

From the Garden of Eden to Terra's Brain:
A New Humanism

by
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Biography of Jeffrey Foss

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“In a post-agricultural age, political territories can no longer promise security. Globalization demands a common basis of understanding and action over both geographic and ideational space. Humanism is the conceptual thread with which to weave this common understanding.”¹ – *Jeffrey Rubinoff*

This essay is a contribution to the May 2009 Company of Ideas Forum, and departs from Jeffrey Rubinoff’s insight that we have reached the End of the Age of Agriculture. Specifically it extends Rubinoff’s insight above, that Humanism is necessary to build a common basis of understanding and action in this post-agricultural age.

The essay will develop mainly by means of metaphor, a fact which literally requires an explanation in this scientific age. The reason we must travel by means of metaphor is that the issues to be discussed are huge: the fate of the planet, the destiny of humankind, and the meaning of life. Only metaphors are capacious enough to contain the vast bodies of necessary information and steer them among the ideas that guide the modern mind and towards the ideal I wish to unveil before you, its beauties to recommend as a worthy goal for our species. Humankind stands at yet another crossroads. We have just arrived at a crucial juncture in our history that Jeffrey Rubinoff has dubbed the End of the Age of Agriculture. Over the last seven millennia we have turned from our Darwinian origins as hunter-gather apes to agriculture as our source of food. Agriculture in turn required permanent settlements: agriculture begat *civilization*. Civilization in turn, via the power of the word—and yes, the power of metaphor itself—transformed us into modern, scientific, technological beings. Our trajectory has taken us from the ‘Garden of Eden’ to the planet, Terra, our earth, which is orbiting a star, Sol, our sun.

This journey has launched us out of the depths of myth and metaphor into a scientific point of view that partially escapes our self-centeredness and thereby permits us to see ourselves from a distance (Foss 2000; see chs. 2 and 3). We used to picture ourselves in a garden, sometimes called Eden, created by a cosmic agent explicitly for us as our home at the very center of the universe. We are now forced to face the fact that we inhabit a cosmically insignificant speck adrift in the endless depths of space. We see that our planet was once a barren rock on which it would have been impossible for us or anything else to live. But after some five billion revolutions around its star our planet has been transformed into a partially structured biosphere that protects and sustains life—albeit imperfectly and fallibly. So far as we can see, this transformation occurred spontaneously. Because Terra is composed of the complex elements formed in the hearts of stars by nuclear fusion, and because Sol is a modest star that steadily radiates a mild form of heat and light, their orbital marriage gave birth to the self-organizing chemistry of life. And life changed everything: the bare and pointless physics of the universe was fertilized by consciousness, meaning, and value.

¹ Jeffrey Rubinoff, “Humanism And Integration”. See <http://www.rubinoffsculpturepark.org/coi.php>.

Although we have reason to believe that life may have arisen from other pairings of stars and planets sufficiently like our own, the life here on Terra that gave rise to us and surrounds us and flows through us, remains the only instance of life that we have found, a singular and precious spark. Life itself transformed Terra, most notably when single-celled organisms achieved photosynthesis, the ability to generate carbohydrates using the pure energy of sunlight. Life could now emerge from the seas and cover the earth with verdant vegetation. A by-product of the biochemistry of photosynthesis was oxygen. On one hand, oxygen was toxic to the primitive anaerobic bacteria whose evolution gave rise to photosynthesis in the first place, bringing their era to an end and making way for the next. On the other hand, oxygen gave rise to the rich tapestry of animal life from which we have sprung. Of all of these forms of life, only we humans are able to understand and appreciate the miracle that has occurred.

Only we know that the very atoms of our bodies—or the bodies of any other living thing—were once in the thermonuclear cores of stars that exploded in a brilliant death. Though each living thing strives in its own way to maintain its own life and its own species, we and we alone have learned how to rise above this biological strife and take a look around. When we do, we see that we too are products of biological strife, that this strife is the motor of evolution, and that our own evolutionary path has led us to the present moment, the moment Rubinoff encapsulates as the End of the Age of Agriculture.

Agriculture will, of course, continue to be the means whereby we gain our food, but it will gradually cease to be the basis of our social organization and historical development. What takes its place next is up to us. Just as Terra is the only planet known to harbor life, so too humankind is the only species able to appreciate the immeasurable value of Terra's precious living cargo. Other organisms struggle to survive, to maintain their own lives, and perhaps that of their offspring or near relatives, without any concern for life itself. Our species, too, has lived most of its life in the same way, and most humans still live this way most of the time even now. Our ancestors were just as deeply and lustily immersed in a nature red in tooth and claw as were the lions and wolves with whom they competed. Agriculture was but a weapon in this struggle, intensifying it, and giving us an advantage. Civilization was a tactical evolution of agriculture based on the constant need for field and pasture, and civilization gave rise to organized warfare. Language, an essential tool for large-scale social organization, married with civilization, gave rise to science, which through technology further intensified agriculture, civilization, and warfare—a cycle which may have been inevitable but which could not repeat indefinitely.

