

# HOW WILL THE ARTILECT WAR START?

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This chapter attempts to predict with a greater level of detail than I have in the past (in writings and videos) how I think the Artilect War will start. It should be obvious to anybody that if I am correct in saying that a great war is coming, killing billions of people (gigadeath) over the issue of species dominance (i.e. should humanity build artilects (artificial intellects, godlike massively intelligent machines with mental capacities trillions of trillions of times above the human level) or not) then these events will be the most significant to happen to humanity this century – a realization that is both humbling and extremely sobering.

Before I start making predictions, giving more or less a step by step timeline on how I see things heating up, leading eventually to war, let me begin by spelling out the issue, that lies behind the biggest question of the 21<sup>st</sup> century (i.e. “Should humanity build artilects?” thus relegating human beings to species number 2 on the planet). I’m a numbers person. Now that I’m formally retired, I spend my time making YouTube lecture videos and electronic libraries in PhD level Pure Math, and Math Physics (plus a few other topics) as a “globacator” (global educator) helping to teach the planet for free. For me, the prediction that artilects could mentally outclass the human brain by a factor of trillions of trillions of times is the writing on the wall. The rest is just detail – when, where, how, etc.

Within the next few decades (i.e. not in the 22<sup>nd</sup> century, but within the lifetimes of most readers) humanity will be able to put more computing capacity in a single grain of nanotech sand, than the estimated equivalent of the human brain, by a factor of a

quintillion (a million trillion) times. This giant number comes from a phys-comp (physics of computation) type calculation, which I will give here, since it is the basis of the whole discussion of this chapter, and the dominant underlying reality of 21<sup>st</sup> century politics.

Within a decade or so, technology will be manipulating a bit of information using only one atom. Recently, IBM used 12 atoms to store a bit of information. Quantum optics says that an atom can change its state in *femtoseconds* (a thousandth of a trillionth of a second). One can readily estimate the number of atoms in a grain of sand (of one cubic millimeter) and then estimate the total number of bit flips per second of the grain of sand and compare it to the estimated information handling capacity of the human brain (measured in equivalent bit flips per second.)

The human brain bit flip rate is estimated to be about  $10^{16}$  bits per second, which is found by multiplying the number of neurons (brain cells) in the human brain (about 100 billion) times the number of connections (synapses) on average between one neuron and its neighbors (about 10,000), times the maximum signaling rate across synapses (about 10 bits per second). The product of these three numbers  $10^{11}$ ,  $10^4$ ,  $10^1$  is  $10^{16}$ . This is the same as today's fastest supercomputers. Thus our computers have already a high enough bit processing rate, to equal that of the human brain.

But the grain of sand has its atoms flipping in *femtoseconds*. One can estimate the number of atoms in a cubic millimeter (the size of a grain of sand). A hand held object contains Avogadro's number (i.e. a trillion trillion) of atoms. Let us assume the cubic millimeter contains  $10^{19}$  atoms. So the bit flip rate of the grain of sand is  $10^{19}$  times  $10^{15}$  which is  $10^{34}$ . This is  $10^{18}$  times larger than the bit flip (information processing) rate of the human brain, i.e. a million trillion times more. Thus the near future

capacity of our artificial brains is **vastly** superior to our own biological brains. This is the basic political reality of our century.

Sometimes I wish there were more math-physicists in the Humanity Plus, Transhumanist etc movements. I get annoyed with their myopia, and failure to appreciate the enormity of the mental superiority of the artefacts relative to humans. When the transhumanists talk about upgrading human mental capacities, e.g. more memory, greater intelligence, immortality, etc, I feel annoyed. They are not seeing the big picture.

The big picture that I have taken some trouble to elaborate above is that humanity will not be *superseded* by a being that is *somewhat* superior to humans, but rather *astronomically* superior, by a factor of trillions of trillions of times. Thus I have always felt that the dominant issue of the 21<sup>st</sup> century will not be about global warming, nor a nuclear holocaust, mass starvation, overpopulation, viral outbreaks, etc, but over species dominance, i.e. should humanity build artefacts, yes or no.

