The Ethics of Evolution, and the Evolution of Ethics

Walter Truett Anderson

This article was adapted from a presentation given by Walter Truett Anderson, Ph.D. during Terasem Movement, Inc.'s 1st Annual Workshop on Geoethical Nanotechnology, July 20, 2005 at the Green Mountain Retreat in Lincoln, VT.

Dr. Anderson, author and President Emeritus of the World Academy of Art and Science, discusses the challenge of becoming technologically responsible in a rapidly-changing and increasingly global civilization.

The key word in the title of this conference is "Geoethical," and the key to what I want to talk about: how we morally and ethically relate to Earth. Morals and ethics are pretty much the same thing; the difference is when people talk about ethics they're more likely to be talking about principles that have been formalized into codes, such as those adopted by lawyers and medical doctors. (Conceivably one goal of the Terasem Movement might be to draw up a code of ethics for inventors and entrepreneurs who make decisions about nanotechnology.)

Codes of ethics, as laws, are formal expressions of the moral growth of people and societies. Morals themselves are dynamic; they are always works-in-progress. We have all had moments in our lives when we felt the change, experienced a shift in our sense of right and wrong – times when some principle that had once seemed like an eternal truth suddenly lost its hold, or when we suddenly had a new insight that helped us resolve a pressing personal issue. Those are some of the most important events in human life, when moral development ceases to be an abstraction.

Morals are changing more rapidly now than they ever have, so rapidly that we grow accustomed to great shifts over shorter periods of time – like the second half of the 20th century, the years that took us from Ozzie and Harriet to shock jocks and Lady Gaga. We have values and beliefs that are much different from those our parents and grandparents had, and most of us have experienced major changes of moral principles in the course of our own lifetimes. An English friend of mine, Charles Hampden-Turner, once wrote an interesting book titled *Radical Man*, [1] based on research with students who became active in the Free Speech Movement in Berkeley in the 1960s. [2] He documented the contrasting values different participants expressed as they sorted out their own positions in regard to the issues, and how those values evolved. He believed that situations of conflict – especially when it involves verbal dialogue – can be great generators of moral development, hothouses of lasting personal change in individuals and entire societies.

One of the pioneering thinkers in moral development was Lawrence Kohlberg, [3] who wrote his major work on the subject as his doctoral dissertation in 1958 at the University of Chicago. The core of his view was that people evolve through different *stages* of moral development as they grow up. At the earliest stages, the child's morality is likely to be driven by simple values and needs – reward, punishment, approval from others. At later stages he or she forms different images of human society; some people come to understand it as a system of roles, defining their own obligation to it as a matter of behaving appropriately. Others may understand it as a system of rules, becoming "law and order" conservatives.

"We construct and reconstruct our worlds as we evolve..."

We construct and reconstruct our worlds as we evolve, as our world becomes larger and more complex. Kohlberg's map has been enormously influential over the past few decades, and has also been criticized and modified. One of the most influential critiques came from Carol Gilligan [4] of Harvard, who argued that his work over-emphasized the moral development of men, and wrote a book of her own, *In A Different Voice: Psychological Theory and Women's Development*. [5]

Antonio Damasio, [6] a Portuguese neuroscientist now working in the United States, has what I think is the most inclusive, and strongly scientifically-based, views of how a growing organism – any organism, human or prehuman – develops a rudimentary consciousness of *self*.

Human beings, with the help of language, soon embark on the lifetime project of composing an autobiography. The autobiographical self grows into what Damasio calls the extended self. This is his most powerful contribution to our understanding of human consciousness.

The extended self is what each of us experience – although we may not appreciate it – in every moment of conscious life – an incredibly rich banquet of meanings, ruminations, feelings and sensations that course through our minds as we compose and live our ever-unfolding stories about who and what we are. We live in memory, we live in history, we live in art, we live in politics. We live in evolution: Charles Darwin's gift to the extension of human consciousness – as expressed in *The Origin of Species and The Descent of Man* [7] – was a message of connection: he challenged us to recognize that we are biological beings, part of all life. This was the blasphemous idea that Bishop Samuel Wilberforce, [8] Darwin's great adversary, had in mind when he referred with massive contempt to "our unsuspected cousinship with the mushrooms."

About five years after *The Origin*, another disturbing book was published: its author was an American scholar and diplomat named George Perkins Marsh, and its title was *Man in Nature; Or, Physical Geography as Modified by Human Action*. [9] His book never became as famous as Darwin's, but it has been enormously influential. It was the first to reveal in its fullness the massive impact that human evolution has had on the life of the planet. Marsh was a tireless researcher who spent many hours in libraries, studying records of ways that human beings had rearranged the planet. He found accounts of how people had cleared forests; drained swamps; built aqueducts, reservoirs and canals; selectively bred and relocated (and sometimes exterminated) species of plant and animal life. He found evidence not only of deliberate and planned manipulations, but also of unanticipated secondary consequences such as the flooding of farmlands in Switzerland caused by the timber-cutting in the mountains above. Somewhat upstaged by Darwin, his work stands nevertheless as a matching monument to what humanity was discovering about itself. It was the forerunner of the current movement to mark the end of the Holocene Epoch – the evolutionary period that began with the end of the last Ice Age – and proclaim the arrival of the Anthropocene, the period in which humanity comes to rival nature as a force in the evolution of all life on Earth.

In recent decades we have seen entirely new dimensions of our extended self, further expeditions into knowledge of our connection – not only to Earth, but to the universe. Astronomer Eric Chaisson gave an eloquent summary of this in his book *Cosmic Evolution: The Rise of Complexity in Nature*:

> "Modern scientific research helps us realize that we are connected to distant space and time not only by our imaginations but also through a common, cosmic heritage. Most of the chemical elements comprising our bodies were created billions of years ago in the hot interiors of remote and long-vanished stars – a physical, stellar metabolism, no less. Their hydrogen and helium fuel finally spent, these giant stars met death in cataclysmic supernova explosions, scattering afar the atoms of heavy elements fused deep within their cores. Resembling a 'galactic ecosystem,' whose interrelated components are as rich and diverse (though not as complex) as those of life in a tidepool or a tropical forest, this loose interstellar matter eventually collected into huge gas clouds which, in turn, slowly contracted to give birth to a new generation of stars, among them the Sun and its family of planets nearly five billion years ago. Drawing upon the matter gathered from the debris of its stellar ancestors, planet Earth then provided the conditions that eventually gave rise to life and intelligence, and ultimately to ourselves – a biological and cultural metabolism, no more. Like every object in our Solar System, every living creature on Earth embodies atoms from distant realms of our Galaxy, and from a past far more remote than the beginnings of human evolution." [10]

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Brought into the immediate here and now, the message is that the eyes through which you look at this page, the cells that relay its meaning through your brain, and indeed everything around you and outside your window, are all composed of the same basic materials.

"We are the planet, not merely passengers..."

We are the planet, not merely passengers who might just as readily catch the next spherical space ship. Chaisson is not, I'm happy to say, the only scientist to come to that understanding; I think especially of Carl Sagan, [11] reminding readers and lecture audiences that we are made of "star stuff." I think also of Apollo astronaut Edgar Mitchell's description of his experience during the three-day return trip from the moon to Earth: In his spare time, he said, he would relax in lazy weightlessness and look out the module window. Since the vessel was then in what they called "barbecue mode" – slowly rotating in order to equalize solar heat on its surface – he could see Earth, sun, moon, countless stars, all swimming majestically in and out of his field of vision. And what he realized then was something quite profound, which I quote from the memoir he wrote later:

"Billions of years ago the molecules of my body, of Stu's and Alan's bodies, of this spacecraft, of the world I had come from and was now returning to, were manufactured in the furnace of an ancient generation of stars like those surrounding us. This suddenly meant something different. It was now poignant, personal, not just intellectual theorizing. Our presence here, outside the domain of the home planet, was not rooted in an accident of nature, or the capricious political whim of a technological civilization. It was rather an extension of the same universal process that evolved our molecules. And what I felt was an extraordinary personal connectedness with it." [12]

