpt from that website :

"Dr. Sethi developed a design that was more suited to the traditions, poverty, and environment of rural India. The Jaipur foot-piece is heat-molded in iron forms in which pieces of wood are covered with vulcanized rubber. It is very flexible, water-proof, and looks real (with toes, veins, and skin color). The foot is fixed to a lightweight aluminum shank crafted by traditional tinsmiths. The above-the-knee limb has a swivel knee joint that permits comfortable squatting and cross-legged sitting."

Many more examples exist and these should be the real emerging technologies that have to be encouraged. Sadly, these technologies do not get the credit they often deserve and slowly diminish against the glare of glamorous technologies. Everybody wants to talk about nanotechnology but very few discuss the implications of developing exotic herbal plants through tissue culture.

Open source software is still not embraced completely. The only big advantage to it is that it is free. But, I am of the view that not everything needs to be free. If one works hard for a product, then there can be a price to use that product. However, that price must be fair. Here drops another paradox. Price is fair in different amounts in different markets.

Exploitation is the biggest threat to a developing country. Since a developing country is desperate to make money fast in order to reach the international playing fields, we coming unwilling volunteers to all sorts of freeloading by developed countries. Carbon dumping is a huge sin that developed countries have put upon developing countries.

Sooner or later, there is bound to be a rebellion or a severe backlash. Such a backlash would affect both parties concerned as immigrant population has a very huge impact on the economy of any developed nation nowadays.

What then should be done? As of now, International treaties and policies have not completely addressed these issues completely. Even if they are addressed, they are not embraced. This is often because the right kind of members do not constitute the board that sits to draft such policies. They are increasingly dependent on surveys taken by professional bodies that may harbour vested interests.

People who are poor do require charity. However, most of them also require respect for their dignity as human beings and the means to support themselves sustainably. Much of modern technology is wasteful.

I want to see a world where everybody respects each other not based on how much money we have but by the basis of how much capacity we have to sustain ourselves. However, those who are practical can only project a bleak future if the present trend continues. I had once posted a reply in wta-talk, a mailing list for the World Transhumanist Association (now the Institute for Ethics and Emerging Technologies - <https://www.ieet.org/>) in which I

addressed these issues in a simple manner to respond to why we should feel obliged to share technology. It is as follows

"Why should I share?"

There are no fixed answers for this sort of thing. We who live in the practical world know that this is exactly how the world works. Perhaps this is why the rich get richer and the poor get poorer. It is human nature. Will AI nature be different?

Different political systems have spawned throughout our world history to answer such questions but each is flawed at some level or another.

The original definition of transhumanism or its purpose was to make advanced technology available to all. Now, I increasingly observe that western transhumanists want to just race ahead into the singularity. One cannot conclusively say that this is a selfish motive. However, it is at this point that the strangest of human behavioural traits; Altruism kicks in.

So in conclusion, it may not be wrong to race ahead and climb to the top. However, it may be wise to turn back and show those at the bottom the way up and let the ladder remain for free. Considering Buddha to have reached the singularity, he did come back to us to show us the way.

So, I agree that my above post in the mailing list is more idealistic than practical. But, I have indicated at a sense of social responsibility that should be accompanied with the generation of every new technology. This is actually beginning to happen. Nowadays, in my country, during the public viva examination of almost every doctoral thesis, the candidate is asked to explain the cost benefit ratio and the impact of his/her thesis for society. I strongly support this view since it is useless to go to the moon just for the fun of it.

I would like to end this post with a picture of an Indian village lady using a cell phone (Figure 21). POWER TO THE PEOPLE!!!



Figure 21: Photo of a traditional village woman from India using a cell phone²¹

2.5 Misleading Perceptions of Improving “The Human Condition”

It is time to take a step back and examine how we view “technology” and “progress” and the potential creation of a utopian future society. In the year 1997, the movie *Gattaca* was released, showcasing a society where genetic testing determined the nature of workforce segregation, mate selection, and government surveillance, among other things. A memorable scene in the movie is where the woman protagonist checks out her love interest’s genetic makeup from a hair strand within a matter of a few minutes:

Three years later, in 2000, the first working draft of the human genome was released, and in 2006 it was declared as completed. In 2008, the government of the United States passed the The Genetic Information Non-discrimination Act of 2008 (GINA) as an act to “prohibit discrimination on the basis of genetic information with respect to health insurance and employment.” This, ideally, would protect most American citizens legally against a *Gattaca*-like scenario.

In the year 2011, personalized “direct to consumer genetic testing” has become a common though not universally available commercial service. Until now, genetic testing has been available mostly to healthcare professionals, genetic researchers, and counsellors. The availability and increasing affordability of PCR thermal cyclers, gene sequences, and sophisticated

²¹ Source url: http://bp0.blogger.com/_lawXq-xzYRU/RodxDCFbyII/AAAAAAAAAE0/Tri4l43lyho/s1600-h/cellphonelady.jpg

interpretative software have enabled companies with the impetus to invest in such ventures. Making a fortune from spit has never been easier!

There are many promises and forecasts spouted out in PowerPoint presentations around the world by futurists. The most popular is that personal genomics testing/profiling would bring in the era of personalized medicine. Oh, and that the human body would now be viewed for treatment as an 'ecosystem'.

To me, this notion of personalized treatment is rather amusing since I hail from an oriental culture. In the oriental medical systems, say the Chinese herbal remedies or India's Ayurveda²², treatments have always been given out in a personalized manner according to the individual and in a holistic manner (treating the entire body rather than a specific ailment or part). Therefore, this much tweeted and bookmarked brave new era is being given importance in what is probably a repetitive trend-line area.

The era of personal genomics is yet another addition to the long list of hugely extrapolated changes being undertaken to radically improve "the human condition." Other popular facets requiring fantasy exposures would be aging and death. Nobody in the world enjoys becoming old and slowly withering away.

Biological cells lose their vitality and regenerative capacities over time. They die. We become susceptible to disease, disability and distress. But just when you thought all hope was lost in this inevitable cycle of life and death, in come the futurist soothsayers who show you enormous graphs of how lifespan has actually increased from the tribal to the urban age. For example, if you are pushing 70 with a progressively debilitating disease, you are expected to find solace in the fact that people used to die very young in the past and that within a short period of time (by which you will be dead anyway), lifespan is set to increase *exponentially*.

In case the person gets depressed that they won't be alive to live in this future, all you have to do is cryonically preserve your body and hope to wake up in the future, without a huge electricity bill waiting for you. All these promises can be proven because laboratory mice are nearing immortality. In case you are having logistic concerns, artificial intelligence would become self-aware and leave the humans enough leeway to explore the upcoming human machine symbiotic cyborg bodies. Consciousness (with an addendum of all your collective life experiences and emotions) could just as easily be uploaded onto a computer thanks to the very accommodating Moore's Law. We can choose posthuman body skin pigmentation to be blue, black, or green according to the prevalent atmospheric conditions of the future.

Oh! and along the way we would enable the primates, mammals, and other aesthetically "cute" animals to reach our level of sentience. Then there is the

²² <http://en.wikipedia.org/wiki/Ayurveda>

case of synthetic biology which is being hyped as the next big IT industry, which is not entirely untrue. However, it is getting stretched a bit too far when sensitive assembly of chemical nucleotides are being compared to a simplistic LEGO assembly. All in all, we are set for an incredible future that shall completely change and improve “the human condition.” Just how far is this future? It is very near. Actually, it is somewhere right at the top of that graph. Should we be so optimistic and happy? **No.**

Fifty years ago, Daniel Boorstin published *The Image*, a critique of the media and “pseudo-events” where he described how society loved to fantasize itself with threats of a posthuman era and created these “pseudo-events” and “pseudo-celebrities” as a reflection point of our own condition. His observations do hold true to our present situation.

We are perpetually consumed by this “double life” scenario between what we project our society to be, and the society we actually live in. Impregnation of fantasy expectations portrayed in movies and other art forms into reality is a much favoured venture of the human species. Laws of acceleration and trends of minimalism have increased the inclining curve of technological progress and physio-dimensional proportions. Energy, computing power, and genetics have all been favoured playing fields.

The technologies or their advancement is in itself not to be blamed since their evolution is a natural inevitability of human civilization. In fact, all of the previously mentioned technologies hold great promise in improving the human condition.

Answers and newer knowledge on genomics and proteomics would increase our knowledge about our origins, strengths, and susceptibilities. We will have improved specific medications for serious ailments. Synthetic biology would bring down delivery timelines for precision drug design and delivery systems at the nano-scale. Sentience generation in other species would enable their utilitarian exploitation. Research into mice longevity would indeed eventually contribute to human longevity. However, I think that too much hype is being placed in the wrong direction.

Why are we fascinated by these technological fantasies? It is because we are no longer willing to accept disease, death, and suffering as mere occurrences of destiny. We look up to scientific methods and technologies to effectively and surgically remove our deficiencies whether it is our bodies or our environment.

This might just be the reason why many progressive futurists would like to throw the brick at moral systems and restrictions posed by organized religion. We must further understand and explore this phenomenon. The lines defining morality can easily be brushed aside as an excuse to make way for technological progress. However, importance of morality and religion as a dictum for human behaviour and regulator of social order is of fundamental importance.

Every stage of human civilization has depended on some kind of distorted or logical moral codes to maintain order and synchronicity. However, are we mature enough to completely remove ourselves from self-imposed restraint systems? Our present biological nature compels us to revert to chaos once order is removed. All it takes is another hurricane or a depletion of basic resources to start the next global war. We should constantly remember this fundamental weakness in our nature as an excuse for the continued existence of morality, religion, regulations.

The problem has never been with religion but with its interpretation according to the whims and fancies of its promoters. Technological progress shall always pose ethical concerns but they need not be sensationalized. At this point, I must point out my amusement at the stereotype religion leaders who use Twitter and Face book to popularize superstition against the very technology they so claim to despise. I would also like to point out my equal amusement at scientists and rationalists who are so obsessed with destroying religions while endlessly engaging in the same profiteering strategies as their evangelical brothers. I am pretty sure that movements *against* religion are almost as profitable a business venture as those *for* religion.

Here we are then. We fantasize that all of our greatest weaknesses as a biological organism in this planet shall be overcome with technological progress, which is not entirely untrue. We look forward, as we always have, towards a grandiose future where everyone experiences utopia. There is nothing wrong with that. What must be put in check, at least at this stage of our evolution as a species, is the attitude of wanting more and more from technology and the resources around us. This anthropocentric greed shall be our undoing unless it be checked.

The other most important thing to do is to take stock of what we have. We are a beautiful species who can self-comprehend and realize beauty in the world around us. We are unlike most of our animal brethren who cannot view the world as anything but a grazing field.

Let us promote those feelings with the technological comprehensions that are accorded to us. Knowledge of the gene pool data should enable us to strengthen non-discrimination within the human race rather than serve as a tool for determining life insurance policies. Synthetic biology and targeted drug design should be aimed at bringing down the cost of medicines rather than increase the number of patents and other proprietary lockups. Cheaper technology is available, so why not make it easier on third world markets?

The occurrence of revolutionary protests aimed at overthrowing suppressive governments by use of social networking technology is very encouraging. But why is there not the same zeal for promoting education? What is preventing the generation of open-access universities and validated certifications? Why should scientists in third world countries still be

restricted and made to pay a premium price for access to published data in international journals?

Isolated instances of technological democratization cannot outweigh the prevailing backlogs of its accessibility around the world. Technological progress is being peddled as nothing more than info-tainment. This peddling should stop. Technological progress is not in the future; it is happening now. However, we still lack the open-mindedness and maturity to create universally applicable technologies. Most drugs are still unavailable to the general human population due to proprietary restrictions.

It is time to reduce the stereotypical soothsaying of upcoming technologies. Instead, it should become important to critically evaluate the applicability of prevalent technologies to all sections of human society. Otherwise, we are most definitely headed down a slippery slope instead of moving up towards the Singularity. Let us therefore take stock, appreciate our existence, and increase the *quality* of technology rather than *quantity*. The way we look at and react to “the human condition” must undergo a fundamental transition.

2.6 Morpheus or Morphine?

Everything boils down to reflections we see in popular media such as movies. One such movie is the Matrix where a character by the name, Morpheus offers you two pills. One offers nothing except the continued illusion of reality and the other offers liberation from it. Liberation from reality is sought by different people in different manners in worlds. But the most disturbing of realities is what I would like to call selective reality. We have come to a stage in our civilization as a species where reality is chosen and often shockingly hidden. Perceptions of reality largely also depend on stereotypes projected to us by global media channels, whether visual, written or by other means. They also depend on cultural views. Superstitions are still not a matter of the past. They continue to exist. But the most painful sin or the most cruel prejudice that most of our society refuses to acknowledge those sections of our planet which need help.

Poverty is a word most people do not understand. Forget the academic definitions and the economic figures. They mean nothing when an utterly helpless and homeless person stands in front of you. What do you feel in such a situation? Oh yeah..sympathy. But how far do we take that sympathy? Will we take that person to our home and offer food, water and shelter? Maybe. But for how many days? Eventually, your sympathy will wear out. This is not a dilemma faced by you alone. This is a dilemma that grips entire governments. How do we provide for everybody?

Are we at all concerned about such issues when we talk about fantastic technologies? I have time and again found that people diplomatically avoiding discussing the implications of radical technology and it's applications for the

millions of people who do not have food, water or shelter. When you talk about Genetically Modified food, it is so easy to talk about regulatory standards and corporate rights over germplasm. However, how many of us are willing to acknowledge the immense benefit GMO food can bring to countries where the weather and lack of soil nutrients prevent successful agriculture? Even if GM crops are introduced, they are done so for commercial gain and seldom for the eradication of food shortage. What could be the reason?