Fortunately, science also enabled us to see ourselves from its own objective orbit—and that, like life itself, changes everything. We can now appreciate the struggle in which we have been immersed from time immemorial, and we can now recognize the necessity of rising above it. My hope is that we will do so, that we will embrace the unique responsibility engendered by our unique intelligence, highly social nature, and extremely broad sympathies with living things in general. Though it may come as a surprise, I

believe that we have already begun to evolve in the direction I will recommend, towards a new form of humanism that fully realizes our place *within* nature—not above or outside of it. We have already begun to realize that we must re-*organize* ourselves if we are to preserve and protect and our orbiting bubble of life, our space-faring biosphere.

The twin crises of the 1900s were the climax of centuries of warfare on the brink of nuclear holocaust and the climax of our technology on the brink of a deafeningly silent spring. These twin crises, were—we can now see in retrospect—the explosive and implosive events marking the end of the Age of Agriculture. Agriculture and its twin—civilization—are not about to disappear. But, they are being transformed even as we speak. This transformation may take us in any of several directions. I want to propose an ideal towards which we may progress, a focus for our imagination, a compass point by which we can navigate the perils ahead, a Utopian vision that can be realized at least in part. I propose that we become the nervous system of the planet: Terra's brain.²

To express the matter in another form, I am proposing that we transform the planet into a biological entity, that we organize Earth in such a way that it becomes an *organism*. The first function of the brain is to orchestrate the activities of the individual cells of a multi-cellular animal in order that it can be an organism in its own right. We are, each of us, composed of trillions of individual organisms, and it is our brains that organize these cells, and make possible such biological by-products as thoughts, words, and essays. We can perform this organizing function for the trillions of organisms of the planet as a whole. We can transform Earth from a stage upon which species compete with species and life struggles against the elements, into an organism in its own right—though whether in a literal or metaphorical sense may remain an open question.

In its most general form (Schrodinger 1944), an organism is an entity within a physical boundary, a skin or membrane, that is internally structured so that its activities help it remain in existence and, given suitable conditions, reproduce. Terra's membrane is its atmosphere, which is composed largely of oxygen, which was generated by photosynthesizing organisms. Oxygen forms ozone when exposed to ultraviolet light, which it turn is sufficiently opaque to ultraviolet light to prevent harmful quantities of it to penetrate through to the organisms below. As in any other living thing, our membrane has been partially created by the life it contains. Through an organism's membrane materials with low entropy flow inwards while materials of greater entropy flow outwards, thus permitting the organism to maintain its own structure, or even to increase it, that is, to grow or reproduce. In our own animal bodies, low-entropy food, water, oxygen, etc., flow inward, while high-entropy waste products (carbon dioxide, urine, etc.) flow outwards, the internal mechanisms of our bodies having extracted some of the order and structure from these materials in the process. In the case of our planet, Terra, low-entropy white light from the sun flows into the planet through the atmosphere and high-entropy infrared light

² I wish to recognize here my indebtedness to Karun Koenig, whose gentle persistence and constant inspiration led me to move beyond adopting misleading shopworn metaphors, along with their metaphorical baggage, and to develop an independent and clearer image of the humanist goal I perceive for our species. Terra's brain is the result.

flows outward, while the internal mechanisms of countless plants and animals extract order and structure from this flow. What is missing at present is a nervous system that can raise the level of internal organization of the planet to the level typically found in multicellular organisms: this is the function that we can perform for the planet as a whole. So far individual plants and animals compete with each other for existence, with not always happy results, such as disease, famine, suffering, and death. Life does not amount to an organized system, but rather a running battle. Beginning with ourselves, we can begin to limit and control this internal strife for the good of all. So far, life as a whole must contend with the elements, sometimes in the form of ice ages, or collisions with meteors or comets, again with catastrophic effects for life as a whole. We can begin to look out for such catastrophes and to develop techniques and technologies for mitigating or even avoiding them. In other words, we can become Terra's brain, and thereby give our planet the powerful advantages which only individual animals have so far been able to achieve.

The last element of my proposal, the ingredient that completes its chemistry, as it were, is its *humanism*. Odd as it may seem, our species has seldom taken action explicitly for its own good. We are deeply imbued with the idea that we are *selfish*, and that the woes of this world, including warfare and environmental degradation, are the result of our singular vice of always putting ourselves first. This is far from the truth. Indeed, the very fact that we are instantly inclined to believe that we are selfish, greedy, and self-centered, is part of proof that this belief is merely a habit of thought, an addiction to an idea that gives us cheap and easy understanding and makes us compliant to the dictates of our religious and political masters. As Arthur Koestler argued (1974), no soldier goes to war out of self-interest, much less greed. Soldiers are ready to fight and die for *ideals*, and without this incredible willingness of *Homo sapiens* to make the ultimate sacrifice, war would be impossible. Simple self-gratification has never been enough to serve as the basis of any society, much less to motivate historical events. The victory of one's tribe, the triumphs of one's country, the greater glory of one's God, the paradise of workers in an international brotherhood—these are the sorts of things that men and women *serve*. These ideals, these abstractions, to which we bow, and for which we will kill or be killed, are the motor-neurons that activate the body politic to actions of historical dimensions.

Humanism, by stark contrast, is the suggestion that we should, instead, act for our own good—at least sometimes. It is an idea of quite recent birth. