

The Future

Out there in the darkness there is a
horrendous tread and a reverberating thumping
on the gate. There is something trying to
enter but we are afraid.....

- Laurens Van der Post

Are you interested in the future?

Some of you might reply with another question – Isn't everyone? Well no, most people aren't. We're living in a time when most people have their eyes very carefully averted from the future. Science Fiction films may get a big turn out, but it's mostly for the entertainment factor. It wasn't for nothing that George Lukas placed the *Star Wars* films in another galaxy 'far away, and long ago'. Those films were not about the future at all. Neither was *The Matrix* (let's hope), except as a reflection of our deep fear of the future*.

When the British/South-African writer Laurens Van der Post said those words near the end of his life, he was referring to a gigantic change he saw coming in the world's religious sensibilities. He thought the old religious thinking was bankrupt, while something new and threatening to our old comfortable order was already at the gate, demanding to be let in. But what is about to come in is more than new religion.

Fear of the future is evident in our behaviour. I'm convinced that our extravagant appetite for entertainment, and the never-ending party mood of our time, are both an outcome of that fear.

I've been fascinated with the future since I was thirteen years old, when I began to read the dazzling science fiction of the 40s and 50s. Those stories, and all the marvelous knowledge that has come through the sciences decade after decade, convinced me long ago that AI and robotics will play a huge role in our future. But recently I realized that I was out of date with AI. The public doesn't want to know about it, so the media has lost interest in it. When a major film, Steven Spielberg's *AI*, tackled the subject head on, it got a pretty cool reception**.

So last year I began searching for a book that could bring me up to date on AI. I found it in spades – Ray Kurzweil's stunning, provocative, sometimes funny, sometimes frightening, always fascinating book *The Singularity Is Near*. Six hundred and fifty-two pages long, it is a real encyclopedia of the near future.

Kurzweil is a successful robotics expert who has been writing books about robotics and AI in which he has demonstrated a good record for predicting the future. He wrote this one because he saw that most of us are sleeping-walking into the future, a way of entering it that could prove disastrous. For, although most of us have our eyes averted from the future, we are marching uninhibitedly and directly into it. New technologies, drugs, surgeries, genetic procedures, etc arrive almost daily and receive almost no resistance. If we continue this lemming-like unthinking advance towards the future, we may be sorry.

Back in the 1950s, John Von Neuman, an 'information theorist', made the observation that if technology continued to evolve at a steadily accelerating pace there would come a time when that evolution would go beyond acceleration – it would reach a critical point where there would be a technological explosion - the Singularity.

Kurzweil and many others in his field believe the Singularity is now approaching (his predicted date – 2045). Because of this, he says our century will not simply be another hundred years of technological progress – it will be 20,000 years of progress.

In other words, the future is going to come all at once. If faster than light space travel is going to be possible, it will probably happen in this century. Super-intelligent robots, some with humanoid bodies barely distinguishable from ours, may fill the streets by mid-century. Most of what science fiction writers expected to come in the 23rd, 24th, 25th centuries, etc, is probably just around the corner.

Let me give you another example. The brains of living creatures have enormous computational power. The PC you have at home has less computing power than a mouse. You would have to buy a Cray supercomputer to get into the mouse's ballpark***.

But by 2020 Kurzweil says it is reasonable to expect that for \$1,000, adjusted for inflation, you will be able to buy a PC with the capacity of a human brain. Imagine what that will be able to do, operating on its non-human paths.

By 2030, for the same money, you will buy a computer with the computing power of 1,000 human brains. By 2050 he says that money will buy a computer with more thinking power than all the human brains on earth. That will be your home computer. What a supercomputer will be like is beyond imagining.

Do you see what is about to happen? If there are no gods now, they are coming soon. If there are gods already, what on earth are they going to make of these upstarts created by the human race?

Are you concerned that we will be no match for AI and robots, that they will simply replace us? The science fiction of Isaac Asimov tried to reassure us about super-intelligent robots. They would be subject to the Three Laws of Robotics****, devised by Asimov to prevent robots from deviating from their programmed mission of serving the human race.

Kurzweil thinks Asimov was wrong. He admits that super-intelligence, by its very nature, will be uncontrollable. So we better make sure that it's on our side. And to do that, we better start working on that relationship right now.

But as far as being left behind, Kurzweil isn't afraid of that. He believes we will keep pace with robots and computers by progressively altering our bodies and minds – if artificial limbs will do a better job, then we will have artificial limbs. If chips installed in our brains will enhance our intelligence, then we'll put them in. If mind enhancing drugs will assist the process, then we'll take them.