I am not touting absolute righteousness here. I am only seeking that we open our eyes to the real possibilities of openly available democratic technology. However, it is sad that most people who bring out technology are openly concerned more with the commercial success of their inventions than its social relevance.

Make money. There is nothing wrong with making money. But, make money while producing something of relevance to the common man. If not for modern medicine, our bodies would still be vulnerable to that multitude of diseases and our mortality would have seen unprecedented heights. If not for medicine, the seeds for the dreams of a concrete scientific immortality could never have been sown.

Another thing we should realize is never to discriminate a person based on his/her social standing. People often avoid looking at problems. Look at the problem. Know that it exists. Think of what constructive argument or solution you could bring about to solve that problem. When you throw a penny to that homeless person on the street, you may only help him/her for one night's bread. But, think of what your own superior education or social position could do to bring about a change, whether by policy or by technology. Something as simple as bringing out a technology to reduce the cost of woollen jackets could help millions of people who die in the cold. It really is that simple. You just have to think different.



Figure 22: Photograph of a child²³

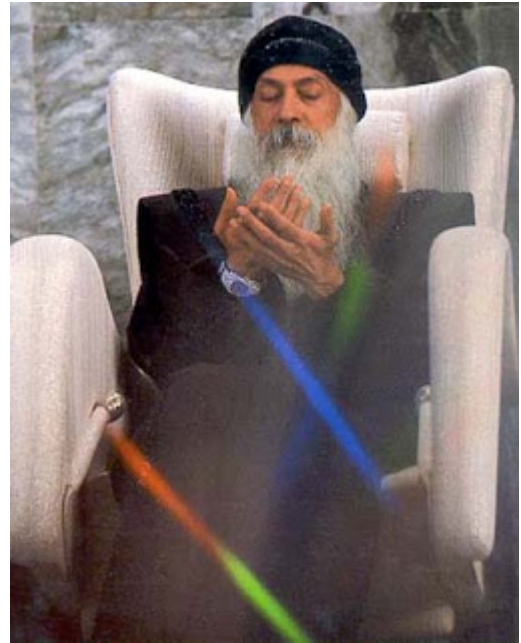


Figure 23: Photograph of spiritual teacher Osho²⁴

Osho, one of the spiritual thinkers from India, had commented on this very frankly (Figure 23). He had this view that the rich always needed the poor as an outlet for their charity. He therefore denounced charity as a concrete way to help the poor. Most social activists are also of this view. It is always important to educate and enable communities to help themselves in a sustainable manner rather than a steady stream of charity. Charity should be done in a way that enables sustainability.

Transhumanism and other philosophies which seek the democratic liberation of radical technology should seriously address these issues. Don't hide behind the singularity, come out and participate. Why should only some enjoy while others languish? Humanity cannot evolve as long we are in this cesspool of inequality that we have imposed upon ourselves.

So, do you want to go the way of Morpheus and illuminate yourselves or do you want to take morphine and just become numb to the pain. Remember, the pain comes back after the Morphine wears off.

2.7 Cyborg Civilizations : The Realization of the Species State

CIVILIZATION. The hallmarks of our achievement as a species in this planet. We have constructed elaborate environments for our habitat. Environments which are quite unique and extraordinary. We are secure in such environments. We discover newer ways to inhabit this planet as each day goes by. Why? Is it over population that forces us to seek new areas of

²³ Source url: http://bp0.blogger.com/_lawXq-zxYRU/Ru1rd7xa1DI/AAAAAAAAARk/VR9wtT0afG8/s1600-h/Darfur.jpg

²⁴ Source url: http://bp1.blogger.com/_lawXq-zxYRU/Ru1qLxa1CI/AAAAAAAAARc/4R4WdRCQdvM/s1600-h/OshoRainbow.jpg

habitat? I would rather say that it is our instinct to spread wherever we can. It is our desire as a species to occupy as much as is possible in the planet and establish firm borders from other species. Any animal in such a dominant position would do the same. But we in our ego refuse to believe that we are nothing more than an organism which multiplies and establishes itself as the superior species.

Have you seen the first part of the movie "The Matrix²⁵". The most important words in the first part of the movie are the ones spoken by Agent Smith to a beat up Morpheus about the human species; as perceived by the machine intelligence. The lines are as follows:

"I'd like to share a revelation I had during my time here. It came to me when I tried to classify your species. I realized that you're not actually mammals. Every mammal on this planet instinctively develops a natural equilibrium with the surrounding environment but you humans do not. You move to an area and you multiply until every natural resource is consumed. The only way you can survive is to spread to another area. There is another organism on this planet that follows the same pattern. Do you know what it is? A virus. Human beings are a disease, a cancer Of this planet. You are a plague, and we are the cure."

I would kind of agree with Agent Smith if I overlooked our efforts to conserve available resources and biodiversity in our planet. Although we are not entirely akin to Agent Smith's views, it is partially true if we look back into the way we have progressed through different civilizations.

In the laboratory, we grow micro-organisms which multiply into several thousands and consume the nutrients given to them. Once they reach a certain population, we subculture them onto a fresh culture dish. In case you study these microbes, you will find that they will adapt and develop genetic modifications to survive in the various modified conditions given to them. In this way, they transform their genetic structure which in turn modifies them structurally and functionally to an extent that enables them to survive in the new environment. Now, the bacterium *Escherichia coli* multiplies every 20 minutes. Let us extrapolate it to the human being. That's us. We also multiply. What we encounter with the world, we usually store in our genetic makeup and transfer it to our children. Sometimes, this is in the form of ability, immunity to diseases or even susceptibility to certain pre-disposed conditions. We multiply as well. Hence the population problem. What is the cyborg fantasy here? Go establish excess populations into outer space?

²⁵https://en.wikipedia.org/wiki/The_Matrix

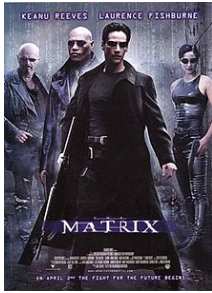


Figure 23: Poster of the Movie "Matrix" (Source, Matrix movie,1999²⁶)



Figure 24: Dubai Palm Island photograph²⁷

I do not think so. At first, we will occupy every nook and corner if at all the balance of nature on population does not happen. We will build habitats on the ocean. We have already started doing so. The most recent thing of beauty is the Palm Islands in Dubai, the world's largest artificial islands!



Figure 25 : Comic representation of man calling out to Planet Earth as his mother²⁸

2.8 The Cyborg comes full circle with Gaia

The "Cyborg" is an interesting concept. It is very simply defined as a cybernetic organism; part human and part machine. Norbert Wiener in 1948 who gave birth to Cybernetics as we know it in the modern world also spawned the cyborg in more ways than one. There from him, evolved the ideas of integration between the human nervous system and computers.

The human body in its present form of evolution is extremely limited when it comes to posthuman goals, especially space travel. In the present world, space travel is carried out by astronauts in technologically enhanced

²⁶ Source: https://en.wikipedia.org/wiki/The_Matrix

²⁷ Source url: <https://www.travelonline.com/dubai/attractions/palm-islands.html>

²⁸ Source url: http://bp2.blogger.com/_lawXq-xzYRU/RpUYECFbyTI/AAAAAAAAAGM/DQiKifhi8XY/s1600-h/gaiamom.jpg

exoskeletons that are able to protect the limited biological bodies within. Space travel is also the earliest if not the most principal inspiration for the technological amplification of the biological body. In 1960, NASA scientists Clynes and Kline published their "Cyborg study" where they made their point about modifying the human body or at least supplementing machines for maintaining homeostatic states for routine biological functions. This they proved with a Rose-osmotic pump which automatically regulated injection of regulatory chemicals into a rat. Much of our fantasies about the Cyborg do not involve these earlier references although they are buried deep in our subconscious to constantly find ways to overcome ourselves. When we talk of us, the self, it invariably starts with the closest thing to us, our body. We perceive this world through our senses. The sensory experiences have given rise to much of our culture, whether it be food, music or art. But there have always been among us those who are differently abled and not able to perceive the world with all the senses of the biological body. Here at this point comes the spirit of mankind which struggles through adversity and the odds to make every man, woman and child equal in their capacity to experience the world in as complete a form as possible. The instrument that bridges and helps us achieve this democratic equality is technology. The human determination to overcome obstacles is a trait which has no limits. The only limitation then is not the human body but rather, it is technology.

As an organism at its most basic level, after observation of our peer organisms with whom we share this planet, what is our destiny? We must survive. We the human species have to resolve our current limitations within our civilizations and then go further and further, beyond the reaches of this planet. I think this is where we are really tricked. We think it is our accumulative intelligence which has brought us this far. A proud children we are indeed to have forgotten our mother, Gaia! Now, I find myself increasingly drawn to the possibility that a directed intelligence is indeed guiding us to a posthuman destiny! The closest thing I have found to support my belief is the Gaia hypothesis.

"The Gaia hypothesis is an ecological hypothesis that proposes that living and nonliving parts of the earth are viewed as a complex interacting system that can be thought of as a single organism. Named after the Greek earth goddess, this hypothesis postulates that all living things have a regulatory effect on the Earth's environment that promotes life overall".²⁹

If we suppose Gaia Hypothesis that the Earth is indeed a living organism and we it's seed, then as Carl Sagan notes, our space probes are indeed a seeding effort taking place. Are we nothing more than seeds? Why not?

It is very much possible that Earth as a superior intelligence has developed within its laboratory an artificial intelligence called the Homo

²⁹from Wikipedia

Sapiens which will carry the germplasm of itself and the different flora and fauna of the earth. This intelligent seed will then find a suitable means in the outer universe to continue the survival of Planet earth which has a finite lifespan.

It may be extremely hard to digest that we may be nothing more than the instruments of Gaia. However, as Hans Moravec notes in his mind children, it may entirely be possible to draw a symbiotic relationship with the superior intelligence of Planet Earth with our own and collectively evolve ensuring mutual survival. This also makes perfect spiritual sense since it allows for the dissolution of the ego and the merger with the Brahman!

Thus, *the Cyborg* originally evolved for enhancing the capabilities of a limited biological body has indeed *come full circle with Gaia!*

2.9 Reasons For Love And Hope To Other Species In The Posthuman Future

I am writing this after having responded to a respected “bioethicist” friend with whom I am connected via Face book. In his photo albums, he has a picture of a protected area for dogs in Thailand. This got me thinking. Being the “internet savvy” and “digitally addicted” personality that I am, I immediately commented on the photograph with my personal reflection that dogs within protected enclosures only creates “secluded love”. I went on to state that real love towards these animals would be to watch them roam around freely, whilst still being protected from harm! I did receive a very nice reply from him saying that such protective measures for animals showcase the hope for a basic love towards all kinds of life. I liked his reply on the re-affirmation of hope. However, I was not completely satisfied with the promise of hope and love. Why?

You see, Thailand incidentally happens to be one of the major sources for "Dog meat" in Asia, especially Vietnam. (read about it here). Dogs evoke such strong emotions in us because they express to us, a lot of love. My own departed canine friend was like a brother to me for over 14 good years! Therefore, we are naturally inclined to protect those animals which respond to us with love, intelligence and in many cases, obedience. However, the entire world is not so rosy. Members of the canine species have long been used as meat, experimental animals and for sadistic sports; which are often direct reflections of our barbaric instincts. To those among us who love our canine friends, such cruelty is horrifying. However, our sympathy alone will not do any good. What else is needed?

Given a choice between protecting a crocodile and a cute puppy , 90 % would choose the puppy. If given the information on a greater importance of the crocodile to the balance of the ecosystem compared to the thoroughbred puppy, the percentage of “puppy protectors” may or may not drop down. But if given the choice our survival in the planet would be severely challenged in

the next week without the crocodile; most of us would willingly sacrifice the puppy and embrace the crocodile!

Are we truly the altruistic beings we portray ourselves to be? I think not. We may pride ourselves as being the only living being that provides protection for other forms of life. But sadly, we are much further from the truth. We protect and conserve wildlife and natural resources because of our own selfish need to survive as a species. Modern ecological science has taught us that the future of mankind in this planet is bleak if we keep destroying the other inhabitants of this life, irrespective of their “cuteness”. Take the most basic example from India. A rice farmer tolerates an abundance of poisonous snakes only because they keep the rat population at check. If the same farmer moves to a protected rodent proof greenhouse, protection of the snake species would not be such an important criteria.

Okay. Enough with the usual sentiments of protecting the flora and fauna of our planet. What does all of this have to do with a posthuman future? The transhuman or the posthuman future would be manifested on this, and other planets. How would we treat our current planetary co-habitants then? Would we still offer refuge and protection? I am not so optimistic. We would probably at best do what we have continued to do thus far. We would accelerate the growth and multiplication of species which are of the most beneficial and eradicate those that are not. Locusts and other traditional pests that include the ubiquitous mosquito would be a distant memory. So would parasites which sustain the life of pathogenic micro-organisms. We would re-engineer several species as we have been doing currently to our livestock. This is not a prediction. It is already happening. Hybrid and genetically altered livestock are being used by us on a normal basis. Every living creature is allowed life solely for the preservation of the human species. Am I going too far? I don't think so.

Let me make one thing very clear. We are neither the angels nor the demons to this planet. We are merely an intelligent species. Therefore, all these excuses about us loving our planet for its beauty and splendour are an absolute delusion that we place, upon our fundamental nature and instinct to survive as a species. If given the technological capacity of planetary population control , we would readily sterilize all other species and allow procreation of our species alone. This is not a “wrong” thing to do if understood very carefully and logically. The fundamental purpose of every civilization's growth in human history has been to preserve human life. If we do not build fences, the other animals would not hesitate to make short work of our resources. This is the law of nature and we are also subject to the oldest law “survival of the fittest”. Are we no better than parasites or viruses then? I think not.

