

# Science, Civilization and Global Ethics: Can we understand the next 1000 Years?<sup>1</sup>

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What will the world look like in one thousand years? What factors will create the long-term future? What are the trajectories? Will we survive as a species? Will science reduce human ignorance through its discoveries or will ignorance increase as science becomes the hegemonic discourse? Will that which is most important to us always remain a mystery, outside our knowing efforts? What should be the appropriate framework in which to think of the long-term?

In a series of meetings sponsored by the Foundation for the Future (FFF)<sup>2</sup>, these and other issues are being explored by leading scientists, social scientists, paleo-anthropologists and futurists from around the world. The first of the FFF Humanity 3000 seminars was held in Seattle, Washington from April 11-14, 1999 and the second was held from September 26-29, 1999 and the third, August 23-26th, 2000. However the specific dates are quite inconsequential as what makes the Foundation unique is its intent to conduct regular symposia over the next few hundred years. The results of each individual seminar are far less important than the larger knowledge base of the long term future created from these conversations between, what Bob Citron, Foundation President, believes are the brightest minds in the world. While this may or may not be true, the mix of thinkers is certainly multi-disciplinary and representing a range of political spectrums, from the extreme political right to the new left.

The first seminar focused on three areas: space exploration; global

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ethics and human enhancement with a debate between those who saw evolution as directed and those who saw evolution as random. The second seminar revolved around three debates (which were not resolved): is there one science or are there many sciences; is population and dysgenics a problem or a symptom of world inequity; and, is technology or encounters with the Other more crucial in the long-run. The larger conference focused on three areas: global ethics; science and technology; and sustainability. It concluded with a debate on if humanity would successfully evolve creating brighter futures for all or if imperialism, racism, environmental problems and governance crisis would lead to full scale global catastrophe.

This essay weaves together issues from both seminars and the conference, and is less of a report, and more an inquiry into the nature of the long-term future. While one can certainly argue that thinking one thousand years forward has little relevance, however, by taking a long term perspective one can more easily ask: what is really of most importance? A long term focus also gives conceptual space allowing one to take an evolutionary view of history, seeing the grand patterns of biological and civilisational change. Individual trauma becomes less important, species trauma, survival, becomes more so. A long term perspective also forces one to question the intellectual lenses, the paradigms one uses to think about the future, indeed, the entire episteme that frames what one thinks and can think. Thus, far from a useless activity, a thousand year perspective is precisely the type of activity scientists, historians and futurists must be engaged in, if we are to survive and thrive, and discover who and what it is that "we" are.

However, thinking this far ahead is not without dangers. Generally, the longer span one takes the more implicit values come into place. The probable future often becomes more of a preferred. However, values end up being hidden by claims to science or civilization. Second, the time scale is so vast that the conversation slips into the most important current issues (overpopulation, environment) and third, solutions and dominant perspectives emerge from current discoveries (genetics and artificial intelligence).

### *Recreated Selves*

Thus, a pivotal issue that emerged from these conversations between physicists, biologists, ethicists, and social scientists is the dramatic prob-

ability of germ line therapy to change the very nature of our nature, to recreate not only what it means to be human, but what humans physically are and can be.

In the first seminar, one gene splicer, having left the USA where certain aspects of genetic research are illegal, commented that human cloning has probably already been accomplished. Extrapolate that out a few hundred years, and the last century of incredible technological change suddenly seems puny. Indeed, William Gates Professor of Genetics, Leroy Hood asserted at the second seminar that we are in the midst of the grandest revolution in human history. Within a generation we will move from genetic prevention to genetic enhancement to genetic recreation. With the mapping of the human genome, parents will have knowledge about the genetic makeup of their children. Along with virtual AI technology, they will be able to view, as if in a movie, the life patterns of their children, the trajectory of their diseases and health. Selective abortion will be a possibility for many parents. Human intelligence will be enhanced. And quite possibly, a new species will be created. We will perhaps be remembered in evolutionary history, less for ourselves, and more for the species we have created. As Doyne Farmer of the Sante Fe Institute writes:

*If we fail in our task as creators (creating our successors), they may indeed be cold and malevolent. However, if we succeed, they maybe glorious, enlightened creatures that far surpass us in their intelligence and wisdom. It is quite possible that, when the conscious beings of the future look back on this earth, we will be most noteworthy, not in and of ourselves, but rather for what we gave rise to. Artificial life is potentially the most beautiful creation of humanity.<sup>3</sup>*

Informed by the information sciences and buddhist epistemology, Susantha Goonatalike argues that life has always been artificial, the nature-city distinction as well as the virtual-artificial are false. Indeed, he imagines a future where the physical will be seen as virtual and the ideational seen as real. Technology will play a pivotal role in showing us what is maya, and what is real.

The future then is quite likely to see quite dramatic shifts in the boundaries of what we consider the self, said the author of *The Future of the Self*, Walter Truett Anderson. While history has been considered "given" created by God or nature, the future is being increasingly made, we are directly intervening in evolution, creating new forms of

life. Instead of a world populated only by humans and animals, the long-term future is likely to be far more diverse. There will be chimeras, cyborgs, robots and possibly even biologically created slaves. Our future generations may look back at us and find us distant relatives, and not particularly attractive ones.

Others such as Clement Bezold imagine a future where connection and community, intimacy and not distance, are far more crucial. Human values such as how we treat the other, be the other human or android are the crucial issues, and not our technological sophistication. Relating to other is not just about our emotional health, but relationship itself is a way of knowing. Moreover, for Bezold, it is not so much survival but thrival that is crucial.

However, for Goonatalike as well as for David Comings (Director of Medical Genetics at the City of Hope National Medical Centre in the United States and a researcher in the area of human behavioral disorders), the impact of genetics is foundational since it unlocks our evolutionary keys. Gregory Stock (Director of the Program on Medicine, Technology and Society at UCLA) points out that with germ line engineering it is just not the individual's genes that are being transformed but future generations as well.<sup>4</sup>

Writes Stock:

*Technology seems to have progressed to the point now where it is turning back upon us and is reshaping us (or has the potential to reshape us) in the same way that it has reshaped the world around us. This would lead us to believe that this is an absolute landmark in human history and perhaps in the history of life, because now we are beginning to alter the blueprint of life itself and seize control of our own evolution.<sup>5</sup>*

To the issue that the complexity of the human genome is such that manipulation will prove problematic, Stock reminds that developments in computers and technology will allow us to manage such complexity.

However, perhaps it is that life itself is so complex and any attempt to engineer life (or society) will always by its very nature have side-affects, that these "complications" are part of the human predicament, just as there is no free lunch, there is no free experiment. This indeed may be the very nature of intelligence. Ignorance does not diminish but expands with specific kinds of knowledge! This is especially the case when knowledge is framed outside its various contexts. These include how the intellect itself is constructed: as the only way of knowing or as one of many

ways of knowing. As well, whether the intellect is seen as divorced from identity or whether it can be used to expand the self beyond class, race, gender, civilization and human definitions.

The long term future of humanity thus cannot be divorced from the self (and how it is imagined) that is engaged in this activity.

### *Ethics and the encounter with the Other*

How will intelligence look like in the future? Will it be human or artificial? What will be the boundaries? Advances in AI are so quick that it is now defined as whatever machines can't do today, since tomorrow they will be able to. How long will it be before judicial decision-making is done by AI know-bots, asks futurist James Dator? Will nano-technology make scarcity irrelevant creating a world of unending material bliss? Or will it be the development of our spiritual qualities that will be far more important, asks Barbara Marx Hubbard, director of the Foundation for Conscious Evolution? She imagines the internet, travel and increased emphasis on inner transformation creating a global planetary consciousness - a noosphere. But will we be able to move from egocentric consciousness to spiritual ego-less consciousness, concerned with authentic dialogue between civilizations, asks philosopher Ashok Gangadean? It is not so much the technology but our relationship with others, be they aliens, clones or robots that is far more important, he and others argue. Tony Judge takes the conversation deeper, asking us to think how the metaphors and language we use to frame such issues limits us, how we force ourselves into simplistic notions of self/other, materialism/spirituality, and technology/society. Indeed, he challenges us to go beyond flat-land reductionism to complex layered depth. Political scientist Inayatullah as well suggests that epistemological impoverishment is our greatest challenge. Modernity and postmodernism continue to negate the richness of who we have been and can be.

It is this impoverishment that leads to an analysis of the present and future that remain at the level of the most visible. Of concern is forecasting new technologies instead of exploring what they will mean to variation social groups as well why our evolutionary route has favored technologies of domination and power, instead of technologies of communication and consciousness. Indeed, in the final conference this division was best expressed by Physicist Michio Kaku and Evolutionary theorist, Erwin Laszlo. Kaku focused on the genetic and artificial intelligence

revolution and how it will create a dramatically better and different future for all - new products, increased wealth and a global cultural and governance system. In contrast Laszlo argued that up to now we have been engaged in extensive evolution characterized by control, conquest and colonization. Humanity now needed to develop intensive evolution, focused on cooperation, communication with the other and with nature, not only through language but extra-sensory means.

At heart then is the encounter with the other (including the other in ourselves)- we will attempt to control and command or cooperate and mutually evolve? Of course, there will be stunning new technologies, new life forms - genetic, artificial and even spiritual, Sarkar's idea of microvita<sup>6</sup> - but most important is how will we treat the others we encounter, the aliens far away and near, human-made, human discovered, and those that discover us. Will our perceived differences lead us to conclude that they are evil and thus to be destroyed, as common in current geo-political paradigms.

The evidence from these meetings was mixed. The concern with ascertaining if intelligence had racial and gender variation appeared to move science towards a politics of eugenics - of concern not with humanity as a whole but with one's own class or racial group. At the same time, others argue that there are many types of intelligence in the world and poverty, overpopulation were best explained by external and internal colonialism - that power was far more important. This in its most banal form was expressed in the nature versus nurture debate (and strangely E.O. Wilson argued that the debate was over). In its more complex form this was expressed as agency versus structure. In which ways could humans transform their predicament? Which structures - class, capitalism, communism, feudalism, patriarchy - mitigate against social transformation? And: was human agency only limited to the rational action of humans or where there other unconscious forces, mythic forces as well as the collective consciousness and unconsciousness at work?

The deeper framework for this discussion was the debate between the one factor theorists and complexity approaches. The former was largely expressed by closet social Darwinists (find the right mix of genes and the future can be bright) as well as those committed to consciousness transformation (if we only we can behave better). The latter by complexity theorists (the ethics, context and politics of knowledge), that there are multiple factors that include visible crisis such as environmental degradation but that these factors have multiple levels of understanding. That is, behind environmental degradation are not just

policies of wealth generation but the conquest oriented worldview and metaphors that organize such a vision of the self and other. Merely changing ideas is not enough. Institutional and consciousness change is needed: a new culture plus new rules that transcend national governance structures.

This view was, for example, expressed by academic Wendell Bell. For him, peace culture and peace institutions are both needed. Until we begin peace and reconciliation processes at the minutest - in the family and on the school yard - and the grandest, at the level of the United Nations, we can not progress.

Ethicists such as Yersu Kim, former Director of the UNESCO Project on Global Ethics, agreed, believing that more than ever, now is the time to negotiate a globally agreed upon ethical framework, to move science to public space, and to ask tough questions of the science and technology revolution. If we don't the future will continue to be created through "Saturday night laboratories," where science will create the future without the regulatory eye of society. Indeed, astrophysicist Eric Chaisson believes that ethics, evolution and energy are implicated in each other, they can not be discussed separately.

However, there was resistance to these two approaches. A few argued that global ethics would lead to world government which would take away individual freedoms and rights. The second that ethics and science must be delinked, that science is an objective process with ethics coming afterwards and not beforehand.

A third point of tension was what would be the nature of ethics. Historians such as Howard Didsbury argued that ethical notions of what world we would want to live in must be based on the do's and don'ts of the world's great religions, others such as Dator forcefully comment that global ethics must not be based on our historical experiences. The past will not help us deal with the ethical problems being created by new life forms. Only a far more flexible process and future-based ethics approach can help. For Clement Chang, Founding President of Tamkang University, the key is the golden mean, creating a society that is neither too scientific nor too religious, neither too materialistic nor too spiritual. It was this middle path in which humanity can find its direction. This Confucian approach, he argues, is the central ethical principle in navigating the future. This was also expressed with the Sanskrit word, Prama - or dynamic balance. Prama calls for inner and outer balance but not in a static sense. The feudal mind in science and religion had to be challenged, argued Inayatullah. What this means is that dissent is cru-

cial for the survival of the species. Anytime any system became hegemonic, it has to be resisted. This approach was considered contentious by many scientists. While they believed that religion had to be challenged, they argued that science was bringing truth and well-being for all, and it was outside of reproach. Its abuse could be criticized but not the project and methodology of science itself.

This tension was not resolved in any fashion, indeed, appeared unresolvable since it was a root myth.

Central then to the debate on ethics and the long term future is the issue of is there one universal science or can there be more than one science? Cultural critic and philosopher of science, Zia Sardar (author of *Postmodernity and the Other*, *Orientalism*, *Chaos for Beginners*) argues that there can be different ways to know the real. This is not just an issue of different civilizations asking different questions, focusing inquiry on their own pressing problems, but rather that ways of knowing are multiple. In contrast, scientists at FFF meetings such as Robert Shapiro (author of *The Human Blueprint* and *Planetary Dreams*) argues strongly that science is universal and objective. There is only science, and not feminist or Islamic, or Indian/Buddhist science. Just as science has evolved to the objective, sociology will move to a behavioral scientific approach instead of its current critical, poststructural - politics perspective. Those who wish not to enjoy science had that right, however.

For social scientists, however, the issue of values, of ethics is at the heart of the matter. Ethics must be explicit within science and not an afterthought. What type of humans are we, do we want, and what are our boundaries, are not merely technological questions but political and moral issues. We have a responsibility to future generations to not create a dystopia - a Brave New World. Indeed, this was a central critique of the presentation by Kaku. His image of the future foreclosed the future, it did not open up alternatives, rather as he said: "get on the train (of liberalism, science and technology) or forever be left behind."

Thus for scientists, science is largely value free, and even if leading to awe and wonder, as physicist/cosmologist Brian Swimme (author of *The Hidden Heart of the Cosmos: The Universe is a Green Dragon*) reminds us, it is generally an enterprise devoid of values. It is precisely this issue that others such as biologist Elisabeth Sahtouris contest. She sees a new science emerging that is value-laden, with reality as complex, chaotic and not divorced from cosmic consciousness. Indeed, at the very root of who we are, of what is real, is consciousness. As many argued, there are no value-free positions, a value-free science is impossible. This



however does not mean that rigour, systematic inquiry and empirical truths should be abandoned, rather that science must include issues of ethics, public knowledge, alternative ways of knowing as part of its charge, and not as an externality. The meanings we give to the material world (and the epistemes and social structures that frame these meanings) are as important as the material world itself.

What then is the appropriate frame from which to view the future? Can the future be determined by one variable, or is the future far more complex, multi-factorial with emergence (consciousness or new life forms or new solutions) a central possibility? Indeed, this is the critique of geneticist formulations of the future, touched upon above. It is not intelligence which is being measured but the ability to take an IQ test. There is no one gene for intelligence, rather, there are a combination of factors, genetic, cultural, spiritual, and access to wealth that define intelligence. Thus, imagining a future where gene therapy leads to enhanced human intelligence is trite since other factors are ignored, and the social cannot be held in abeyance. In this sense, assuming that exponential increases in the internet (creating more information) in genetics (creating smarter humans) will reduce human ignorance forgets that ignorance is part of knowledge, and not separate from it. We could find out that new knowledge only expands our ignorance. It is not only that there are wildcards but there are unthoughts.

The framework for knowledge is thus episteme-based. The episteme - the boundaries of what is knowable - is not stable but changes through history. Thus, what seems as complete knowledge to one generation will seem like magic or maya to another. The response then to the long term future should be one of humility, of an ever expanding unknown, mystery. In this sense, projecting a world where one particular perspective on reality, whether positivism (science and technology) or cultural relativism or a particular ideology, liberalism or socialism, claims victory ignores the contradictions of history and future.

This is not to say that insights into human suffering, into identifying the causes of diseases will be necessarily impossible, no luddite position is taken, but rather that truth is context-based.

### *Population Dynamics*

Another central debate was between the majority such as author Michael Hart and Glayde Whitney (Psychologist, neuroscientist) and

Arthur Jensen (author of the G Factor) who see overpopulation (as well as illegal immigration to OECD nations) as one of the biggest hurdles facing humanity, and others, such as Sardar, who see population as a symptom of deeper issues. Less focused on immigration is the environmental position which argues that overpopulation in poor nations and piggish resource consumption in OECD nations damages the world's ecosystem (a position elegantly argued by Sir Crispin Tickell and Worldwatch editorial director, Ed Ayres). Generally, many believe that overpopulation creates a vicious cycle where the poor and the third world overproduce while the intelligent and the wealthy first world underproduce. Not only is the future racial make-up of the planet in problematic balance, but over the long term, the stupid will rule the world - the human genome will be damaged. Worse, feared some, genetic technology could be stolen by rogue nations or individuals.

Far less convinced with this argument, indeed, seeing it as foundationally evil, is the argument that population is a symptom of inequity and a fear of the future. Kerala, for example, a state in India, has achieved low population growth, partly because there is a strong social security system. Women have control over their bodies and their futures. Access to wealth, technology is possible, as is human dignity. In contrast in areas where patriarchy is dominant, or colonialism from the centre (whether the dominant ethnic group or colonial power) reigns than the only resource individuals have are other people.

Humans should be thus seen as being endowed with creative potential, who given appropriate social structures can expand their horizons and improve their well-being. While not all will test well in IQ tests, all have the possibility to do well in the sorts of intelligence that matter to them, and the futures they want to create. Again, this tension of the role of political and definitional power was not resolved in the seminars of the larger conference.

### *Beyond the planet*

But in case the population problem is not solved there is always outer space. Professor Allen Tough of the University of Toronto says moving beyond the planet is a necessary process for commercial, survival, and idealistic reasons (or creating a sanctuary as Robert Shapiro imagined). Already one entrepreneur has begun hiring for a hotel in space. If there is a nuclear winter, at least some of the human family would survive.

Space exploration can lead to contact with other sorts of intelligence, which would force us to genuinely reflect on what it means to be human. It would be the social scientist's dream, finally having something to compare our planetary neurosis' with. And if we meet no one in space, then it may be our destiny to go forth and multiply, argues space writer Steven Dick.

### *Can the future be known?*

Most participants at the symposiums cautioned that the future especially the long-term 1000-year future cannot be known. Not only are there too many factors to predict, but there are unknown unknowns. We don't even know which wild cards to focus on, although writer Fred Pohl argues that science fiction has already given us great insights as to what the next 1000 years may bring us. Still, just as the long-term past is difficult to pin point, so the long-term future is foggy. Fact becomes fiction and truth becomes fantasy.

The crux of this issue is not predicting the future, but enhancing humanity's capacity and confidence to create desired futures, and to create participatory processes in which these aspirations can influence local and global policy.