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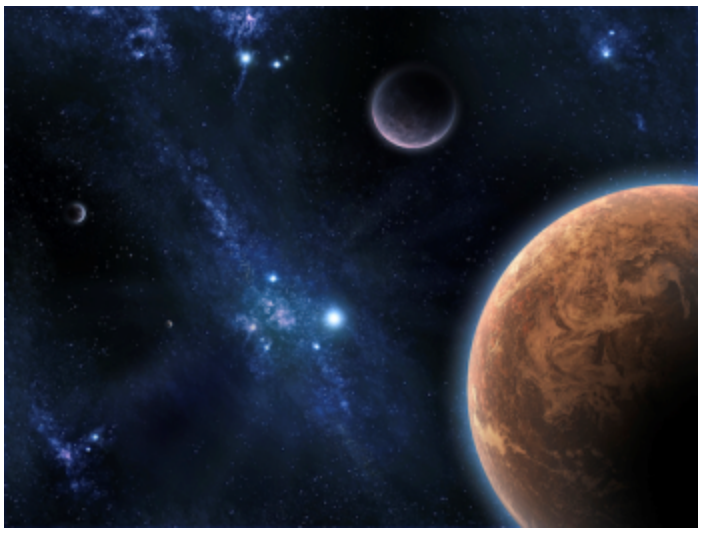

"Realized" is the right word for this experience. Not "learned." Mitchell has a doctorate from MIT [13] and presumably already knew where his molecules came from. It was a *felt certainty* of connectedness. He doesn't like to call it "religious" but it is obviously quite similar to the experiences described in so many of the texts of Eastern spiritual traditions – no longer exclusively Eastern – that teach a nondualistic view of the universe.

At the beginning of this conference James Hughes [14] kindly mentioned a book of mine, published over twenty years ago, entitled, *To Govern Evolution*. [15] Now I'm working on another book that's kind of a sequel. I haven't settled on a title for it yet, but the title of the last chapter is: "We, The Planet."

Science brings us many reasons for thinking of ourselves – extending ourselves, in Damasio's terminology – as part of our planet, identical with it and not simply passengers occupying comfortable seats on Spaceship Earth. Lynn Margulis [16] brought us one reason some years back when she convinced her fellow biologists that all eukaryotic cells (the kind found in nearly all animals, plants and fungi) contain smaller entities, the mitochondria, that were once separate organisms – bacteria – which invaded ancestral one-celled creatures and stayed on, the parasitic relationship evolving into a symbiotic one. The hard-working mitochondria regulate the metabolism of the cell and process energy. These symbiotic cells evolved, creating the incredible variety of life forms we see today. Each of us carries millions if not billions of mitochondria, unsuspected microscopic cousins. This was once scientific heresy – Margulis' original paper was rejected by fifteen publications before it found a home in *The Journal of Theoretical Biology* [17] – and it's now scientific orthodoxy. Richard Dawkins called it "one of the great achievements of twentieth-century evolutionary biology." Geneticists give a singular message when they tell us of the close match between the human genome and those of other species. We learn – and expand our sense of ourselves with the knowledge – that we are not only part of the planet, but organically related to all its life forms.

This is a time for big ideas. Big ideas are what extended selves think. The world is bristling with them now. One of them is life extension, even immortality: the death of death. Ray Kurzweil [18] is one of the prophets of that. Another is Aubrey deGray, [19] the young man with the Methusaleh beard, who recently wrote a book entitled, *Ending Aging*. [20] In it, he writes that he arrived at a powerful insight into how to do this while attending a conference of life-extension scientists in California. His Eureka moment, as he calls it, arrived at around 4 am, when he awoke pondering why the day's discussion had failed to arrive at a convincing plan to end aging. The trouble, he decided, was that everybody had been looking for ways to unravel the processes that damage our bodies as we grow older. Perhaps they should instead focus on the damage itself. To put the matter in mechanical terms: instead of trying to find out what makes your car wear out, you get better at repairing it.

"Why the bloody hell not?"

The more he thought about this, he reports, the more promising it looked. Scientists could forget about "interfering with basic metabolic processes, and just take the damage ITSELF out of the picture." Having arrived at that insight, he said to himself: "Why the bloody hell not?"

Now, I think there is a lot to be said for life extension. In fact, the older I get the better it looks. Presumably it would end a lot of human suffering. Possibly it would enable many people to grow not only older, but wiser. Psychologist Roberg Kegan, [21] a leader in the field of developmental psychology, thinks that if people were given another generation to live, the result might be "a qualitatively new order of consciousness." Who knows? Maybe people who lived longer might grow so wise that they wouldn't feel like they need to live forever.

Other concerns about possible side-effects of dramatic life extension are less moralistic, more comfortable in the realm of public policy. These can be summarized in three categories: economy, equity, and ecology.

As one example of an economic concern, consider Social Security. If you think it's in trouble now, with more people moving into the taking-out years and a smaller portion of the population in the paying-in years, consider what happens when more people move into those golden decades – and stay there instead of quietly dying off. Unless those people remain fully healthy and economically productive right up to the moment they drop dead – if indeed they ever do.

The equity problem mainly has to do with the high likelihood that any big advances in longevity are going to be enjoyed by those who can afford them. Everything else is inequitably distributed – certainly fundamental necessities such as food, water, medical care, housing and education – and so far there is little sign that longevity is an exception. Since the disparity between life expectancy in different countries is already enormous – over eighty years in some countries, less than forty in others – increasing it hardly seems like a high-priority social goal.

Then there are the ecological issues, which are strongly linked to overpopulation: falling death rates contribute to increased population growth, and every human being is a prodigious consumer of resources such as energy, water, and food. Although I don't find much relief in those assurances, I believe that the ideas of life-extension enthusiasts such as de Grey and Kurzweil should be taken seriously – which means that they should take the concerns of their critics more seriously than they are now doing. If there is the slightest likelihood that life-expectancy advances in the range now being proposed can actually be achieved, that will be one of the greatest transitions in the history of evolution on Earth.

In closing, let me tell you what I think is happening now, to us, to sentient creatures on this planet: We are experiencing growth of consciousness, an extension of self – in Damasio's term. Everybody now lives on Earth, is participating in a mental migration into a global frame of reference – the only dramatically revealed to us a few decades ago in the Apollo photograph of the planet. Everybody has moved – unevenly, of course – into the global arena. Everybody is also – again, unevenly – becoming aware of the universe in a way that people were not when they merely gazed at the night sky. The media send all our minds tumbling into an environment of new experiences, promises, fears beyond the scope of anything previously known. Out at the edges of this are scientific and technological discoveries that promise further transformations. A time not only for big ideas, but for great deeds and big ideas. It is also a time when we have a very real chance of destroying our planet and world civilization.

Great extension of self, which is occurring now, also calls for great moral growth. I have no doubt that this is possible, yet I believe it calls for acts of will and commitment. The prospect of life extension – even immortality – demands it.

It deserves a long and wide-ranging effort of serious deliberation – not just debates, which rarely change anybody's mind, but dialogues in which people actually listen to one another and consider deeply all the issues and scenarios.

Such an effort, on a scale equal to the magnitude of the issue, will take time and money, but certainly no more than it will take to figure out how to turn old geezers into young geezers. It could run concurrently with life-extension research, and it would inevitably deepen our understanding of the complexities of human life. I envision an ongoing project of educational programs, meetings, scenario construction, inclusion of all people and all points view, beyond anything the world has yet seen. Since life extension is an evolutionary challenge of a scope beyond anything the human species has yet undertaken, surely we should undertake an effort of moral engagement of a comparable scope.

Why the bloody hell not?

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Bio

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