The ongoing evolution towards Technological posthumanism is bringing several positive changes. We are harnessing energy from resources

more efficiently. The old notions that technology will bring unprecedented disaster upon the planet should be put into reserve in face of technologies that are becoming cleaner every year if not every decade! Very soon, synthetic biology shall enable us to “create” our requirements rather than modify or enhance the existing gene pool of this planet’s biodiversity. The Bioethical principles are rapidly becoming outdated and must be renewed in face of a glorious future for our species. We will be able to communicate and incorporate our sentient qualities onto the animals we find useful for our survival.

The true test to our morality and altruistic nature would come as we race towards the technological singularity. Would we bother about other life forms in this planet when we have no need of them for our sustenance? Would we “love” them then? Would they have “hope” for a “basic life”? The answers are available now, every time we choose a meat product or a vegetable from the supermarket. What are our present choices? Organic or non-organic? To most, it is a question of the amount of money in one’s wallet relative to the number of family members to feed. When the questions and the answers become as simple as this, what would be the reason for “hope” and “love” towards animals and other life forms in the posthuman future? THINK.



Figure 26: A genetically modified Pig³⁰



Figure 27: Suresh Kuttan singing in Asianet Idea Star Singer (Source: Asianet TV channel, India)

2.10 Behavioural acceptance of Existing Superhumans : The path to equal acceptance of the differently abled

On 23 December 2012, many Keralites (people hailing from Kerala, a southern state of India) viewers both home and abroad anxiously glued their attentions to their Television sets, for their favourite singer, Mr.Suresh Kuttan in the finale of the hit reality TV show on Asianet channel called “Idea Star SingerSeason 6” (Figure 27). However, Suresh did not sing much to the disappointment of the viewers. In fact, he wouldn’t sing due to reasons known

³⁰ Source url: http://en.wikipedia.org/wiki/File:Sus_scrofa_domestica.jpg

only to him as he could never express himself in a way that normal society could interpret as effective communication. However, whenever Sukesh did sing in the past episodes of the show, he sang like none other; beating all other traditionally trained contestants as if they were mere wisps of somebody's imagination of grandeur.

However, Sukesh is known to normative society as "Autistic". He is extremely sensitive to external stimuli and could sing only when his doting mother was beside him to calm him. However, despite his mother's presence; Sukesh Kuttan could not sing probably owing to the tremendous noise of the crowd and the intense studio lights which might have disturbed his otherwise serene musical world. Somebody else won the competition and that was that. But deep down and from the amount of spectators who had voted for him (through SMS), it was obvious who won the real competition. It was an inspiring moment in Indian television to feature a differently abled person and give him a sporting chance.

Sukesh Kuttan is every bit as sensational as was Kyle Coleman,³¹ James Durbin³² and several other extraordinary persons who defied convention with their remarkable talent in music.³³ There seems to be a widely accepted common denominator for a normal state of human consciousness amongst individuals within any given society. For years, people who are differently abled and showing remarkable traits (sometimes known as "Savants") have lived and continue to live amongst us. The "normal society" has never quite accepted nor tried its best to understand them. If the ability is exceptionally higher than what normative members of the society can achieve, the possessor of the trait is hailed as a prodigy. If not, the so called normal people outcast the child as differently abled and is treated as a burden only to be tolerated to uphold the loosely held dictums of personhood and ethics (both of which are fundamentally flawed systems seeking continued evolution). Some of the names used to describe such individuals are Dyslexic, Autistic, Savants and many others. I would rather think that there is a general problem with the entire human society that identifies itself as "civilized". It tries to rationalize common behaviour as being normal. Children are repeatedly taught to adhere to certain norms and cultures without any specific justified reason offered to them. Pressure from Parents, Peers and behavioural psychologists force otherwise talented children to become proficient only in areas which the "normal" society deems as worthwhile pursuits. Thus, may potential artists, musicians are forced into "fitting in" to a dull society that has already proved its uselessness by way of mindlessly unsustainable consumption of resources. In "The Drama of the Gifted Child", Alice Duer

³¹<http://www.dailymail.co.uk/health/article-2112030/Kyle-Coleman-Mute-autistic-man-stuns-experts-amazing-singing-voice.html>

³²youtube link : <http://www.youtube.com/watch?v=fQ6a0RALpEI>

³³For a list of famous people who are viewed differently, see : <http://www.child-autism-parent-cafe.com/famous-people-with-autism.html> .

Miller rightfully writes *“It is among the commonplaces of education that we often first cut off the living root and then try to replace its natural functions by artificial means. Thus we suppress the child's curiosity and then when he lacks a natural interest in learning he is offered special coaching for his scholastic coaching for his scholastic difficulties”*.

Whenever the inherent genius in the child refuses to oblige and retaliates violently, the parents and most often the society labels them as differently abled. When we see a child being overly sensitive to stimulation that others perceive as normal; we take it to be a sign of a neuro degenerative disorder. Could it not be the other way around that it is we who have lost our sense of sensitivity to all that surrounds us? How do we know that it might be us who are in need of medication and awakening to a new state of altered consciousness?

Their abilities raise an amusing question in my mind. Could it not be probable that the rest of us are actually retarded; and therefore require formal training in music to perform even marginally as these naturally extraordinary singers with no prior traditional training? The Human brain and the way it functions still needs to be interpreted in a proper way. Our neural perception of this world could actually be limited when compared to the perceptions of a “Savant” or “autistic” person.

There is a Dystopian movie called “Equilibrium” which shows a nation state that defines curbing human emotions such as love through drug intake as normative behaviour. When everybody does it, it seems normal owing to the benefits it supposedly offers from a world of crime or disorder. This movie need not be all that dystopian since it is only a futuristic depiction of what has happened in the past and is continuing to happen in the present. How idiotic now do our ancient civilizations seem, where men and women were bought and sold as slaves much like commodities in a market. How equally absurd does it seem now that we humans once regarded people with black skin as inferior! When such things have happened, it is little wonder that the dystopian movie scenario might happen as well.

A famous movie from India called “Taare Zameen Par” tells the tale of an extraordinarily talented boy who sees the world in an extremely different but creative manner. The story is about how he is outcasted by the regimental academic system until a talented teacher discovers and inspires him to unfold his colourful interpretation of the world once more.³⁴ It is very rare that such things happen in the non-celluloid world. But, it should happen more often. The celebrated Mathematician and game theorist John Forbes Nash was the subject of the Russel Crowe starrer “A Beautiful Mind”.³⁵ He suffered from paranoid Schizophrenia and yet displayed remarkable genius. I have always believed that if there was one sane person in a room full of insane people, it

³⁴Youtube link :<http://www.youtube.com/watch?v=q9o6smDsoOE>

³⁵http://en.wikipedia.org/wiki/John_Forbes_Nash,_Jr.

would be the the sane person who would be perceived as insane and outcasted.

This is the nature of things and becomes even more important in the consideration of a posthuman/transhuman world where we expect human evolution to advance beyond its current limitations. How would we resolve our conflicts in the future if we are not able to contend with our own behavioural diversities. In her article “The Misbehaviour Of Behaviourists Ethical Challenges to the Autism-ABA Industry”; Michelle Dawson has this to say about Applied Behavioural Analysis...*“Autism equals tragedy, suffering, and doom. Either autistic children are successfully treated through early intensive behaviour interventions or they are condemned to a life of isolation and institutionalization. Autism is incompatible with achievement, intelligence, physical and psychological integrity, dignity, autonomy, and learning: either you are autistic or you have access to these possibilities. Either the autistic gets ABA, and comes to resemble a non-autistic, or the autistic is doomed. Autism equals a nuclear bomb, a stroke, diabetes, a terminal illness, being "riddled with pain from a terrible accident", and again, always, cancer. If you are against ABA then you are for institutionalization. If ABA is criticized then children will be destroyed. Autism is incompatible with humanity: either you are autistic or you are human. If an autistic is deprived of ABA then he will end up being thrown to the floor and sat on by four large attendants in a group home”*. This clearly demonstrates the amount of discrimination prevalent in society for so called “differently abled” people.

Human societies throughout history have always resisted any deviation from what is commonly perceived as normal behaviour. Society has time and again felt threatened by individuals whose wisdom and independent viewpoints are so profound that they shake the very foundations of existent power structures. More famously; Galileo Galilei, the father of modern science³⁶was placed under house arrest for the rest of his life for supporting Heliocentrism. From Galileo to Ablert Einstein, there is a long list throughout human history of discrimination and prosecution for thinking differently[<http://www.wired.com/wiredscience/2012/06/famous-persecuted-scientists/>].

I think we have a long way to go before we upload our consciousness into supercomputers. I also think we are not all that noble as we assume to be; unless we acknowledge equal worth in the diversities that exist between our species in terms of culture, race, religion and most importantly; behaviour. We humans have an extremely bad habit of wanting to change all the beauty and diversity in this world to suit our stereotyped and narrow perceptions. Why is it that we cannot let things be as they are? The yearning to evolve radically is very nice. However, such an evolution must be

³⁶http://en.wikipedia.org/wiki/Galileo_Galilei

complemented with acceptance of diversity; however radical it may seem. The path to enhanced drugs that increase cognitive capacity must be thoroughly examined for slippery slopes. In fact, I would suggest that transhumanist enthusiasts be very careful when treading on issues of behavioural corrections, interpretations and techno-biological upliftment for humans and animals.

I find the current behaviour of ourselves as unacceptable. What are we angry at? Why do philosophies such as Transhumanism exist? Do they exist merely to answer the frustrations of mortality and the physical limits of hedonism? Our brains are already evolved to do wonders even without cognitive enhancement. People like Sukesh Kuttan or James Durbin have repeatedly demonstrated that the brain is capable of incredible feats that defy conventional explanation. I think it is time that society that yearns for a radical change into a postmodern world first realize and rightfully recognize the Superhumans who already exist amidst us; instead of suppressing them.

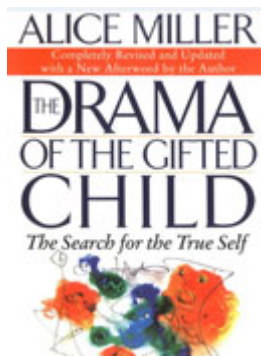


Figure 28: Alice Miller's book "The Drama of the gifted child" (1997)

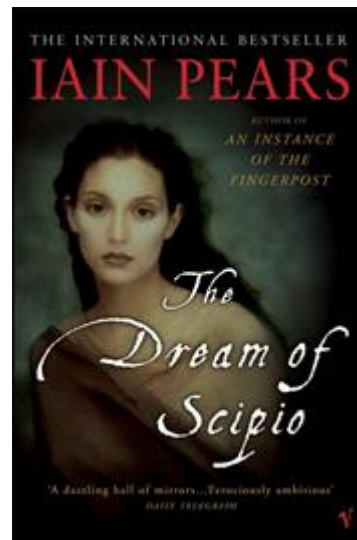


Figure 29: Iain Pears book cover of "The Dream of Scipio" (2002)

In "The Dream of Scipio" (Figure 29), Iain Pears writes "*Was not Hypatia the greatest philosopher of Alexandria, and a true martyr to the old values of learning? She was torn to pieces by a mob of incensed Christians not because she was a woman, but because her learning was so profound, her skills at dialectic so extensive that she reduced all who queried her to embarrassed silence. They could not argue with her, so they murdered her.*"

2.11 Renewable Energy and the New world

In the future, we would still need considerable amounts of energy for doing our work. But, from where do we derive our energy to carry out our manufacturing, transportation, lighting and even cooking?!?

Energy is easily obtained from non-renewable sources such as coal and hydrocarbons. However, this form of energy uptake is not forever if you consider the long term sustainability of such energy resources. These sources are becoming more and more expensive by the barrel and the cost paid by the planet in terms of environmental degradation would only come back to haunt our healthy lifestyle.

Renewable sources of energy are the most sustainable in terms of both cost and the foreseeable future. Especially for countries like my own India, renewable sources of energy offer an independence from relying heavily on oil-rich countries for oil and natural gases. Brazil has also broken new ground with its revolutionary commitment to Bio-fuels! So, in the future, we are going to see more and more countries, especially the ones from the developing world opting for renewable sources of energy which directly produce energy on site; reducing costs incurred in procurement, transportation and overall dependence and burden on the economy.



Figure 30: Photograph of windmill taken by author in Thirunelveli, Tamilnadu, India

I was travelling from Thirunelveli, a town in Tamilnadu to Kerala when I noticed enroute that a village had a lot of windmills. It was a very windy village and all around, one could see windmills of all shapes and sizes rotating gently with the wind. I later learned that it was a village called Muppandal in Tamilnadu, India which was actually a model village for India's 2 billion dollar wind energy programme. It generates enough energy for the village's works. I was amazed to learn that the State of Tamilnadu alone has produced 3216 MW of energy from wind by 2006!

In the future, no matter how glitzy it becomes with artificial intelligence or cyborgs and androids, we would still need energy. The most important criteria for the affordability of such technologies to the common people would be the energy required to power such technologies. It would be extremely important that we remember to develop technologies that can effectively make use of such renewable sources of energy. Automobiles being developed recently are extremely fuel efficient. I heard from a friend recently that an old car of the 60's used to run only for 5 Kilometres on a litre of Petrol. Compare that to an average family car which gives upto 18 kilometres for a litre of Petrol. A motorbike gives even more mileage. But, just imagine if we could have the option to switch from Petrol to say, battery power. In my city Chennai as in many others, that has also become a reality in the practical sense. There are many auto rickshaws in Chennai, which commute passengers to and fro. Most of these "autos" now run on Liquid Petroleum Gas (LPG). Most autos have a switch which the driver can use as an option to switch between his gas cylinder and his petrol tank. This to me is pretty amazing! I like such options, and I know that most of us would have loved our very first electronic calculator that used to run on both battery and solar power. Let's just hope that we have more and more of such options.