### *Directed Evolution*

However, at another level, a grander level, the issue of participation is not one focused on human concerns of governance but larger issues of evolution. Argue philosophers that it is directed evolution that could lead to the challenge of creating more capable humans. This does not, however, have to be a debate on genetic enhancement - which will occur nonetheless, given current trends - but a discussion on the creation of wealthier societies so that basic needs can be accessed by all, so that human potential could develop. Dr. Meng Kin Lim, an aerospace physician from Singapore, comments that it is the Rawlsian moral equation (from John Rawls *A Theory of Justice*) that is needed - social equality has to remain the most important principle in our quest to enhance human intelligence. Ultimately, this will be what globalization is really about - a world government or governance system that guarantees a level playing field so that all humans have the opportunity to expand their intelligence.

But what type of governance system will it be? Taking a

macrohistorical perspective, there are only four plausible structures. First a world empire run by one nation or civilization. Second, a world church/ummah/temple where power resides in the normative space of one civilization/religion. Third, a world economy, where the flow of wealth, capital accumulation is far more important and politics is located within nation-states, territories organized around history, language, or other categories. In a fourth possibility, there are mini-systems, autarkies. However, the fourth possibility is unstable as empires, churches and economies globalize them, make them universal. Local self-reliant mini-cultural systems are only possible within a context of a world government structure, a strong polity. Since no one religion or empire is likely to become victorious, a world economy is more likely. However, since the nation-state is increasingly porous, the world economy/nation state model is now unstable. It appears that the latter alternative (a world government with mini-cultural systems) is quite possible in the very long term.

### *Survival*

As we venture outward into space, as we create new life forms, expand our intelligence and reduce social and civilisational injustice, we should however never forget the precarious nature of life. We may not even survive. Phillip Tobias, one of the world's leading archeologists, tells us that 90% of the world's species have become extinct. We may be next. However, even as he cautions, by tracing human evolution, he offers a story of hope for the future, of humans learning from mistakes, and proceeding slowly onwards.

While most scientists assert that evolution does not have a direction but is random, others point out that we are already intervening in human evolution, we are already directing the future, we just need to do a good job of it - to make sure we create a better future, not make a gigantic mess of it all.

We must ensure to anticipate the intended consequence of our interventions, to engage in, what in neurobiologist Terry Deacon - who is currently engaged in research using cross-species transplantation of embryonic brain - calls the simulation imperative. If we don't begin to consider the long-term alternative futures ahead, if we don't create the necessary global institutional foresight to anticipate the future, we may not make it to the next evolutionary step.

Unfortunately, while the FFF seminars are part of many similar conversations throughout the world, they have shown that we are far - at least in terms of leading thinkers - from any shared view of what are the critical factors in humanity's survival and thrival, indeed, in what is the appropriate framework for embarking on such a project.

However, the points of tension are clearer. To summarize these include:

1. One factor versus complexity
  2. Social Darwinism versus ethical evolution
  3. One science versus many ways of knowing
  4. Extensive versus intensive evolution
  5. Overpopulation versus gender empowerment
  6. Environmental and cultural catastrophe versus technological salvation
  7. Global ethics versus national rights
  8. Materialistic versus ideational approaches
  9. Consciousness transformation or institutional change
- Can these factors be bridged, transcended? Lets hope so!

### Notes

1. An earlier version of this was titled, Expanding our Knowledge and Ignorance, ANBN Review (1999).
2. [www.futurefoundation.org](http://www.futurefoundation.org)
3. Waldrop, M., Complexity, New York, Touchstone, 1992, p.284.
4. Stock, Gregory and Campbell, John. Engineering the Human Germline. London, Oxford University
5. <http://research.mednet.ucla.edu/pmts/germline/questions/qwatershed.htm>
6. Inayatullah, Sohail and Fitzgerald, Jennifer, eds., Transcending Boundaries. P.R Sarkar's Theories of Individual and Social Transformation. Maleny, Gurukul, 1999.

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