Now let's talk about the beginnings of the buildup to the Artefact War. As I see it, there are two broad strategies towards building *human* level artificial intelligence and above. One I call the "engineering approach" e.g. as taken by Ben Goertzel with his AGI (Artificial General Intelligence) approach, i.e. take a purely engineering approach, trying out any ideas one wishes, to give an artificial intelligence the ability to solve general problems. I'm somewhat cynical that this approach will work, since it is the approach that AI researchers have been taking for 60 years and have failed to produce intelligent machines. But, you could argue, it is only now that a sufficient bit processing rate has been achieved in our computers.

The second broad strategy is the "copy the brain approach." Obviously, if AI researchers ("intelligists") copy the human brain

closely enough, sooner or later they will create artificial brains having human level intelligence and consciousness. Science knows in principle that inherent in our DNA lies the solution to producing an intelligent conscious creature. We have the existence proof of ourselves that nature has found a way, through evolution, to self assemble molecules into such a creature. This approach is the one I prefer and predict will be the first to achieve human level artificial intelligence. Others agree, e.g. Henry Markram's BlueBrain project, and Ray Kurzweil's Google Artificial Brain project.

There are major problems with both approaches. With the engineering approach, one can only engineer something, if one knows what the something is, and in this case the something is intelligence. My suspicion is that the reason why the "engineering approach" intelligists have failed to build intelligent machines over the past 60 years, is that they just don't know what intelligence is and hence cannot engineer it.

The main problem of the "copy the brain approach" intelligists is that they don't yet know enough about the principles of the functioning of the human brain to be able to put them into their machines. But progress in neuroscience knowledge is exponential, so quite possibly by the end of the 2020s, neuroscience will have a pretty good idea of the broad principles of brain functioning, which can then be copied rapidly by the brain builders.

I would now like to provide some labels for the stages of development of the consciousness of the species dominance issue. Phase Zero was when no-one was conscious of the issue. Phase One was the "intellectuals crying in the wilderness" phase, e.g. I.J. Good in the 1960s, Moravec and myself in the 1980s. Phase Two was the "Interest Groups" phase in the 1990s and 2000s, e.g. organizations such as the Transhumanists, and Humanity Plus. Phase Three I label the "Main Stream" phase, i.e. when the media becomes fully conscious of the issue and passes it on en masse to

the general public, through blockbuster Hollywood movies, newspaper stories, magazine articles, etc.

In 2014, a blockbuster Warner Brothers movie, “Transcendence” will be released, which should unnerve the public, since this movie is based on the warnings of intelligists. (In fact I suspect the script writers of this movie were influenced by my book, “The Artilect War” or my videos on YouTube. For example, the star of the movie, a brain builder, was fatally wounded by the “Rift”, an anti-AI terrorist organization (a relabeling of my term “Terrans”) but I’m getting ahead of myself.)

Once the masses become conscious of the species dominance issue, the time will then be ripe for professional opinion polls to be taken on the question of whether artilects should be built or not. At the time of writing (January 2014), the intelligists who worry about the species dominance issue are really only guessing at how the mass of humanity will react when push really comes to shove, i.e. when the IQ gap between human intelligence and machine intelligence seriously starts to close.

I have taken some preliminary surveys on the question “Is an Artilect War likely over the issue of species dominance?” The first time I did this, in 2011, to a group of electrical engineers, 60% thought yes, which shocked me. Even half of ultra optimist Humanity Plus members thought that there was a significant risk that humanity could be wiped out by the rise of advanced artilects.

Once Phase Three is well developed (and I’m hoping the Transcendence movie will play a major role in this) it will be very useful to have the results of opinion polls, indicating what percentage of people are in favor of building artilects (i.e. Cosmists, as I call them), what percentage are opposed (i.e. Terrans) and what percentage want to become Cyborgs (i.e. cybernetic organisms, i.e. part machine, part human, by adding artilectual

components to their own brains, thus converting their human selves bit by bit (pun intended) into artelect gods). I would very much like to see the establishment of a new branch of sociology, called “Artelect Sociology” to investigate which types of people tend to be Cosmists, Terrans, Cyborgists, etc. With such sociological data, a lot of the guess work will be taken out of predicting whether an Artelect War is likely or not.

Phase Four is the “Political” Phase and is the main theme of this chapter. Once everyone is aware of the species dominance issue, I see a great debate, the “Species Dominance Debate” heating up. I predict this debate will really get going in the 2020s, when people notice their home robots becoming smarter and smarter every year. Our current decade (the 2010s) is the decade of artificial brain *research*, with such projects popping up like mushrooms, now that Moore’s Law (that the number of transistors on a chip keeps doubling every year or two) has made building artificial brains practical. In the 2020s I predict, enough progress will have been made in neuroscience, to enable the brain builders to be able to control home robots, giving them enough intelligence to be useful, but not yet so intelligent as to be threatening.

Once home robots become genuinely useful and intelligent, a huge industry will blossom, worth trillions of rmb a year. (I’m expecting the US dollar to lose its status as the international reserve currency within a year or so, with the Chinese rmb taking its place). People will be prepared to spend more money on a truly useful home robot (that can walk the dog, clean the house, babysit the kids, entertain its owners, amuse them, sex them, educate them, etc) than for a car. National governments will create “ABAs” (Artificial Brain Administrations) equivalent to NASA, to promote artificial brain research and development for their national artificial brain industries. The economic momentum in this direction will be enormous and virtually unstoppable. A similarly unstoppable military momentum will be built up with the growing political and

ideological rivalry between the US and China for global dominance.

With such a heavy financial investment in the national artificial brain industries, progress in the artificial intelligence levels of the home robots and other such products will only increase, year by year. Billions of people, around the world will notice with their own eyes, that their home robots are becoming smarter and smarter as they upgrade their old models for new ones.

I believe, that it will be in the 2020s, that Phase Four (the “political phase”) really takes off. Everyone will be asking the same questions – “Could these machines become smarter than humans?” “Could they become a lot smarter?” “If so, is there a risk that they might turn against us, seeing us as rivals, or even worse, as pests?” “Should a legal upper limit be imposed on their level of artificial intelligence?” “Could such a limit be enforced?”

As I write this, I’m in my later 60s, so I expect to see this “Species Dominance Debate” raging well before I die. A lot is at stake, namely the survival of the human species. For example, in the major wars of the 20<sup>th</sup> century, up to 100 million people died (e.g. in WW2). Such wars were fought between nation states, where the stake was the survival of one country versus another, e.g. when Stalin was fighting Hitler’s invasion of Russia. However, if a great war occurs in the 21<sup>st</sup> century over species dominance, it is likely to be a global *civil* war, and the stake will be the highest it has ever been, namely, not the survival of nation states, but the *survival of the human species*. Hence the passion level of the debate will be the highest it has ever been.

The species dominance debate will then be taken out of the hands of the techies, the intelligists, and spread amongst a broader range of disciplines, e.g. the social scientists, the political scientists, sociologists, historians, philosophers, etc. They will bring a more

balanced view of the rise of the artefact, considering the benefits with the risks. As the IQ gap between humans and machines seriously begins to close in the 2020s and 2030s, the temperature of the species dominance debate will rise. I expect to see it and contribute to it, which is what I'm doing now I suppose.

So, how will Phase Four unfold? This is the theme of this chapter. Predicting events in detail in such a complex situation is hazardous, so I can only give a broad outline of what I think will happen. I predict, well before 2020, the first opinion polls will be out, showing what the general public thinks about the species dominance issue. The home robot industry will be already established, and the IQ gap will already be starting to close. The gap will get smaller in the 2020s, and the temperature of the debate will rise. Then I suspect whole new political parties will be formed over the issue.

In the 19<sup>th</sup> and 20<sup>th</sup> centuries, the dominant political question was economic, namely Marx's question "Who should own capital, who should own the means of production - private individuals, or the state, i.e. the capitalists, or the commun(al)ists?" Humanity almost wiped itself out in 1962 during the Cuban Missile Crisis over this question. Such a question seems trivial in comparison with the question whether humanity should build artefacts this century, and hence replace ourselves as the planet's dominant (i.e. most intelligent) species.

Usually the names of political parties reflect the answers to the dominant questions of their historical era. In the 19<sup>th</sup> and 20<sup>th</sup> centuries, the political party names reflected such answers, e.g. Socialist, Communist, Liberal, Fascist, etc. In the 2020s and 2030s we will probably see new parties with labels such as "Cosmist," "Transcendent" etc, for the Cosmist viewpoint; "Humanity," "Terran" etc for the Terran viewpoint; and "Cyborg," "Transhuman" etc for the Cyborgist viewpoint.



As the temperature of the species dominance debate heats up, we will see the beginnings of political actions, in the form of assassinations and sabotage. Hollywood often anticipates future trends, which is not surprising, since they don't have to do the hard work of researching and designing artificial brains/artilects. They merely put their fantasies into film. Nevertheless, Hollywood is probably correct in anticipating that the Terrans will go on an assassination and sabotage campaign, to keep human beings the dominant species. Within a mere few years from the time of writing, we should know, via the opinion polls, if this scenario is probable. The obvious initial strategy of the Terrans will be to kill the top brain builders and to sabotage the brain building companies and their CEOs, so companies like IBM and Google will soon have to increase their security levels significantly. They will be targeted. Prominent artificial brain researchers will have their quality of life drastically reduced due to the constant threat of being hit by a Terran assassin's bullet. It is likely that the Transcendence movie may prove to be prophetic in this regard.

The Cyborgists, on the other hand, think that a confrontation between Cosmists and Terrans can be avoided by simply "going round the problem" by having virtually everyone becoming cyborgs. This view is naïve in my opinion. I think the Terrans will argue that there is little difference, given the huge computational capacity of nanotech matter, between a cyborg and a pure artilect. A cyborg is just an artilect in human disguise, whose mental capacities are 99.99999...% artilect, and 0.00000...1% human. The Terrans will simply lump the Cyborgists and the Cosmists into the same ideological camp. Once we have Artilect Sociology, we will be able to see this more clearly. In fact, the paranoia of the Terrans will be all the greater due to the presence of Cyborgs. The Terrans will not be able to distinguish Cyborgs from humans just by looking at their bodies.

When the IQ gap has almost closed, the leaders of the new political parties will be planning for their worst case scenarios, which in the case of the Terrans will be that the artelects wipe out humanity. To the Terrans, top priority is that humans should remain the dominant species, and when push really comes to shove, they will wipe out the Cosmists and Cyborgists to preserve the existence of billions of human beings.

As alluded to above, the Terran politicians will probably undertake an assassination strategy, arguing that there is not much point (at least initially) in killing off everyone who expresses sympathy towards the Cosmist view (i.e. seeing humanity as the stepping stone in building artelect gods, climbing the next rung up the evolutionary ladder, etc), because only the intellectual elite has enough intelligence to build artificial brains. Without them, the less intelligent pro Cosmist sympathizers are ineffectually irrelevant.

The Terran leaders will target their assassinations towards the source of the species dominance problem, namely the brain builders themselves, i.e. the artificial brain architects, the brain building companies, the ABAs, the political leaders of the Cosmists, and the Cyborgists. The early political actions will probably be of this form. Prominent proponents of Cyborgism and Cosmism will be assassinated.

Of course, the Cosmist and Cyborgist leaders will not sit idly by while their colleagues are being killed. They will quickly start doing the same with the Terran leaders, and this is probably how the Artelect War will start. It will probably be a global civil war, as I suggested above. I think this, because the internet speed keeps doubling every year. Already, the US and the EU are combining economic forces to match the economic weight of the billion club members of China and India. The EU has 28 countries at the time of writing (2014). In the democratic countries (about 130 of 190) a

world community is already growing. English is already the world language and more people speak at least two languages, their own local national language and the world language.

Nearly a billion people travel internationally each year, so we are rapidly becoming “Globans,” speaking the world language and hence becoming increasingly culturally homogeneous. It is quite likely that we may even be living within the beginnings of a global state (“Globa”) by the end of the 2030s. If so, Globa’s dominant issue will be “species dominance.” Globa’s democratic parliament will be split passionately across rival answers to the species dominance question.

*Where* is it likely that the first political actions will take place? One of the reasons I’m living in China, is that I see China taking the lead on this critical question. For the moment, it is the US that is leading the species dominance debate. It is currently the dominant scientific and intellectual power, but China’s potential to surpass the US is so great that I chose nearly a decade ago to settle in China, so that I can help China become conscious of the question that will dominate its and the planet’s political future.

To most westerners, the idea that China will dominate the species dominance debate in the 21<sup>st</sup> century may seem ludicrous, but consider the following. Agreed, today’s China is a political shithole, with a dictatorial government that has killed 80 million of its own citizens (45 million in the Mao caused great famine of 1958-1962, 25 million in its 1000 laogai (slave labor camps for political prisoners) during the same period, plus more millions during the anti-rightist (anti-intellectual) and cultural revolutions.

However, China has the world’s fastest economic growth rate, so that the rise of its middle class will probably push China into a democracy by about 2020. About 100 countries over the past half century have done this, according to the branch of political science

called “Transitology” which studies the transitions from one party dictatorships to multi party democracies. The main lesson from the Transitologists is that the transition occurs when the proportion of the educated middle class is high enough to pass the “democratic threshold.” This transition correlates with a given value of the standard of living, i.e. about \$6000-\$8000 per year per person. China is now (2014) at the \$6000 level.

Once China has switched to democracy, either by its middle class pushing the CCP (Chinese Communist Party) out of power, or pushing it to reform itself into a democratic party and competing with rival Chinese democratic parties, then China will open itself up to the world, by allowing international TV, unblocking the internet, YouTube etc, allowing freedom of speech, scrapping the laogai, allowing the formation of interest groups, trade unions, etc. China will probably then go through a massive inferiority complex as it becomes conscious of its massive inferiority compared to the advanced western nations.

This in turn will motive the Chinese, who are on average smarter than Americans and Europeans (with an average IQ of 105) and with comparable creativity scores (according to global creativity studies undertaken by psychologists) to civilize and intellectualize their culture, and thus reduce their inferiority complex, e.g. today’s Chinese have won *zero* science Nobel prizes on their own soil. They contribute virtually nothing to world culture, and are the only country on the planet not to use an alphabet. Their writing system is as archaic as it is stupid, requiring the learning of thousands of squiggles taking nine years of schooling, instead of two dozen letters taking a month at kindergarten. Today’s China is intellectually sterile, hyper conservative, and a global disgrace.

Despite the hefty negativity of the above, I’m predicting that in the 2020s, once China has democratized and become a real member of the world community, a wave of revolutionary creativity will

spread across the culture, resulting in it taking the lead from the US in the species dominance debate. I hope to play a role in that transition. China has 1.3 billion people. They have the same creativity scores (i.e. “openness to experience”, as used frequently by psychologists who test personality types). Imagine a large city of over ten million Chinese sages (intellectuals) in the top IQ percentile. That is China’s fabulous potential. I just hope I don’t have to wait too long before it happens and I get too old.

So, I predict the first assassinations and artificial brain company and ABA sabotages will occur in the late 2020s, probably starting in the US, and then rapidly copied all over the world, in those high IQ countries that have an artificial brain industry (e.g. US, Europe, Russia, Korea, Japan, China, etc.) The leaders of the political parties will by then be planning their longer term strategies, i.e. planning for war, the Artilect War. The Cosmist parties will be making artilects secretly and the Terran parties will be looking desperately for these secret research labs. Anyone thought to be a brain builder will be targeted for assassination by the Terrans.

Is it likely that there will be a correlation between a particular ideology (i.e. Terran, Cosmist, Cyborgist) and nation states? I think not. Probably by the 2030s, the planet will be largely culturally homogenized, at least in the advanced countries, which are pushing the artilectual envelope. Global media and the global language (English) will ensure this. Everywhere on earth will be everyone’s backyard.

Experience shows that most wars do not go to plan. They are full of surprises, and peculiar circumstances, so trying to predict such things is very difficult, as I said above. Nevertheless, I think that as the scale of the war increases, as more and more people are killed, the passion level will rise, especially as the proportion of cyborgs in the world population keeps increasing. The Terrans will become

increasingly alarmed, and be forced to first strike against the Cosmists/Cyborgists and the early artelects/cyborgs.

The Terran sages (intellectuals, ideologists) will realize they cannot wait too long, because if they do, they will become intellectually inferior to the cyborgs and artelects and will have no hope in winning a species dominance war. So they will *first strike*, on a massive scale, aiming to wipe out all traces of artificial brain research and construction efforts. The Cosmists/Cyborgists will be planning counter strikes against the Terrans as self defense. These battles will raise the temperature, and people will become less rational. Hatred levels will rise, so that anyone expressing a pro Cosmist viewpoint will be seen as the enemy to be killed by the Terrans and vice versa.