To learn more about Renewable sources of energy in Tamilnadu, India, you could visit the Tamilnadu Energy Development Agency.

CHAPTER 3

Cyborg Faith and Religion

3.1 Cyborg Mysticism

The neo-cultural demand for a cyborg body is actually not that new. People have been using the body as a means of self expression and exploration since forever. But, I have increasingly found myself believing and often advocating that the desire for a cyborg body is nothing different from the desires we have with our own biological bodies. At this point, comes the view of the mystics.

One of the biggest challenges facing the spiritual seeker is the understanding of the "self". Scientifically, this could be redefined as the exploration of one's consciousness. We do this by conscious introspection using our biological body. Perhaps the subtle body is all but the deep-seated awareness of the electrical activity that goes on within our body. Perhaps there is a deeper reason which we cannot yet measure with available technology.

Anyway, both the spiritual seeker and the cyborg enthusiast or rather "futurist" are essentially trying to transcend a set boundaries of known dimensions. In the heart of the yogi, time and space are simply metaphors and cease to exist as physical realities. In the mind of the cyborg futurist, time and space are dimensions which are to be overcome by immortality and infinite migration. Just as a yogi transmigrates one's consciousness, the internet junkie and the futurist in us transmigrate our consciousness during an internet browsing session, a virtual reality immersion game or just simply while losing ourselves to the rhythms produced by our compressed music players.

Perhaps the starkest difference between the cyborg and the mystic is belief in God. However, what is thought of as a conflict is actually a grave misunderstanding. The real frontiers of spirituality or mystical thinking dissolve the concept of God into that of complete union with all known and unknown elements of the Earth and beyond.

3.2. Cyborg body and the Human Soul

In all of the dystopian movies or the depictions of "cyborgs" in fiction, there is no denying the immense human element in each of the depictions. No matter how many nuts and bolts you cover up the body, the human within always tries to struggle out. In the movie, *ROBOCOP*, the cyborg is shown constantly fighting with its own software's prime directives to re-ascertain its core human values.

This is where a strange dichotomy sets in. On one hand, the human keeps trying to supersize himself/herself by technological supplementation/enhancement and yet only ends up becoming human again. Here again comes the question of the body mind. A cyborg may have a superior body, but the mind is still largely human. What can be done about it? Perhaps there could be an integration with a core artificial intelligence consciousness? This would mean that our entire way of thinking would change dramatically. You see, being human means that you are restricted in your actions by cultural and emotional upbringing. These values are shaped often by the society we grow up in. In the case of a merger of the mind with a technologically based decision system which can autonomously desensitize your feelings (for example, a dopamine releasing homeostatic system), then it would reduce feelings of guilt or the need to do something morally. This would then lead to rapid dehumanization. But how worthy is it?

Saints and scientists have since long tried to surpass our human status and transcend into a state where we are no longer bound by the rules of the society, culture or our biology. However, it also becomes very important as we near that omega point whether it really is worth to shed our skin and become complete cyborgs. But it therefore also becomes important as to whether you wish to retain the human values and feelings also.

Hedonists wish to amplify the feelings of pleasure through technology for the body. While this may seem very pleasurable, it also opens up the way to a population which is insensitive to pain and could certainly turn us into calculative beings who would not be able to see pain or suffering in another civilization. People like Spock in Star Trek not so much as a person except for his almost unflinching logic.

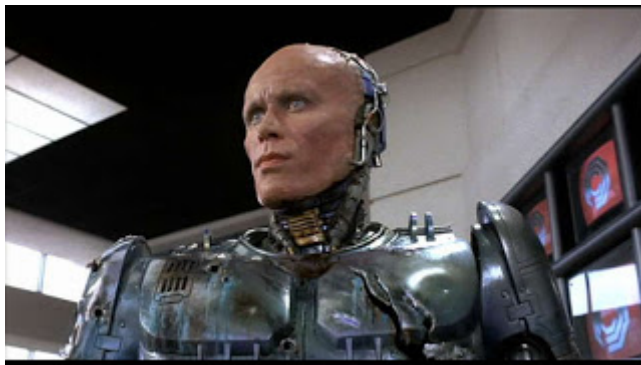


Figure 31: Still from the movie "Robocop"



Figure 32: Michelangelo's painting "The Creation of Man"³⁷

3.3.Cyborgs and Religion

Why do science fiction enthusiasts resent God so much? As a deeply religious person owing so much to my Hindu upbringing, I find it very strange

³⁷ Source url: https://en.wikipedia.org/wiki/The_Creation_of_Adam

that as we humans begin to understand the world better and better, we move ourselves proportionally away from God. Atheism is almost embraced. While I like rationalist behaviour and also strive for the removal of superstition; I certainly do not think that God or the existence of a superior intelligence can be ignored or brushed aside. Science to me is a very good way of finding God. However, I do not see Science as a substitute for religion. Postmodern times increasingly avoid faith and seek reason for all things between our planet and whatever lies beyond.

Every movement or organization that aims to address concerns of the posthuman or the cyborg is dominated by people who deny the existence of God. The atheists amongst us are hailed as heroes. I can only agree with these people for their rationalism and not for their total lack in divine faith.

I would want religion to survive. Why do people avoid religion nowadays? The most important reason is the increased commercialism and the rigidity to ancient doctrines by religious organizations. But most of us do not take the time to read the religious scriptures properly. In every religious scripture, whether it be the Bible, the Quran or the Gita, all of these offer a very detailed analysis of human behaviour and offer many answers to sustainable existence and co-existence. Yes, the language is ancient. However, the wisdom is timeless. We lack the proper people to transfer the wisdom to us.

Leave the wisdom and the faith. The thing that I love most about religious teachings is that God offers unconditional love. This kind of love is not available from the fellow members of our species in the modern world. People associate only if there is benefit or profit. The need or reason for love is seen as unrequited by these "logical" people. The result is a society which is almost saturated with selfishness and people who do not care for each other. I live in a city and I increasingly observe how people would just pass you by even if you lay down bleeding. Not even a "are you ok?". People have become too busy. Religious teachings address such selfish behaviour and offer many ways to become more ethical and respect human dignity. The western world denies this status of religion as it increasingly offers examples of hardline fundamentalists. However, I think it is the west that is at fault for failing to understand the customs and the traditions of a world that is alien to them.

Diversity is respected by religion. The posthuman world is going to be diverse. Hence, it does not hurt to let religion thrive in a posthuman world. We need love in the future as well. There is no point in becoming the very machines we create. There ends any prospect of our evolution into higher beings. This is where religion and God come in. Even if you are a criminal, you stand the chance of being forgiven and loved. This is a beautiful world we live in. It looks ugly when we are distressed. Everything is relative. The need to transcend the biological body is largely due to our limitations in terms of a finite lifespan and disease. But transhumanism or the singularity are but

words to prepare for a biological and fantastic future. It is also an important reflection of today's limitations of the personal body space and the social systems at large. It is important to be aware of this relevance, otherwise we would be lost in fantasies and spin stories about flying humans and robocops. Every dream transforms into a desire and evolves into a technology. Technologies that evolve should be relevant, otherwise they are useless toys for the so called "elite". I like cyborg technologies that put a physically disadvantaged athlete on par with other athletes. I like transhuman technology that offers every single person equal opportunities in terms of the desire and capacity to live without suffering. Religious teachings in coordination with emergent philosophies or thoughts such as transhumanism and the singularity shall guide us to a future where we are all treated equally. Let us not forget that we did have a time in our history when we sold people. Slavery still exists in different forms and this shall be eradicated.

I have been lobbying for God in transhumanism for a long time now. Even made a blog about my collected arguments. Let me put the links below :

Logic And Need For Religion For Transhumanism³⁸

Defending The Existence Of God³⁹

Further Views in Defense Of Transhumanism And The Preservation Of Religious Values⁴⁰

I have two main published papers on Spirituality and Science:

LOSS OF MYSTERY: In this paper, I have explored the unique relationship shared by Science and Spirituality. I believe that someday the practice of Science will lead us to Spiritual awakening that we seek and lead to the loss of mystery that is promised in this paper. This was published in the Mystical Bioethics Network column of the *Eubios Journal of Asian and International Bioethics*(December,2002).

WHAT IS OUR BODY?The Human body is a lot of things and I have tried to present the ways in which the body is perceived and exploited in modern society. This paper is an account of the same and was published in the Mystical Bioethics Network column of the *Eubios Journal of Asian and International Bioethics* (July,2001).

Now let us consider whether cyborgs should be religious or not, atleast for the sake of love?

³⁸<http://transhumanviews.blogspot.com/2004/08/logic-and-need-for-religion-for.html>

³⁹<http://transhumanviews.blogspot.com/2004/08/defending-existence-of-god.html>

⁴⁰<http://transhumanviews.blogspot.com/2004/08/further-views-in-defense-of.html>

3.4.My World My Way!

Most often, I find myself at loggerheads with newer versions and interpretations of ancient religions. I am a practicing Hindu and almost addicted to the "advaita" philosophy. However, I keep searching for better explanations of spirituality. The really funny thing is that when you search long enough with the conventional forms such as books or videos, you keep ending up with the same stuff over and over again. It is simply arranged in a different manner, and I think there is nothing new!

Thus the field ripens for attack by people who do not like religion so much. Rationalism is quite good but it destroys faith for ordinary people like you and me. It may be great to sit in an ivory tower with weather control and deconstruct religion to something which is very primitive.

The future should not be full of people who want rationalism alone. The future should also be a world where love continues to exist. Until now, I am yet to see a form of science which relates directly to love. The only remote thing that science has to do with love is to say that we all have DNA in common with each other. This is just so blunt. It is like saying that we all like chocolates.

I love science because to me, it is such a powerful child. It is like this kid with unlimited power and does not know what to do with it or can't wait to grow up! Religion to me is like a parent to science, guiding it. It is very difficult for reconciliation but we are getting there. Just today, I happened to come across a video about Kabala and quantum physics both coming to terms, though after 3,000 years about their perceptions with reality. Not everybody would agree with such videos since any information can be sorted into any thought line. However, it is a nice way to see how much closer we are to truth and how careful we should be to not lose our way.

3.5.Tomorrow vs. Today

I am increasingly becoming disillusioned by efforts to build a bright future by philosophizing about it. Most of the attempts to describe the future either construct it as an elaborate fantasy where everybody would be brimming with joy OR as an utterly bleak future with extrapolated visions of today's divisions. Philosophers are helping us in no regard to finding a solution. When Dr.Ian Wilmut first cloned DOLLY, there was a rage across the world and scientists rapidly scoured through thousands of philosophical references to draw frameworks for the regulation of animal cloning and eventual banning of human cloning. Most answers came from religion, but others claim that nobody wants religion. Why? Because some organised religions expressly prohibit radical freedom. However, there is a reason why religion is formulated in such a manner. A child placing it's hand in fire is bound to get hurt significantly.

I see only a bleak future if religion is left behind. Religion has evolved so much over the years. We still can look upto the scriptures for advices to our everyday modern lives. The only thing we have to look out for is superstition. Rationality seems to come to the rescue but unfortunately, it culls religion rather than refine it.

Today, all around us, people are racing towards their own success stories. All around me, I see people of all sorts and sizes fighting their way to survive. Even I am in the same race. There is a sudden change in consciousness among the people. Now, it is no longer possible to look for love amongst our fellow human beings since most associations are bartered. However, love exists among family and kin. Also, love exists in very trace amounts in people. But I am afraid the future may be devoid of love if we lose religion, faith, and simply place our beliefs on regulation of body biochemistry.

It is nice to know that modern medicine has evolved to a stage that even the abolition of natural death could be contemplated. However, it is very important to think for solutions to ease the suffering of the millions of people without adequate medical care or for old people abandoned by their often wealthy children in retirement homes.

When Buddha was a king, he could not understand why people got old. And then he realized that everybody had to get old when he stepped out. Someday, we may not age. But until tomorrow, let us mind today.

If a philosopher is really committed to the future, then he/she would strive hard in the present to apply the philosophies they come across or believe in to everyday life. Otherwise, it is a waste.

I recently posted a very strong message in one of the mailing lists I observe. Here it is :*"Apart from academic interests and philosophical circles, I really do not see a point made in these debates over how the human body or any other organism may evolve in a computerised metaverse or in the real perceived world. If however, these discussions could lead to concrete ideas or hypothesis for perhaps, cell culture technology or even cancer research leading to longevity of cells, then there is some benefit from it. Not one discussion so far has tried to draw such connections. We are simply going around the bioethics bush. Round and round the mulberry bush. What is the use of this debate to a homeless person in the street without medical attention or social luxuries? Or am I making a mistake of barking up the wrong tree here. I usually get no response for such posts of mine. This is not my concern. However, it is sad to see that we have so much collective academic potential to achieve something real in the world and we fail to do so, mindlessly talking like...how do I put it, birds flocked together in a tree before sunset.. do u hear any music in them?"*

There is a lot of pain in this world. Let us remove or atleast have the humility to accept it and see how much we can alleviate it. Throw a coin to the

next old homeless man/woman you come across the street. Give, do not just take.