Not me you say? You will refuse to become something other than human? Well, I'm with you, but Kurzweil's confidence that the majority of people will embrace future technology is not unfounded. Look at the enthusiasm for things like Botox and Viagra – and if one day you require a chip implant to get a job you want, or need, what are you going to do?

Kurzweil argues that this change is the natural path of humanity. When our minds and bodies are by the 2030s more technological than biological, he insists that we will still be human - for by that time there will be a new definition of what it is to be human.

There is more. Nanotechnology. This is supposedly necessary to combat pathogens and cancer cells inside our bodies. Never mind that our immune systems are already doing that, and doing a good enough job that the population of Homo Sapiens is out of control.

There are many issues with nanobots, but the big one is the 'grey goo' concept. Replicating nanobots get out of our bodies and into the environment, which they then chew up as they replicate exponentially. Someone has calculated that they could, in theory, consume the biosphere in 3-4 hours. Trying to be reassuring, Kurzweill says in practice it would probably require a few weeks.

If that isn't a good enough argument to ban nanotech now, I don't know what is. But Kurzweill says it's already too late. He says the research and engineering needed for nanotechnology can be done in a basement. So we should start preparing our defences now. That means nanobot police that will patrol the environment (and your body) looking for rogue nanobots. And who will police them?

But there's more to the future than robotics and AI - Kurzweil has written another book – *Live Long Enough to Live Forever* – in which he recommends keeping yourself healthy so you can take advantage of the technology that will soon make human beings immortal, or at least allow us to live hundreds of years.

That's not a preposterous idea. Decades of cancer research have led to an increasing understanding of the aging process programmed into our genes. Someone has pointed out that when we reach the point where cancer is just a chronic illness, research money for that vast industry will dry up. If the cancer people want to keep their jobs, they will have

to find something else just as compelling – many think that will be aging. Much of that research is already underway. Sometime in this century they will probably find the key that will allow the aging programs in our cells to be turned off (cancer cells are rebels who have learned to turn them off already).

Is immortality something we want? I don't think so, but this issue is so far-reaching that I'm going to deal with it separately. Before the end of April you should find a link to a new page at the end of this one.

Kurzweil is a talented, entertaining writer. He makes the book more accessible through a series of conversations among a delightful cast of characters. These include Molly 2004, a sensitive, skeptical, intelligent woman from the year the book was published, Ray (Kurzweil himself), Sigmund Freud, Molly 2104, a woman of the future who is both human and AI, who lives inside and outside bodies, downloading herself into whatever body suits her at the moment, and who is an expert on future sex, Charles Darwin, the 19th century scientist who developed the theory of evolution, and, last but not least, Nedd Ludd, the young man who, in the 19th century, was the inspiration for the Luddites, those working-class rebels who formed a guerrilla army and roamed Britain at night destroying factories.

This group has periodic debates, with Kurzweil and the future people defending the technology of the future, the others expressing their fears and critiquing Kurzweil's ideas. Kurzweil is the writer, but this does not result in the bias you would expect.

Their last conversation is telling. Kurzweil defends his view that the technology of the future will be equal even to the task of controlling replicating rogue nanobots loose in the environment, etc. Though he fights valiantly for an optimistic view of the future, Molly 2004, Darwin and Nedd Ludd make mince meat of his optimism, and we are left in a dark limbo, facing the looming future.

Let me say it now – everyone who is capable of level-headed thinking should be thinking about this. I don't expect everyone to get Kurzweil's book, but don't ignore the subject. There is a debate going on that we all need to join. The future is coming whether we like it or not.

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* Are you aware that readership of science fiction magazines and novels is at an all-time low? Doesn't that seem strange when there is an enormous future beating on our door, threatening to knock it down and come in whether it's invited or not?

** *Wall-E* fared better, but I'm afraid most people don't realize that an animated film can be taken seriously. Video stores put it in the Kids section, but it's not just for kids. Don't

be fooled by the two robots falling in love with each other. That may well happen. It is well accepted now by robotics and AI engineers (at least those on the cutting edge) that intelligent robots are going to need emotions if they're going to understand and relate to humans.

***Yes, a mouse is doing a lot of thinking. To sniff the air and analyze the scents in it requires an enormous amount of computing power - so does walking and running on four legs - or on two.

**** The Three Laws of Robotics:

- (1) A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- (2) A robot must obey any orders given to it by human beings, except where such orders would conflict with the first law.
- (3) A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.