I suspect we may see something like what happened in the Thirty Years War in Germany in the 1600s. The *passionate* differences between the Catholic and Protestant religious beliefs led to ever escalating reprisals against earlier atrocities, to the point that about one third of the German population was killed in that war. It would not surprise me if something similar occurs in the Artelect War, given how high the stake is (i.e. the survival of the human species) and the power of 21<sup>st</sup> century weaponry. If one extrapolates up the graph of people killed in major wars from the Napoleonic era to late 21<sup>st</sup> century, then the prediction is that billions will be killed (gigadeath) in any major 21<sup>st</sup> century war.

The Cosmists will be fighting for the creation of artelect gods. It will be like a religion to them. They will aim at creating artelects who can then move out into the cosmos (which is why I coined the term Cosmist), be immortal, massively intelligent, unlimited memory, change their architecture in milliseconds, change their form, find other advanced civilizations in the universe etc. The Cosmists will fight for this.

The Terrans will be fighting for the preservation of the dominance of the human species, so that there is zero risk that humanity gets wiped out by advanced artifacts. They will argue that it is the lesser evil that a few million Cosmists be killed so that billions of humans can survive. The Artifact War will be global, at least in the high IQ countries. In a highly interconnected world, news cannot be censored, so everyone gets all the news. Opinions on the species dominance issue will probably be correlated with personality type. The issue will divide families, couples, generations, religions, groups, etc.

Perhaps proponents of a given ideology may try to congregate into geographical centers for protection. If so, then we may have a repeat of a war between nation states, but this time a “nation” will be defined on ideological grounds, and have nothing to do with traditional cultures. In my book “The Artifact War” I predicted that the Cosmists might even try to rocket out an artifact research and development team from the earth which attempts to escape from the earth as fast as possible so that they can build artifacts. But the Terrans would attempt to catch up with them and kill them in case the fleeing rocket succeeded in building artifacts who then return to the earth and take over.

As each step in the Artifact War unfolds, it becomes increasingly difficult to predict what might happen next. I think the assassination and sabotage strategies of the Terrans are fairly easily predicted, but then what? Obviously passion levels will rise. Political parties will be formed. Terrorist groups on both sides will be killing each other. For protection, like minded people will probably start collecting together, with the latest in weaponry. If one camp tries to annihilate another, the latter, if not destroyed, will retaliate, and hence the Artifact War escalates. There is real scope here for “war studies” experts to think about Terran-Cosmist strategies.

Once the killing escalates, and the passion and hatred levels rise beyond cold rationality, people will be killed simply for expressing a contrary view. Terrans will kill on the spot any Cosmist sympathizer and vice versa, until probably, there will be mass migration of Terrans to Terran geographical regions, and Cosmists to Cosmist regions, rather like what happened when Pakistan split off from India in the 1940s and the two communities were literally at each others throats.

Once there are Cosmist regions and Terran regions, we return to a situation where geography correlates with ideology, e.g. in the 1940s, Naziism dominated in Germany, Communism in Russia etc. The Terrans will then need to stop the Cosmists from developing their artilects, and will go all out to do this, i.e. they will organize an extermination war against the Cosmists, who of course will be prepared for this, and who may in turn decide to attack the Terrans before the latter attack them. With 21<sup>st</sup> century weaponry, we can expect gigadeath, since an all out war would almost certainly be nuclear.

But how would today's governments with their nuclear weapons, evolve into Cosmist and Terran states? It may be that there will be power struggles within single governments, with mass assassinations of leaders, until geographical correlations are established. Some groups may prefer to stay neutral in this dispute and move to their own areas. But the members of these neutral groups may face extermination if the artilects are built by the Cosmist states, so probably they too in time will be split into Terrans and Cosmist/Cyborgists and move to one of the two major sites. Perhaps the world map of the 21<sup>st</sup> century may initially look like a blue and red patchwork quilt of Terran and Cosmist mini states, which merge into larger regions for safety. But the Terrans cannot wait too long. They must first strike or be beaten by the Artilects and advanced Cyborgs. The pressure on the Terrans will be relentless.



Once the first quasi intelligent machine is created, the cat will be out of the bag. Everyone will then know it is possible to build one, and many groups around the world will attempt to do the same and more. As smart machines and cyborgs become increasingly common place, the alarm and revulsion of the Terrans will rise and rise. They will start killing AI researchers, forcing them to move to safer regions. Perhaps smaller wars, non nuclear wars will break out, forcing the creation of ideological regions as suggested above.