Figure 33: Still from the movie "Matrix"



Figure 34: Photograph of Mahatma Gandhi⁴¹

3.5 Mahatma Gandhi : A Tribute

One hundred and thirty eight years ago, there was born a man who defied an empire. He was Mohandas Karamchand Gandhi. He is known to Indians such as myself as Mahatma Gandhi. Mahatma means great soul. He organized and led India to its independence from the British colonial rule by the most amazing method, the method of NON VIOLENCE.. which he called "Sathyagraha".

There is all this talk about transhumanism and future philosophies of transcending suffering and improving ourselves and the human condition. But I find it so superficial to say the least. This man believed in the need for every single common man and woman and child to feel the wind of freedom and liberty to course through their lungs and veins. He believed in himself and his methods and led an entire nation. He did not have huge muscles. All he had was a hand spun piece of cloth which he wore around a very frail body and a simple wooden staff to help him walk. His actions inspired two other great leaders, Nelson Mandela and Martin Luther King Jr.

I would urge everybody to read through this man's philosophy and methods which he exemplified by living them. He has proven that it does not take huge machinery or muscle power to defy oppression. There were many people who led India to its independence, but he is most remembered and

⁴¹ Source url: https://en.wikipedia.org/wiki/Mahatma_Gandhi

revered. He dreamt of an India which is free and available for all people, free of race, religion and all other differences.

I wish there were more like him instead of the armchair philosophers that are so common these days.

This is my tribute to him. I salute you Bapu.

3.6 Lost in Transcendence : A Tribute to Dr.Albert Hofmann

Dr.Albert Hofmann, the man who gave the world LSD (Lysergic acid diethylamide), popularly known as the addictive psychedelic drug, "acid" is dead. He discovered the drug and intended that it would be used properly and carefully with respect. A similar person who proposed the use of drugs to explore our mind with drugs died in 1996. He was a controversial person who proposed drug use to transcend consciousness. His name was Dr.Timothy Leary and he was perhaps the most respected and yet, one of the most controversial figures of drug culture. I do not intend to glorify these gentlemen. However, I do wish our society could have learnt something more from them instead of prosecuting them to seclusion and infamy. These were people who were unique because they wanted us to transcend, to realize the possibilities.

There will be several more chemicals which will allow the human species to transcend and remove deficiencies. Men always thought that erectile dysfunction was to be accepted once they became "old people" until Sildenafil citrate (VIAGRA) came along. Men and women throughout the world thought that they could never stop getting depressed until Fluoxetine hydrochloride (PROZAC) came along. Hundreds and thousands of such remarkable chemicals are being discovered and tested in the R&D laboratories of the world. The only thing pending is our acceptance. However, just acceptance does not suffice. There are many slippery slopes in the path to human transcendence and the path is particularly much more slippery when technology comes to lend a hand. Dr.Albert Hofmann's LSD was accepted in the beginning as a fantastic medication for mentally ill patients. However, it soon became very much similar to Dr.Alfred Nobel's Dynamite and still continues to haunt us.

One of the most important things we must learn to accept in order to transcend into transhumans, cyborgs, superhumans or whatever transcendent being we want to call ourselves; is that we are nothing more than an organism composed of flesh and bone. We carry out our lives as bodies composed of biological cells aggregated together into an organism. Once we begin to understand this; both humility and the passion to transcend would be sown into our minds with double the effect. A revolution could come about in our species if we could cast away our cultural entanglements and understand that our human nature and our human bodies still has a lot to improve.

Having written all of this, I must now state that most of us are merely enthusiastic voyeurs of consciousness. On the one hand, there are radical libertarians or even extreme hedonists who wish to slip easily into the deepest and most exciting realms of the consciousness using synthesized chemicals. On the other extreme of the human spectrum are ascetics who seek the same extremes using renunciation and extremely difficult meditations.

I am very sad to say to both these extreme forms of human nature have in fact wandered away from things that need more immediate attention. More and more news stories are about drugs that help men have better sex or other cosmetic purposes.

Very little news about drugs that help combat AIDS or help reduce the pain of Cancer patients comes up. Why? because we don't want to listen in to news that causes pain. Instead, we want to hear about exciting things! Sadly, I have found recently in my own experience that there is less and less news about AIDS research on television. The latest fashionable crisis seems to be climate change. Wonder when this fad will pass on?

If humanity as a whole is seriously interested in transcending per se, then it must do so in a balanced manner. It does not matter if a new world order is going to be set up. Such global conspiracies bear no meaning to a malnourished child without education in a warn torn African country. Party and club drugs mean nothing to a teenager seething in rage against nations that discriminate him/her on the basis of religious values.

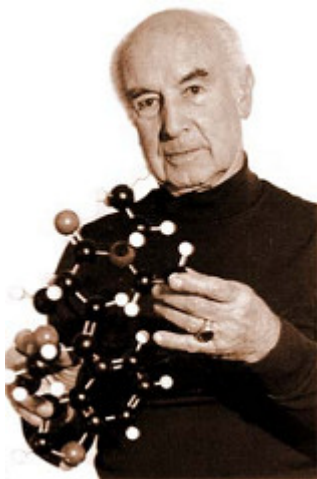


Figure 35: Photograph of Dr. Albert Hofmann



Figure 36: Picture of a Buddha sculpture

Buddha tried renunciation to the extreme and found that he would die without so much as a whimper or a glimpse into what he was seeking. He then chose the "middle path". He has since found out one of the ways of transcendent existence. We could have followed him. Instead, we have

dissected his teachings and built concrete palaces for him outside instead of within our hearts.

I am quite sure that many other Bob Marley's, John Lennon's and Leary's would come and go. But we would always be interested in their "coolness" and "rebel" nature instead of their "message of love" or the need to look beyond discrimination and monetary interests.

This was somehow my tribute to a scientist who with good intention discovered a potential chemical gateway to transcendence; which sadly has again been sucked into the darkness of human nature instead of into the light. I hope we come to look at the therapeutic uses of such drugs instead of mindlessly indulging into the "easy road".



Figure 37: Picture of Bob Marley



Figure 38: Photograph of Cyclist Lance Armstrong

3.7 Lance Armstrong, Performance enhancing drugs and the resurrection of a fallen hero

Much of the world loved to penalize World Famous Cyclist Lance Armstrong and strip him off his seven Tour de France titles. The man who became famous enough to take a leisurely bicycle ride with former US president George W Bush was reduced to all but nothing overnight. Why? Because it was proven with much room for speculation that he had enhanced his body's oxygen transfer capacity using EPO (Erythropoietin)link. This might have given him an unfair advantage over other players. However, in a sport where the majority of players are known to take some form of performance enhancement drugs (PED's) invariably; the extreme damage done to a man who campaigned relentlessly for Cancer survivors throughout the world.

It is the way of this world isn't it? It loves throwing stones at the slightest instance and is reluctant to forgive and forget even when that person is unlike any other athlete in a similar situation. In "Why Lance Armstrong still matters" , Rich Kaalgard puts this in very good perspective as :"\$470 million. That is the amount of money the Lance Armstrong Foundation has

raised since 1997 to help people in the fight against cancer. The Foundation has helped 2.5 million cancer survivors with free patient navigation services. There are more than 1,000 grassroots Livestrong Day events held in 65 countries annually to support the cancer battle. Was it all a lie? Who cares. Cheater or not, has any athlete done more with their fame than Lance Armstrong to benefit other people?"

The anatomically gifted Olympic swimmer Michael Phelps is naturally born and is allowed to compete even with his unfair anatomical advantage in the Olympics. How is this being allowed? Is the world biased towards or suffering from a primitive form of the next wave of discrimination? We will have to wait and see.

We don't want "perfect heroes". Just like the Dark Knight, we should learn to embrace Lance Armstrong as he is a rare beacon of inspiration in an otherwise bleak world. Like his famous book "It's not about the Bike"!!! I'm sure Lance is going to come out of this pitfall too!

CHAPTER 4

Critiques On Emergent Cyborg Technologies

4.1. Cochlear Cyborgs : The Human issues surrounding Cochlear Implant Technologies

The five elements (earth, air, fire, water and sky or cosmos) make up this known world. The world in turn is perceived by us with our five senses (sight, sound, touch, taste and smell). This interaction between us and these elements demand a constant functioning of all the five senses. Each of these senses is unique and has its own importance in the overall sensory experience. In the orchestra of the world attended by the body, the removal of just one sense is enough to throw the experience out of sync. The loss of synchronicity with the beauty of this world because of sensory deprivation causes a tremendous sorrow which cannot be expressed. Such is the agony of an artist who can no longer see or that of a musician who can no longer hear. Beethoven, a legend then and now in the world of mortals left us with immortal musical compositions, some of which were composed even when he was completely deaf. He was in indescribable agony for having been denied the pleasures of hearing his own compositions. His life was dwelt in constant pain over this sensory deprivation from the passion which he most embraced, music. In the now famous letter which he sent his brothers named Heiligenstadt Testament, he writes:

"O how harshly was I repulsed by the doubly sad experience of my bad hearing,...but what a humiliation when one stood beside me and heard a flute in the distance and I heard nothing, or someone heard the shepherd singing and again I heard nothing, such incidents brought me to the verge of despair, but little more and I would have put an end to my life - only art it was that withheld me, ah it seemed impossible to leave the world until I had produced all that I felt called upon me to produce, and so I endured this wretched existence - truly wretched, an excitable body which a sudden change can throw from the best into the worst state ... O men, when some day you read these words, reflect that you did me wrong and let the unfortunate one comfort himself and find one of his kind who despite all obstacles of nature yet did all that was in his power to be accepted among worthy artists and men".

The above notes of personal grief were written in 1802, a time when the biological body had no choice but to accept what was bestowed unto it by random replications of genetic material and the quality of society. Now, in the year 2007, two hundred and five years later, the modern Beethoven has a ray of hope.

Human hearing is perhaps not comparable to certain other members of the fauna of our planet. However, within our species and for routine

interaction with the world around us, our hearing is as adequate as can be. We can normally hear frequencies of sound between 20 Hz and 20 kHz. However, this range of hearing ability deteriorates with age, exposure to sounds during one's lifetime and a variety of other factors. The biological ear is not as immortal as the sounds that resonate through it. The functioning of the ear is like a sophisticated receiver sending the vibrations from across the air to the brain. The ear functions much like a relayed computer in carrying the sound to the brain. The outer ear which we see outside collects and concentrates the sound waves sent to it. This then gets transferred to the middle ear which processes the different noises and translates them over to the Inner ear. The Inner ear is a fluid filled chamber, also known as the Cochlea, where these sound messages are translated from waves in the fluid, into nerve impulses, which are then received by the brain. The brain, thanks to a sophisticated network of auditory nerves, receives this information which it then interprets into coherent sounds. So, we either scream in agony over loud music or smile with content at the sweetest melody.



Figure 39: Photograph of Beethoven⁴²

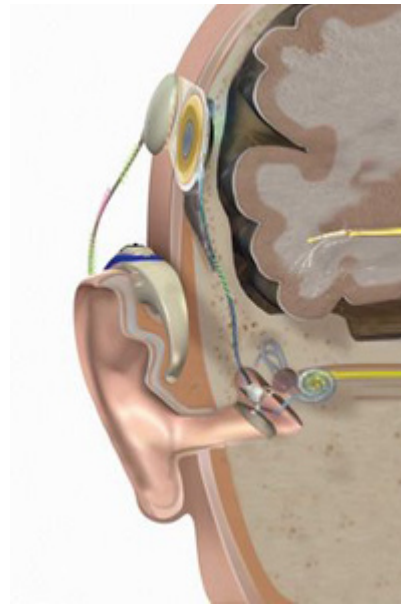


Figure 40: Diagram of a Cochlear implant⁴³

But, what about people with extremely limited or no hearing ability? Technology has the answer in the form of what is known as the Cochlear implant. It is usually recommended only for people for whom other forms of therapy to restore or improve hearing is unfruitful. While the conventional hearing aid amplifies the sound received by it into the ear, the cochlear implant directly stimulates the auditory nerves of the cochlea. This electronic device is surgically inserted into the skin just behind the person's ear.

⁴² Source url: http://farm2.static.flickr.com/1286/1005772835_39d6be9495.jpg?v=0

⁴³ Source url: http://farm2.static.flickr.com/1307/1005712765_6374777699.jpg?v=0

Externally, the device consists of a microphone that picks up sound from the environment which is then filtered by a sound processor to cancel out non-essential noises that are not required before sending to a magnetic pad transmitter placed behind the external ear. A receiver and a stimulator surgically placed inside the person's bone just beneath the skin, converts the sound signals sent to it by electromagnetic induction into electrical signals which are relayed to extensive array of electrodes (16-24 electrodes in a regular model) wound around the cochlea of the natural ear. The electrodes are programmed to strobe on and off to mimic the activities of the auditory nerves, thus sending this information directly to the brain. The patient trains himself/herself over time to decipher the noise as coherent human speech.

I recently came across a post in the World Transhumanist Association's mailing list, wta-talk. In it was posted a popular member's account, or rather chronicle of his experiences with a cochlear implant. I was very interested and asked him for more details. He sent me a 272 page document detailing his everyday events with a cochlear implant. Frank Forman is his name and he terms himself as the "cochlear cyborg" in his chronicles. While too huge to include here, here are some of the highlights of his chronicle that thoroughly interested me. Frank is a lover of music and of the many dynamic human relationships in the world around him. In his chronicles, he painstakingly details how his perceived philosophical world is shrouded in a blanket of sounds which he hears and understands sometimes, but not all the time. However, with training his hearing is steadily improving. Much of the cochlear implant's ability to decipher sounds can be improved by software or by increasing the hardware efficiency, especially the number of electrodes stimulating the cochlea. However, the most striking requirement of the cochlear implant is the amount of time and effort required for rehabilitation after the surgical procedure. Any amount of residual hearing left is completely lost after the implantation procedure. What one hears initially is something akin to noise which the user then trains themselves to decipher as human speech or even music. In Frank's case, he had a cochlear implant and it did seem to work fine for him during conversations. However, he like many other implant receivers found it rather difficult to listen and enjoy music in the same way that a person with a "meat ear" would hear. The number of channels offered by the cochlear implant is usually eight compared to a little more than 3,000 channels perceived by a functioning biological ear with its fine hair arrangement. However, this is enough for a person who wishes to restore their ability to hear human speech in conversations. The latest models can accommodate up to 121 channels and it is only a matter of time and technology before the cochlear implant is able to completely substitute for all the channels available to the biological ear and perhaps more! Within Frank's chronicle, I found him referring the reader to the struggling experience of yet another implant recipient's relentless pursuit to

make himself hear a rendition of the famous classical musical piece "Bolero" by Ravel.

