

EMANCIPATION FROM DEATH

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In the time that it takes you to read this sentence, at least 10 real people will die, some of them helpless children, and some in horrible pain. Every single day 24,000 people die of starvation; 6,000 children are killed by diarrhea; 2,700 children are killed by measles; and 1,400 women die in childbirth.

[1]

All told, more than 150,000 humans will lose their lives today. Some of them will be elderly, of course, but why should that be a death sentence? Even worse, tens of thousands of youthful adults and children will be lost tomorrow – and the next day, and the day after that – to preventable or curable illnesses simply because treatment is not available to them. Must we accept this daily horror? Is it really necessary? I believe it is time we start fighting back; the good news is we are.

Each day significant progress is being made to defeat disease and reduce suffering. In addition, work is well underway to understand the aging process and someday eliminate it.

As Robert Ettinger has said: “Being born is not a crime, so why must it carry a sentence of death?” [2] In the appeals court of science and technology, the summary execution of every human being may soon be overturned, hopefully within your lifetime.

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UPSETTING THE 'NATURAL' ORDER

“This is hubris,” some tell us. “Death is natural, and we must not play God.” [3] Yet ever since the earliest human donned an animal skin, we have used our native resourcefulness and creativity to enhance our security, comfort, and efficacy; from the loincloth to the toga to the modern suit, from Ben Franklin’s bifocals to contact lenses to laser eye surgery.

In modern marketing, products are commonly promoted as ‘natural’. But what is natural? And what is unnatural? By the most precise definition, everything that occurs in our world – whether synthetic or not – is natural, because humans are a part of nature and therefore the products of our hands – or our machines – are also part of nature. That is not, however, the meaning of ‘natural’ that most people intend. Rather, they are referring to products, events, or occurrences not made or caused by human beings. Thus, milk would be classified as ‘natural’, while Kool-Aid would not. (Never mind that the milk we buy in cartons at the store has been pasteurized, homogenized, and vitamin fortified.) Less trivial debates surrounding the word ‘natural’ arise when considering enhancements that might be made to human beings, especially when we talk of defeating death. It is interesting to note that numerous other scientific measures to improve the human condition have initially been scorned as unnatural and intolerable by many,

only to be later accepted almost universally. Examples include anesthesia, blood transfusions, vaccinations, birth control pills, and organ transplants. Consider what our world might be like without these and hundreds of other improvements that may not fit the popular definition of 'natural'.

Tooth decay is natural – should dentistry be outlawed?

Polio is natural – should we ban the Sabin vaccine? Cholera

is natural – should we allow epidemics to rage unchallenged?

Death is natural – must it continue to wreak its dreadful

havoc? Clearly this is foolishness. Of course we should use all available means to better human life. We have been doing it for ages with fire, farming, steam, electricity, antibiotics, vaccines, dental prosthesis, organ transplants, etc.; and we should not stop now. If modern science and technology can safely improve the human condition by overcoming natural limits, including aging and death, then they should be used to this end. Determining whether something is good or bad simply by asking whether or not it is natural does not follow common sense.

All this is not to say that we should ignore the moral and ethical challenges that confront us. Questions of safety, propriety, individual choice, and societal responsibility must not be dismissed, but must be considered gravely and at length. Issues of overpopulation, reproductive rights, resource distribution, and environmental impact must be addressed forthrightly.

This can only be done, however, in an atmosphere of openness and progressive thinking.

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For those who still believe that opposing death is somehow wrong or unnatural, please remember that opposition to human slavery was also once considered crazy and dangerous.

Arthur C. Clarke has written:

Every revolutionary idea evokes three stages of reactions:

At first people say, "It's completely impossible." Then they say, "Maybe it's possible to do it, but it would cost too much." Finally they say, "I always thought it was a good idea." [4]

Clarke's amusing observation is exactly on target. Staying with the analogy of human slavery, note that throughout most of history (and, no doubt, prehistory), it has been common for some humans to own other humans. [5]

The movement toward recognition of freedom as a fundamental human right is relatively recent. During the drafting of the U.S. Constitution, its framers debated how to handle the so-called 'slave issue'. This was at a time, recall, when many nations, particularly those in Western Europe, had already abolished the practice. Although a large number of American leaders abhorred slavery, totally eliminating it was widely considered to be "completely impossible". [6] As U.S. history proceeded and opposition to slavery grew, the debate changed

to one of practicality. People said, “Maybe it’s possible to do it, but it would cost too much.” A few generations after a bloody, costly, destructive and painful civil war, descendants of Americans who once owned other humans would say about abolition, “I always thought it was a good idea.” When the time comes – and it will – that humans are no longer enslaved by death, leadership on this issue will be recognized for what it is: courageous, honest, and humane.

Biotechnology and nanomedicine may hold the promise for us to live forever free from illness, disease, and physical disability; always youthful and vigorous; free to do whatever we want with our lives; liberated from the constraints of ill health and physical frailty.

In addition to the obvious hope of living without death in human bodies, there are numerous other ways we can imagine extending our lives. One way is to inject our personality into a virtually indestructible robot. This might be done by physically relocating the brain from our frail, vulnerable body and implanting it into a robot; but more likely it would be done by making a digital copy of our brain and downloading all the information into the robot. This method has the advantage of being able to preserve a backup copy of our personality, as insurance against the remote possibility that something catastrophic might destroy our robot body. This really would make us effectively immortal, as we could store copies of ourselves

in places all over the solar system, the galaxy, or eventually even beyond.

SIMULATING IMMORTALITY

It is a loathsome and cruel trick that nature takes such an exquisitely wondrous creation as the human brain and imprisons it inside the weak, inefficient, fragile, and short-lived structure that is the human body. Our bodies may be beautiful, but they are unacceptably ephemeral.