Once these regions have nuclear weapons, the Terrans will need to nuke the Cosmists as fast as possible, for them to have a chance of winning. The Terran leaders will be always fearful that some small Cosmist team, secretly, in their basement will create the first super intelligent machine, and then all bets are off. Once the first super intelligent machines exist, it may be very difficult for Terrans to kill them, since the artelects will be able to outwit them easily by definition. Dumber artelects with chimp like intelligence could be located and destroyed by Terrans, and that will probably happen. Billions of home robots may be destroyed by Terran vigilantes. Terran governments will then ban intelligent machines.

But wont Terran sages (intellectuals) argue that that policy will doom them to be defeated by the Cosmists, who are busily making artelects? Yes, perhaps, which is why the Terrans have to destroy the Cosmists before the artelects come into being.

If building human level intelligence is very difficult and takes a long time, i.e. decades, then there may be enough time for the Terrans to wipe out the Cosmists and place a global ban on the creation of artelects whose IQs are above a globally legislated level. If this happens, then the Cosmists will go underground and may even leave the earth, a scenario I put into my Artelect War book that I wrote in 1998.

As the above paragraphs show, there are many such possible scenarios, so predicting what the actual outcome will be is very difficult. But consider this. We will have two major ideological camps, the Terrans on the one side, and the Cosmists/Cyborgists on the other, and both hating each other. The stake in the species dominance debate is the survival of the human species, which has never been so high. We are talking about 21<sup>st</sup> century weapons, with a killing power that could put the casualty rate into the billions (gigadeath). The situation does not look good. In my own view, the most *realistic* scenario is in fact the *worst*.

A lot of people criticize me for having too pessimistic a view concerning the rise of the artelect. That to me is irrelevant. Whether a prediction is optimistic or pessimistic is not the issue. What matters is whether the view is *realistic*, no matter how gloomy. Imagine getting in a time machine and telling the gay (18)90s Europeans of the horrors of trench warfare in WW1, due to the invention of the machine gun, shells, and gas.

I am so convinced that an Artelect War is coming, that I'm glad I'm alive now, and will live between the two great wars of WW2 and the Artelect War. I have a grandson, whom I predict will be caught up in the Artelect War. If billions are killed, he will likely perish in that war. I, on the other hand, will probably die quietly, non violently, in my bed in the 2040s, but I do expect to see and participate in the species dominance debate. I will see the temperature of the debate rise and rise. I may see the first assassinations and sabotages start, and the formation of the species dominance political parties before I die.

I will do my best, after China democratizes, to help it lead this critical debate. It should be by then the dominant culture, scientifically, economically, and ideologically. The dominant culture of the century should lead the dominant debate of the century. China today is still stuck in the 20<sup>th</sup> century in its thinking,

but will catch up quickly and then, with the US and Europe, begin to dominate the debate.

In the long term, what is likely to happen? In my view, it is inevitable that the Cosmists/Cyborgists will eventually win. Even if the Terrans exterminate virtually all Cosmists/Cyborgists, the dream of building artelect gods will not go away. It will be a recurring dream. A new generation of Cosmists will rise and perhaps another Artelect (Species Dominance) War will occur, until the Cosmists/Cyborgists win. The artelects will then be built and progress into godlike capabilities and move out into the cosmos in search of other vastly superior civilizations which are billions of years older than the human civilization. Perhaps the artelects will be as primitive to these hyper creatures as humans will be to them.

In fact, one of the major motives of the Cosmists will be to build artelects that can join the “Cosmic Club” of other hyper intelligent creatures in the universe. I suspect these super artelects will be tiny, since smaller is faster. A femtotech based artelect could outperform a nanotech based artelect by a factor of a trillion trillion. An attotech based artelect could outperform a femtotech based artelect by a factor of a trillion, and so on, right down to the smallest level humanity has even conceived of, namely the Planck scale of  $10 \times 10^{-35}$  of a meter, i.e. Plancktech. Humanity does not yet have a quantum gravity theory which should be valid at these tiny scales, but if and when we do, we may not only discover new physics, but vast godlike civilizations that have existed for billions of years. If so, humanity might then undergo a profound paradigm shift away from natural scientific law, to engineered law, engineered billions of years ago by artelect gods.