Cochlear implant technology has come a long way and can now be implanted into people as young as five months. Bilateral cochlear implants (implants for both ears) are increasingly becoming popular. Children with extreme difficulties in hearing can have cochlear implants implanted so that they learn to adapt much better than getting implanted in later stages of their lives. However, as with other technologies, cochlear implants have a host of social, philosophical and technological problems and issues. The first and foremost of these is the opposition to cochlear implants by the "deaf culture". Deaf culture was created among people who were "deaf" and learned to live their lives with dignity in their own unique ways. The members of such a community prefer to remain deaf for their own reasons. But, what I find disturbing is some of their rigid opposition to technology that can remove deafness or other hearing problems completely. Though still in its infancy, cochlear implants are sure to someday substitute for a disabled biological ear completely. In essence, I would not crusade to "convert" members of the deaf culture to change their views on their condition. As progressive human beings, we must learn to co-exist, if not appreciate the diversity in culture. The advocates of deaf culture have learned to link themselves to the world with their unique mannerisms, sign languages and rights. This is to be respected at its most fundamental level; the members of such communities do not consider their condition as a disability; but rather, as a defining quality. If we respect the reservations of the members of deaf culture, would it also be possible for deaf culture to not interfere with or oppose promising technologies such as cochlear implants? The ultimate decision should rest on the individual in whose head the implant is going. Informed consent in this matter is also not very easy especially if the implant is for a young child.

Perhaps the formation of cultures is an adaptive measure to enable survival of certain communities with different abilities. Right now, opposition to technologies such as the cochlear implant may find success owing to the implant's own technological inconsistencies. While Michael may have found "Bolero" at long last, Frank is yet to find audio reception of such fidelity with his own implant. This is the tale with every new technology. Cochlear implant technology is less than a 100 years old. It is important to receive extensive feedback from the millions of patients who are given these cochlear implants every day. Opposition will reduce such useful feedback. Even more challenging is minimizing the loss of any residual hearing ability left after the implant. We are still far from technology that allows to switch between cochlear implant and the biological ear at the turn of a dial. Nanotechnology and stem cell research offers such promises and soon it may completely possible to rebuild the neural connections that were previously absent or

deficient. Current research into contour cochlear implants strive to preserve residual hearing.

Transhumanism

The polar opposite of Deaf Culture's reluctance to embrace cochlear implants is that new breed of philosophy, Transhumanism. Transhumanism by itself can be seen as a cultural movement where people would like to utilize advanced technology to radically normalize, enhance or substitute their biological bodies in an ethical manner. If you had the ability to uplift the human condition via technology, then why not? Bionic ears, eyes, nose, all the five senses and perhaps even more disabled senses could be awakened through technology. People should have the right to modify their bodies to interact with society in the manner they choose.

Transhumanism goes several steps further, sometimes in ways that are too political. However, this is inevitable in the pursuit of any method to improve the way which we live. For example, transhumanists could advocate the right to re-modify the genetic makeup of children before they are born to suit the requirements of say, a particular community. On the favourable side, we could say that the child's genetic modification is to protect the child from a lifetime struggle against disease or disability. However, since the yet unborn child is not consulted and a host of other inconsistencies exist regarding the issues of informed consent, these genetic therapies still lie on the border between hardcore transhumanism and more established bioethics.

We require radical philosophies such as transhumanism to actually address the ethical issues that creep up on us as new technologies emerge. Cochlear implant technologies are becoming commonplace and the recipients of this technology are facing challenges in a society that has been so far designed without reservations for such issues. Counselling is a time honoured technique to acquire informed consent. Most societies do not have the money to do this sort of commitment. Sweden has a well established system to monitor pre- and post-operative procedures for recipients of Cochlear technologies. However, unlike a large portion of the world, Sweden can afford to spend on such resources.

Ableism

Many of us know a close friend who's abilities are different in some way. Or the person reading this may themselves be differently abled in some way. I still remember my friend who was much older than me and yet "deaf". We used to communicate so well and I saw nothing different about him except that I had to make elaborate gestures to make him understand. As a good friend, I also saw the sadness in his eyes which could not be concealed in his brave smiles when he communicated. He was also "mute". He was severely challenged in society and found it very difficult to get a job. The real world is

very cruel in its discrimination. Noble ideas very rarely exist outside of books. This means that it is absolutely essential for every person to come to a level playing field. I understand the dignity of people who wish to remain “deaf” and engage the world on their own terms. But, not everybody has the luxury to revolt, especially if a disabled person is extremely poor and has a family to support in a social system which offers little or no welfare.

Technology shall come to the rescue of such people. Cochlear implant technology is a way by which a person can participate in a society dominated by people who can “hear” and converse without sign language. The opposition to such implants should be practical. A person who cannot hear cannot expect that everybody in the world knows sign language. Such a person has to become self-sustaining. Why should they depend on another person to engage the world. Cochlear implants are not an enhancement where the person wishes to have superhuman abilities to hear extreme frequencies of sound. These are people who struggle everyday in a world where their dignity is challenged continuously either consciously or unconsciously. Let them become independent. Only when the technology grows rapidly can it also become cheaper. Let the technologies evolve to a stage where we each may desire to have a cochlear implant to enable us to understand the diverse languages that enter our ears, thus not just addressing disabilities. It is not at all immoral to transform into “cochlear cyborgs” to hear the sweet sounds of life again. It is only human to do so. Beethoven would approve.



Figure 41: Comic representation of a frozen man⁴⁴

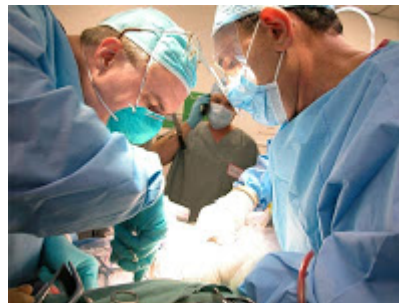


Figure 42: Surgical process for cryopreservation⁴⁵

4.2 Think before you Freeze! - A closer look at Cryonics

So you want to be a cyborg? Good for you! If you want to be a cyborg by toting the latest Bluetooth headset while conversing fluently with five different people in five different continents, then it is possible right now. However, if you want to fly to the moon all on your very own cybernetic wings and pressure resistant skin; you my friend have to wait for a future

⁴⁴ Source url: http://bp2.blogger.com/_lawXq-xzYRU/RpuY1R2ID1I/AAAAAAAAAHc/eRLpJZr6WWI/s1600-h/frozen.jpg

⁴⁵ Source url: http://bp0.blogger.com/_lawXq-xzYRU/Rpuj8x2ID2I/AAAAAAAAAHk/OtLCB7XnQj0/s1600-h/cryonics-3.jpg

when this technology becomes practical. How does one wait for an infinite future with a finite lifespan?

One of the most promising solutions at hand for witnessing such a future with our own eyes is to cryonically suspend our bodies after death until such a time when revival becomes possible. This mindset obviously means you have to let go of all your pre-conceived notions of heaven and earth and the liberation of the soul from the body.

Now there are people who will freeze your body after death and store the preserved body until such a time when technology to revive and restore would become possible. This brave new area is called Cryonics. It is known as the science of low temperature preservation of the human/animal body until possible resuscitation in the future. (click here for Wikipedia entry on Cryonics) . Okay, let me put it in very simple terms. When you freeze meat, the water turns into ice crystals. These ice crystals may tear the tissues and blood vessels of the meat while they form. Imagine that happening to a dead human body aspiring to be a future cyborg? So, that's where Cryonics comes in. It aims to do this freezing or rather preservation process with radical technologies such as Vitrification to freeze you (the aspiring cyborg) slowly so that step by step, molecules get frozen without ice crystal formation. This makes revival easier, especially for blood vessels. This technology is already happening as can be seen in Cryobiology. 2004 Apr;48(2):157-78, Cryopreservation of organs by vitrification: perspectives and recent advances by Fahy et al.

Also, I suggest to read *Cryonics Comes of Age* by Ben Goertzel⁴⁶. So, why don't all aspiring cyborgs just sign up for freezing themselves up in the hopes of being woken up in the future where they can transform into their favourite avatar! I think the most important thing is the mindset. One has to let go of all current social norms, religious customs, even risk of disrepute to indulge fully into such a venture. As of now, hardcore transhumanists, science fiction fans and people who have a strong faith in the future of technology indulge and have signed up with Organizations which take care of such needs such as the Cryonics Institute or ALCOR.

⁴⁶http://www.goertzel.org/benzine/Cryonics_longer.htm



Figure 43: The container in which body is cryopreserved⁴⁷



Figure 44: Comic representation of preserved head⁴⁸

For a fee which is a little more than modest, such organizations take up the service of preserving your body for a fee for possible future revival. In case you don't have enough money to freeze your whole body, you can freeze just your head!!!

I took it upon myself to read the Cryonics Suspension Agreement of the Cryonics Institute to get an idea of what a person who was freezing himself after death was signing up for. I was a little disturbed to read the following points from that agreement. I am pasting those clauses below and let me put up front a personal disclaimer that I do not mean any disrepute on the Cryonics Institute. It is just that I found these points disturbing.

Under Section 3 of Duties of the Patient. Point No.f"*The Patient consents to CI's use or dissemination of information regarding the Patient's cryonic suspension according to CI's sole discretion, and consents to CI's use or dissemination of the Patient's medical history as found necessary or useful, in CI's sole judgement, to the performance by CI of this Agreement.*" This point disturbed me since it questions a person's right to privacy even after death. It could be justified as informed consent but how much so?

Worse was this line in SECTION 5: WARRANTIES Point a. "*CI does not warrant that the Patient's cryonic suspension shall be successful; in particular, CI does not warrant or represent that the Patient can or shall ever be revived or rehabilitated, that the cause of the Patient's death can be reversed, that future social institutions will permit the Patient's revival, or that the methods used to cryonically suspend the Patient will or can be successful. All of these prospects are completely uncertain, and CI and the Patient have entered into this Agreement with full knowledge of this uncertainty.*"

⁴⁷ Source url: <https://alcor.org/>

⁴⁸ Source url: http://bp0.blogger.com/_lawXq-xzYRU/RpuoJx2ID4I/AAAAAAAAAH0/GgAP0ziSoKU/s1600-h/freezer.jpg

No matter to what length the agreement goes, this one line was enough to totally confirm my fears that a person does not really have any way of being sure that his/her body will every be attempted to be woken up if at all it were possible. A bio-luddite will have a field day with these clauses and perhaps they already are having one. But, I find the consolances offered in the FAQ's of these service providers not too convincing.

Borderline science is a nice way to describe these things. They have mostly drawn their inspiration from our fascination with such themes and our instinctual drive to live forever and witness the world through all its cycles.

Some popular movies with a Cryonics as a main theme are represented in Figure 45 and 46. *Minority Report* is a movie where Prisoners are kept in suspended animation in a giant prison that is arranged like a cylindrical file cabinet! In *Demolition Man*, people who do crimes are cryo suspended and while they are in suspension, they are subconsciously trained to become compatible citizens!



Figure 45: Scene from the movie "Minority Report"⁴⁹



Figure 46: Scene from the movie "Demolition Man"⁵⁰

However, Cryonics may very well diversify or rather develop further than just reviving dead bodies to more solid research for living people such as:

1. Suspended animation in low temperatures maintaining minimal homeostatic functions while engaged in long term space travel for astronauts.
2. Improved technologies in food preservation, germplasm storage which draw from research results achieved in cryonics.
3. Preservation of Vitrified cloned organs of oneself in a personal organ bank!

I am not against the idea of reviving dead bodies at all. In fact, there are several "patients" right now in cryo-suspension waiting to be revived. But, the future is very uncertain. It could become the benevolent future where posthumans would feel obliged to wake up their ancestors in suspended animation. Or, they may simply choose to use these bodies as educational specimens for how biological bodies used to look like. It's what we do with

⁴⁹ Source url: [https://en.wikipedia.org/wiki/Minority_Report_\(film\)](https://en.wikipedia.org/wiki/Minority_Report_(film))

⁵⁰ Source url: [https://en.wikipedia.org/wiki/Demolition_Man_\(film\)](https://en.wikipedia.org/wiki/Demolition_Man_(film))

frozen fossils of ancient human ancestors anyway! We put them in museums. The argument here would be that we do not have the technology to revive these perfectly frozen ancestors. But once revived, to whom would they belong? Do they have their own dignity and rights? In the Cryonics suspension agreement, there is a clause which says that disputes and other issues are to be resolved with respect to the State of Michigan. However, once a patient wakes up, there may indeed be no state of Michigan in a future!

As for me, spiritual transcendence is my loftier goal. I don't really mind if I don't get to see the future. I just want to understand. I am happy with that. But to those of you who want to preserve your bodies to witness physically a future utopia, Think before you freeze! Further reading of two conflicting common viewpoints regarding Cryonics can be seen in the *Scientific American* critical article on Cryonics called Nano Nonsense and Cryonics. Alcor published a response to *Scientific American* in their website! The arguments will always exist. It is up to people to decide what to do with their bodies.