The body you now inhabit, however remarkable it may be, is not the product of intelligent design. It was not created for any purpose other than survival and reproduction. We are conditioned by social and biological forces to favor the appearance of the human form and to be attracted by its outlines and contours. It is therefore a natural reaction – although not necessarily a rational one – for us to be repelled by any substantial deviation from the standard model. That’s why most of us cringe (at least inwardly) at the sight of a person with a disfigured face or missing limbs. It also explains why many people are repelled by the thought of replacing the natural human body with one of artificial design and creation.

And yet, why not? The body we were given by nature is the result of millions of years of meandering and directionless change. It is the product of a tortuous, cumbersome, slow and dumb process called evolution. The human body was not designed for our optimum enjoyment and benefit; it became

as it is now basically by accident. Nature, given its leeway, would continue to blindly experiment with us. Following the random cues of genetic mutation, our bodies would slowly evolve, gradually becoming something different.

In contrast, we humans are highly intelligent creatures and have reached the point where we can take the future development of our bodies into our own hands. Using our minds and the marvelous tools we are now making, we can produce a new form – or many new forms – for the body. We can design to suit our own purposes and preferences.

In the past, engineers developing new prototypes for aircraft, automobiles, or ocean liners would create scale models and then evaluate the performance of their concepts in wind tunnels or other testing media. Modern engineers find it easier, cheaper, and more effective to do the same type of testing in simulated environments. Using powerful computers and highly sophisticated software programs, they can learn precisely how their creations will perform under a variety of conditions.

As a way of experimenting with possible new designs for your posthuman body, you will likely do the same thing. Instead of going to the trouble of building your new body molecule by molecule and then determining whether it is satisfactory, you can create a simulation in a virtual reality environment and test it there. The exciting difference is that you will not be

limited to observing the simulation as are today's engineers.

Rather, you will be able to inhabit your virtual body and know firsthand how it will react, perform, and feel.

The next step is obvious. If the simulation is powerful enough, the experience of occupying the simulated body should be indistinguishable from conventional physical reality; it will be virtually the same – hence the name 'virtual reality'. Then why not just live there? Assuming you can have all the experiences of the 'real' world – plus many more that you could never have – and that you will still be able to see and touch and interact with the people you love, why not just stay?

Many humans today might recoil from the idea of living only within a virtual realm. But from a philosophical perspective, there is truly no difference between the experience of inhabiting a sufficiently advanced simulation, and the everyday life that we experience today. Consider this: our current physical bodies can be thought of as organic robots. They go out into the physical world, carrying a brain/mind/personality/identity around inside. My organic robot body sees, hears, touches, smells, and tastes for me; it transmits those experiences to my brain through electrical pathways; parallel processing computation within my neurons and synapses results in a pattern of thought so complex and elegant that it generates meta-cognition, or self-awareness. I think it is 'me' that is out there in the world enjoying direct sensory

experiences, but it is not!

The part of me that is really me – the part that is my consciousness and my personality – can never have such direct experiences. Gray matter has neither hands, nor eyes, nor ears, nor mouth, nor nose. My brain must rely on an indirect interface to apprehend ‘reality.’ That interface can be the physical body I now inhabit, it could be a tele-robot exploring the surface of Mars, or it could be a substrate of computation providing a ‘simulated’ environmental experience.

The point is that everything we experience is simulated.

Nothing is immediate. Over the next few decades, as we spend more and more time in virtual environments, our definition of reality will change. It is conceivable that within a century or less, many human personalities may be living full-time in cyberspace, inhabiting myriad simulations.

They will undoubtedly discover new sensations and emotions we cannot even comprehend. Will their lives be less ‘real’ than ours today?

It seems likely that millions of people, if not billions, will make just that choice. Does this sound like science fiction?

Perhaps so, but current trends in computing technology suggest this could start to become a reality within as little as 20 or 30 years from now. [7]

THE UNIMAGINABLE FUTURE

Here’s another fascinating question. If living in one body is

good, why not have two? If two is good, why not have three or four or five? Why not five hundred or five million?

World Future Society President Edward Cornish has said,

In our most imaginative fantasies, we cannot anticipate

all the extraordinary possibilities of the future for

us humans and whatever creatures come after us. The

wildest speculations of today may be the facts of tomorrow,

and our human potential is not only greater than

we think but greater than we can think. [8]

Imagine for a moment inhabiting multiple bodies; not

merely having a variety of bodies to choose from, like suits of

clothes in a closet, but being in many different bodies at the

same time. One of the bodies might be the one you were born

with; others might be duplicates or clones; some could be

substantially different, perhaps designed to fit a specific environment;

a majority of them will probably be robot bodies or

virtual bodies.

What will be your experience of personal identity when

your consciousness is spread over many different substrates?

Will you still be you? Will you choose to maintain, as much as

possible, simultaneous awareness in all the bodies at once? Or

will it be preferable to allow your bodies to function autonomously

with an occasional, perhaps daily, synchronization of

your experiences and realignment of your identity?

It is even conceivable that in the future we will be able to

simulate the personalities of people from the past – whether celebrities, historical figures, or loved ones – and relate directly with them. It is also possible that you might (with their permission, of course) choose to integrate one or more of these identities into your own.

You may also someday accept the invitation to become part of a meta-being by subsuming your identity (or maybe a copy of your identity) into theirs. Some have speculated that the long-term evolution of posthumans must follow this pathway into integrated immortal super-beings. [9]

Whatever happens, it is clear that the future will be much stranger – and far more wonderful – than we have ever imagined.