4.3 Dreams to be projected and Minds to be conquered, the next best thing to the Android phone!!!

When was the last time you had a beautiful dream? What if you could record it and play it back on a TV over and over again? It surely would be great if I could record all my favourite dreams. Let us explore our fantasy a bit further and think about showing others our dreams and visions. It would have been awesome if Martin Luther King Jr or Mahatma Gandhi or Karl Marx projected their incredible dreams for a utopian and non-discriminatory humane world!

We have already entered the visual communication age where we are more influenced by what we see than what we read. Business and academic presentations simply wouldn't work now with just a whiteboard. Somebody in the audience would eventually make a passing comment on why a visual presentation isn't accompanied so they could understand better. The fact that cell phones which can accommodate presentation software are more preferred is testament to this fact. In fact, now we have cell phones and digital cameras that can project images and presentations. All you need is a wall and maybe that too would no longer be necessary.



Figure 46: Photographic collage of Brain connected devices

So what's next? How about simply transferring our dreams and thoughts onto the computer and projecting them for the world to see?!? Seems like the Science fiction movie "Total Recall" where the main protagonist is subjected to a treatment where images are fed into his head. However, it is no longer Science fiction. It is going to be real. From what I could see, there are at least two distinct groups working on this. For years now, Electroencephalography techniques have established that the brain has distinct patterns which can be measured and interpreted as specific activity in response to distinct stimuli. We are now gradually but surely going towards controlling the devices around us with just our thoughts. From video games to wheelchair control, brain controlled electronic devices is the next wave in user interface technology.

The wave that is to come once this brain computer interface technology is mainstream is going to a Tsunami! And, the ripples have already begun forming as early as 2011. The technique now being used to make the first images of our thoughts and dreams is Functional Magnetic Resonance Imaging technique. The promise of these technologies have been demonstrated by at least two different researchers at two different ends of the planet. One is Dr. Yukiyasu Kamitani of the ATR Computational Neuroscience Laboratories in Kyoto, Japan and the other is Prof. Jack Gallant and his team of researchers at the University of Berkeley, California. They have both been able to record dreams using algorithms that match brain patterns at different levels of consciousness with a database of most probable images.

The uncovering of the consciousness would be extremely interesting. Many years ago, I had argued that people in Permanent Vegetative States (PVS) actually could have very minute but active brain activity that we are not yet technologically capable of measuring. These technologies could mean that we are definitely getting there and this would revolutionize the way we deal

with our current definition of "brain death". Of course, the commercial applications of such technologies would range from street level fantasy games to forensic applications.

Ethical issues associated with such technologies would probably be one of the last frontiers on the pervasion of technology into our private lives. Our thoughts could be stolen just as Christopher Nolan showed us how in the movie "Inception". Intellectual property would no longer be intellectual. Perhaps in a dystopian future, we might actually have to move around with thought shielding helmets or else pay a premium price for thought security services!!! Anything is possible including the capability of handing over or grabbing control of another's willpower. Imagine walking into a seminar in the future where you can actually become self motivated by changing your brain wave pattern!!!The ride down the slippery slope has already begun...Hold on.

4.4 Branding yourself electronically with Electronic Epidermal Systems

It seems just like yesterday that Prof. Kevin Warwick of the University of Reading, UK took that bold step to implant a BrainGate device onto his median nerve in his forearm to be able to control electronic devices. The road further down has revealed a fascinating bunch of technological features. Now, researchers at the University of Illinois at Urbana have developed what is called an "Epidermal Electronic System" (EES) which is a bendable electronic device that uses the molecular force on skin cells for adhesion. It even boasts of a power source small enough to power it. Interestingly, these could quite soon replace identification tags or become alternatives for Biometric systems. Come to think of it, party goers could now be given a fancy tattoo with a hidden electronic circuit in their arms. Healthcare monitoring is just the beginning. There are also electronic circuits that are integrated with your skin.

While the Epidermal Electronic system does have its own bendable power source which can be built into it, other parallel efforts at powering such devices are also on the way to fruition. This is especially true in the case of development of an inner ear battery by MIT's Eye and Ear Infirmary (MEEI) and Harvard's MIT Division of Health Sciences and Technology (HST) to make self powered implantable devices. This device for the first time has tapped into the naturally present region with electric potential for its power requirements.⁵¹

There are some emergent ethical issues stemming from these technologies. I can already guess the EES system being potentially used to tag artificial organs and corporate patients in hospitals. Even now few of us would refuse if a hospital insisted on using an epidermal electronic tattoopatch on us for their patient inventory system. Informed consent has just taken on a whole new different set of meaning. However, the advantages

⁵¹<http://web.mit.edu/newsoffice/2012/biological-battery-1107.html>

far outweigh the fears of social discrimination and eugenic nightmares. Systems such as Epidermal Electronic devices could eventually help in timely drug delivery especially during medical emergencies.

These technologies are the offshoot of continued innovations in materials research. For example, it was the work on enabling electronic circuit printing on flexible substrates that eventually led to the EES. Wonder what comes next?

4.5 Technology getting under your skin and the ethical scratches therein: An Overview of Bioethical Issues stemming from Implantable RFID microchips

It is always important to understand the reasons we subject ourselves to different technological applications. For example, it may be absolutely essential to have a cell phone. However, it may not be so essential that the cell phone be loaded with the coolest video games. Likewise, while it is very important for implantable device technologies to evolve, their applications would have to be carefully monitored.

RFID tags have been used for several years now in industry for asset tracking and inventory control. Even the clothes we pick up from a mall have small RFID tags on them that is used to protect the shopkeeper against theft and pilferage. In fact, RFID tags are being sold for livestock identification and branding in a very normal way. But we don't bother about it unless it starts getting under our skin.

In more pleasant times, wearing a medical bracelet would be a welcome idea. The medical bracelet or even a flashcard with our medical information would be absolutely essential in times of a medical emergency where our conscious participation in the treatment process may not be available. It is even welcoming that healthcare systems in countries such as the USA may have actually begun to encourage implantable devices that can track and monitor patient activity.

More recently, a controversial RFID chip much akin to what Prof. Warwick implanted himself with did the rounds in popular media. Hailed as the next level of ensuring patient safety; the VeriChip quickly became infamous among religious and cultural circles which were not entirely unfounded (Figure 47).



Figure 47: Photographic collage showing embedded devices (Source url⁵²)

A major concern was that it could lead to tumours or infections in the biological system. Whilst this may not seem so obvious in a clinical situation i.e., the sterile environment of a hospital; it is very much likely that other establishments may not follow such stringent aseptic measures whilst implanting such devices. The quality of the materials may also not be of the highest quality if used commercially. The funny thing is my fears have already come to fruition. In a famous night club, VIP passes include implanting the patron with an RFID implantable chip [Read More here about the Baja beach club RFID implants in Barcelona]. It was a clever way to gain the attention of the media but leaves open a large amount of questions. I have always had a very serious question when it comes to implantable chips. It is made of glass and if the person bumps that part really hard against a surface, could it not lead to serious internal injury even at the skin level? The broken glass shards would be extremely difficult and painful to pull off with a tweezer. Interestingly enough, the modified Chip is now FDA approved. This must mean that they are safe. But safety eventually depends on where and how it is applied.

I would very much doubt the sanctity of anything biologically intrusive being applied in a noisy ill-lit place such as a nightclub. Another fear is that our medical data would be sold and bought within the information market for marketing and other purposes. There really is nothing much we can do about it unless Bioethicists really wake up. Stringent measures in healthcare where the patient is in control only happen in countries with the best healthcare facilities and where they are available. In most other cases, these technologies

⁵² Source url: <http://4.bp.blogspot.com/-mPLRttb3VPw/UQZlvpffIVPI/AAAAAAAAABEU/YGxlw6VCEBo/s1600/collage-implant.png>

would be eventually adopted into the healthcare system without so much of a whimper.

In many ways, such technologies would actually speed up certain processes. But, it is important to decide which are the processes for which the speed is required and for which it is not. For example, it doesn't matter much in a medical emergency if the insurance company blocks patient data sharing with a particular hospital owing to corporate tie-up issues or for a particular patient who forgot to pay his/her dues.

Implantable chips would become better and we would also have the choice now to choose between implants and epidermal electronic systems (see my previous post on EES : Branding yourself electronically with Electronic Epidermal Systems). Also, implantable chips are in the prototype stages which have bundled features of identification with real time biosensor capabilities (check out Positive ID Corporations GlucoChip for monitoring blood glucose levels). Some underlying issues remain such as one raised in another blog (PositiveID Implantable GlucoChip RFID Technology Continues-Submitted to FDA for 501K Approval).

But just as my hopes rise up, my dystopian fears also crop up. Fears of a "Repo men" scenario resurge when I hear that Medical devices such as pacemakers and cosmetic devices such as breast implants are being enabled with RFID tags to enable smoother processing of patient data. Insurance companies are going to have a field day with scanning all their defaulters very quickly. Naturally, legislations would be in place to protect the interests of individuals against threats to their inherent privacy and dignity. For example, states in USA have passed bills protecting against forced implantation of microchips (California Bans Forced RFID Tagging of Humans).

I do not wish to state that we avoid allowing technology getting under our skin. However, we should only become aware of the amount of control we have over the electronics that we allow to merge with our biological bodies. So far, the biological body with which we are born is the last frontier for any sense of self-identity. Violation of the human dignity with intrusive proprietary technology may only be allowed under dire or highly essential circumstances. I just hope it does not become as casual as sharing personal information on an online social network only to be gobbled up by info-seeking companies. It really has started getting scary now that technology is getting under our skin!!!



Figure 48: Photograph of recipient of Continuous flow heart (Source Dailymail,UK)

4.6 Cyborgs can live without a pulse : The amazing story of the new techno hearts that literally drops your pulse!

It is very rarely that technological evolution undergoes a sudden shift from the natural progression of things. But some technological approaches are completely unprecedented and defy if not break convention. The continuous flow artificial heart is one such technological innovation that has almost surely destroyed the convention that it takes a beating heart to keep a person alive. Developed originally as a VAD (Ventricular Assist Device) for failing hearts by Dr. Bud Frazier and Dr. Billy Cohen (both from the Texas Heart Institute); this continuous flow device actually defies anything close to what you would define as normal behaviour for a biological heart! The discovery is simply Serendipity at its finest

The following are lines from the popular article on their story from Popular Science, *“And here’s where the story gets spooky. In November 2003, Frazier installed the newly approved Heart Mate II to assist the failing heart of a young man from Central America who barely spoke English. His family members spoke none. So none of them fully understood Frazier’s instructions to return to the hospital frequently for follow-up. The young man walked out of the hospital and disappeared.*

When he finally showed up eight months later, Frazier held a stethoscope to his chest and was stunned to hear no heartbeat at all. None. Even more-

sensitive instruments would have found nothing resembling a pulse. The young man's heart continued to flutter weakly, but it had effectively shut down. Although the Heart Mate II had been designed to assist the heart, not replace it, in this case it seemed to be doing all the work: not just helping the left ventricle push oxygenated blood to the body, but pushing the blood hard enough to flow through the body, then back through the useless heart to the lungs, through the useless heart again, and into the pump to complete the loop and begin the process all over again. The reason the young man had never come back for follow-up, he told Frazier, was that he'd felt perfectly fine."

Wow! Now, efforts are on by means of testing on animals (especially calves) with much success. They even kept an elderly. Initially, artificial hearts mimicked the biological heart's "pump" mechanism to lug blood throughout the body. However, this posed the difficulty of compactness and the need for enormous energy sources.

The most important motivating factor till now for the development of such devices is the need to sustain the person's life till he/she receives a transplant. However, devices such as the continuous flow heart even dare to question the working of the conventional heart. These doctors say continuous flow is indeed much better for the body than the conventional pumping of the biological heart!!! Being alive with a decent quality of life is all that matters in the end, it shouldn't really matter if this can be achieved without a beating heart or a pulse. With nanotechnology, micro-electronics and miniaturized energy sources; we are just at the cusp of their individual breakthroughs, it will only be a matter of time before these devices come of age. In the distant future, a flatline may literally also just mean that the person has a continuous flow heart!!!

4.7 We are the World! How modern neuroscience is revisiting the Vedic borders of the "self"

Brahma satyam jagat mithyā, jīvo brahmaiva nāparah
(Brahman is the only truth, the spatio-temporal world is an illusion, and there is ultimately no difference between Brahman and Atman(individual self).

This is one of the most famous among 580 other verses in a famous Sanskrit poem (Vivekachudamani) written by Adi Shankaracharya, the revered Indian Non dualistic philosopher from India. The verse consolidatively embraces the Non dualistic Advaita philosophy in Hinduism, which makes more sense now than ever!

Ancient philosophers such as Adi Shankara determined through intense meditation practices, the innate neural perception we have of our body in relation with the outside world. They had often hinted on how we should turn inward and realize the oneness of our consciousness with the world around us. The neural body map that we possess and cling on to firmly right from birth could in fact be an illusion! The thought of "us" ending in the

limitations of our body may just be an illusion created by the process of natural evolution as a survival instinct. We may all in fact be sharing one consciousness and one universal objective. What is even more interesting is that unlike the active perceptions felt by the mystics, we might just be unaware of the passive neural networks we have already established amongst ourselves. All we have to do is close your eyes and concentrate inwardly till we realize this oneness. *Or, you could just turn to neuroscience!!!*

Neuroscience has already made many skeptics uneasy with revelations that out of body experiences (OBE) and the feeling of an invisible presence could be induced by devices such as Michael Persinger's God Helmet. Olaf Blake and other researchers from the University Hospital, Geneva, Switzerland published a paper linking OBE and selective activation of the temporoparietal junction (TPJ) by Transcranial magnetic stimulation (TMS) [Linking Out-of-Body Experience and Self Processing to Mental Own-Body Imagery at the Temporoparietal Junction, Blanke et al., The Journal of Neuroscience, 19 January 2005, 25(3): 550-557; doi: 10.1523/JNEUROSCI.2612-04.2005]. Neuroscientific investigations into Temporal Lobe Epilepsy have led to uncovering of hyper-religious behaviours such as the Geschwind syndrome further studied and proven by Neuroscientists such as Vilayanur S. Ramachandran using Galvanic Skin response studies. Neuroscientific studies into fascinating new conditions such as Body Identity Integrity Disorder (BID) where people actually wish to amputate their limbs; could possibly be due to a distorted perception in their neural body maps.

Keeping the above in perspective, it is to be noted that a silent revelation is taking shape that much akin to Adi Sankaracharya's poetic verse on non dualism. In an increasing pool of scientific research being done on a group of neurons hailed as "mirror neurons" or "Gandhi neurons" ; a group of neurons and their combined recorded activity is being hailed as the reason we are able to imitate, influence and empathize with others. These neurons are now being researched in several different angles. While Prof. Marco Iacoboni at UCLA's Brain Mapping centre of David Geffen School of Medicine pioneering research into mirror neurons focuses on connecting with others and empathizing; Dr. Miguel Nicolelis and his team have been working with using these neuronal signals to transmit Monkey brain signals across continents to eventualize specific tasks. The most recent breakthrough involves connecting two rat brains across continents, forming the first direct brain to brain interface between two animals without any sort of direct physical connection between them. This is probably the closest to studying or re-creating telepathic abilities that science has come.

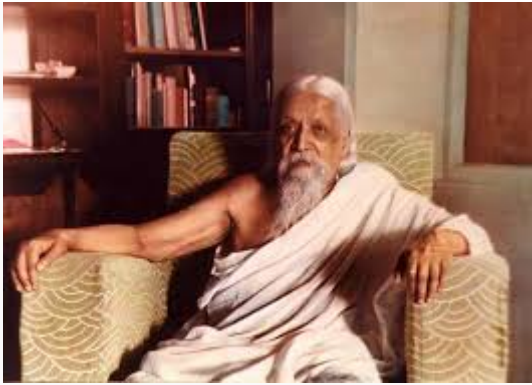


Figure 50: Photograph of Swami Aurobindo, India⁵³

All of these revelations proven parallel by scientific experiments increase the possibility of actually being one consciousness and increasingly coming to terms with the shared responsibility over global issues such as Climate change and eradicating poverty. This is a path to our evolution so beautifully described by another Indian spiritualist, Sri Aurobindo who lived in more modern times. His Discourse of the Triple transformation of the Human being is described as being through three stages; 1. Psychic transformation, 2. Spiritual transformation and 3. Supramental transformation (click here to read more). In the final stage of Supramental Transformation, he tells that "Sensory function operates independently of the sense organs and sense-mind, gaining awareness of all things on all planes" as one of the abilities that shall be acquired by us. This has been realized before by Ancient Indian Mystics such as Adi Sankaracharya and is being manifested as a common achievable reality through the advances in Neuroscience.

So, it was an interesting journey through the Big Bang and Natural Evolution to understand where we begin. *Might it be a good idea to read the ancient scriptures to find out; where do we end?*

Om Asato Maa Sad-Gamaya |

Tamaso Maa Jyotir-Gamaya |

Mrtyor-Maa Amrtam Gamaya |

Om Shaantih Shaantih Shaantih ||

(1: Lead us from Unreality (of Transitory Existence) to the Reality (of Self),

2: Lead us from the Darkness (of Ignorance) to the Light (of Spiritual Knowledge),

3: Lead us from the Fear of Death to the Knowledge of Immortality.

4: Peace, Peace, Peace.)

⁵³ Source : https://en.wikipedia.org/wiki/Sri_Aurobindo

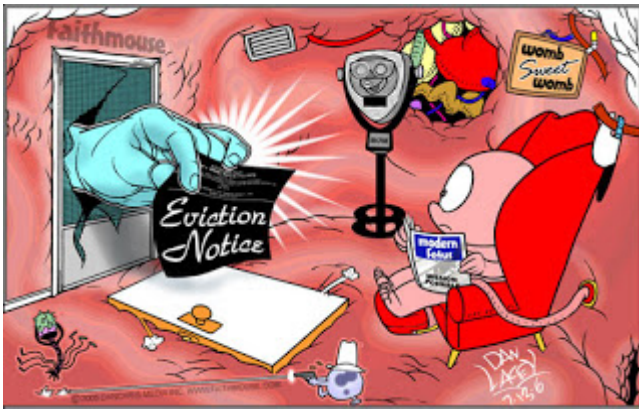


Figure 51: Comic representation of Baby being brought out before full gestation period (Source url⁵⁴)

4.8 Born on Time! The new Bioethics of Elective Caesarean with a twist of Cosmic intervention

Do you know the time you were born? If you are from India, it becomes culturally imperative that you possess atleast a residual memory of your birth time. It becomes even more important if you are a fervent believer in the Hindu astrological system which bases its calculations on the time of your birth. These calculations are about the trials and tribulations awaiting you and how best to confront a lifetime of permutations and combinations that are unique due to your horoscope. Thus, hope and depravity in an individual's lifetime is attributed to his/her time of birth. Until recently, there was nothing you could do about a person's time of birth. There remained an inevitable surrender either to an "unavoidable destiny" or to "pre-predicted lucky and prosperous" life. You were born on a certain day and time and that was it. But, now thanks to the C-Section, the entire game has changed.

The belief in one's horoscope and its calculations based on the time of birth are not at all new. *What is new is a growing trend that is most interesting to observe; as a clever evolution of an evolving postmodern society that still refuses to forgo traditional belief systems!*

Many expectant couples in India seek the advice of an Astrologer to pre-meditate the birth time of their child through elective caesarean (CDMR); to coincide with an auspicious alignment of the stars. Simply put, the surgical procedure originally intended to reduce complications in natural child birth, has just become a lifeboat to Astrological bliss! There are even websites replete with auspicious birth timings for each month of the year!

The practice of Elective Caesareans are already so rampant that they have become a means of generating loads of money by scrupulous hospitals in a blatant neglect of the most basic Bioethics. Unsuspecting parents are technically intimidated with the pressure of medical jargon to go for elective caesarean. In fact, the process is so out and about that medication given to the

⁵⁴ Source url: <http://www.faithmouse.com/cartoon199.jpg>

pregnant woman is actually to prepare the child for a caesarean. You can read more about it here.

However, I personally feel it is completely absurd to go for elective caesarean in order to bring out the child at an auspicious time, while practically endangering the life of both mother and child. In fact, it is a gross violation of another Bioethics code of rule wherein the right to be born at a medically appropriate time is denied to a child. There are several other debates that can be brought into this forum including the issues of Personhood and Informed consent.



Figure 52: Comic representation of Soothsayer⁵⁵

I hold no regret against modern Astrologers who have adopted methods ranging from predictive software to consultations over Skype, much in the fashion of their western evangelical counterparts. However, when an Astrologer believes or makes you believe that the rules determining cosmic destiny of an individual can be manipulated by a surgical procedure, it is tantamount to the highest reaches of unethical conduct. This is a line that Astrologers should not cross. It is completely unethical.

A human being is a biological entity and is entirely dependent on his/her basic genetic code, socio-cultural environment and life experience. The concept of a pre-determined destiny cannot be entirely ruled out given the incredible things that are being discovered in the quantum universe every day. However, assuming that this were true, any manipulation would then mean a disruption of the fabric of space and time in the Universe!

So, which is the greater evil? Manipulating the expression of certain genes so that the child becomes naturally inclined to be successful or manipulating the birth time? Each option has its own unique moral twists which is going to generate several interesting debates in the coming times.

⁵⁵ Source url: http://whatwasthatyetagain.files.wordpress.com/2012/02/psychic_cartoon.jpg

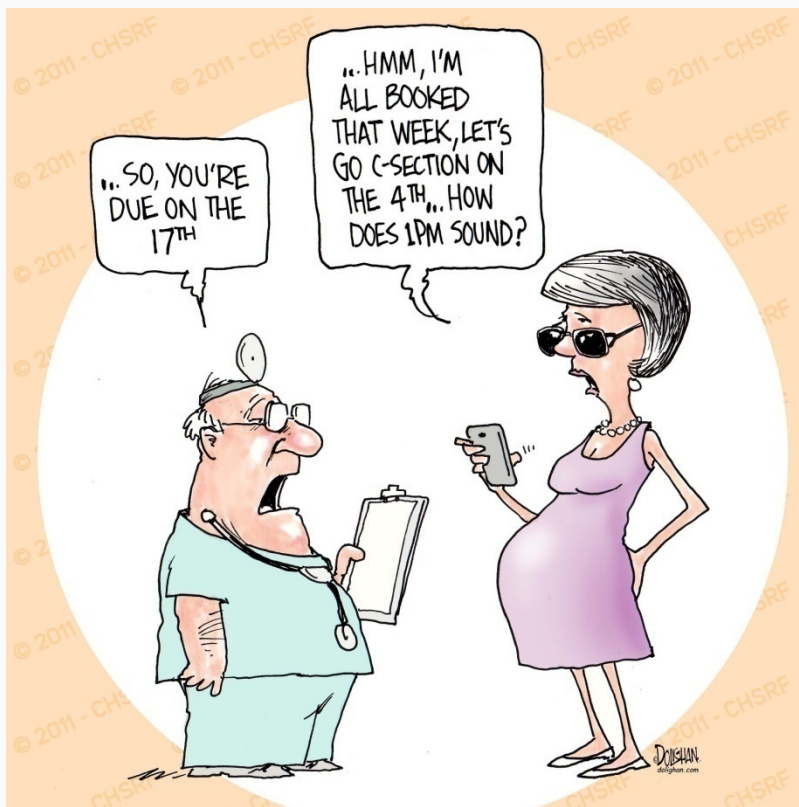


Figure 53: Comedy on child birth⁵⁶

4.9 Upload your Real body to a Virtual Avatar!

Imagine you, a die hard Cryonics enthusiast waking up after 1,000 years into a computer simulation. As per current speculations, you would first need an avatar to interact. The currently available virtual world, Second Life already has a similar place where you can upload your real life picture and obtain a close likeness in your virtual avatar. However, you can always do this yourself. As with the real world, there are service providers who do this for you for a fee. I visited this cool place called Avatar Island in second life and found that there is a machine to do this sort of thing. I have made a movie of my visit to the place. I did not take up the service. I simply cannot afford it. But, the note card I received for the process is quite interesting especially if you consider second life to be a very close and accurate extrapolation of a future existence:

Thank you for choosing the CyberExtruder face creation service for you avatar. This simple and fast process will automatically prepare your new face texture within minutes. The steps involved are as follows:

- Pay the sign in front of you; \$2700L for one face, \$4000L for 2 and \$5400 for 3
- After you complete the lab machine process, you will receive a personalized webpage link, click it
- Follow the guidelines on the web page to produce the best results

⁵⁶ Source url: <http://www.cfhi-fcass.ca/Libraries/Cartoons-Copyright/CSection-EN.sflb.ashx>

- The system will prompt you to locate a photo on your computer for uploading
- Within a minute or two your new face will sent to you by email
- To apply the face texture to your Avatar: upload the image file (File -> Upload Image) then apply it to your character using Face Tattoo under Edit Appearance

IMPORTANT: Make sure you have modify rights to the skin you will be wearing with your face **BEFORE** you begin. If the skin is not modifiable the face tattoo option won't be available once you have uploaded your face.

NO REFUNDS

Please be warned, the future may not be entirely free.

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About the Author



Dr.V.R.Manoj earned his PhD from Anna University, India (Centre for Environmental Studies) for his work on Environmental Biotechnology in the year 2010. He was awarded the prestigious UGC JRF Research Fellowship for Meritorious students for his PhD research work. He has Bachelor's and Master's degrees in Microbiology from the University of Madras, India, a diploma in Plant Tissue Culture from Loyola College Chennai in India, and a postgraduate diploma with distinction in Bioinformatics from SISI, Government of India. He has worked in the Bio energy Industry as an R&D Senior Executive Officer for over a year, before entering

Academics in 2012. He has over 17 peer reviewed publications, 15 national and international presentations, 52 Online Video lectures, over 50 science articles, 2 Books and granted 1 patent. He has authored over 100 articles on Bioethics and related issues. Dr.V.R.Manoj is a founding member of the Indian chapter of Humanity+ (formerly the World Transhumanist Association), the Publicity secretary for the All India Bioethics Association. He was an Affiliate Scholar for the Institute of Ethics and Emerging Technologies during 2010 to 2012.

In 2000, Dr.V.R.Manoj and the founding president of the All India Bioethics Association, Dr.Jayapaul Azariah put forth their idea of "Cybofree" in the Sixth International Tsukuba Bioethics Roundtable (TRT6) 27-29 October, 2000 held at the University of Tsukuba, Japan. He has continued his explorations into the Cyborg future of humanity through the All India Bioethics Association, the Institute of Ethics and Emerging Technologies and his own techno progressive blog "Cyborg fantasies". His specific interests in transhumanism include Life extension, Geoengineering, Green Engineering, Metaverses and Environmental issues of the postmodern future. He currently heads the Department of Biotechnology at Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, India. He also volunteers as the Publicity secretary for the All India Bioethics Association.

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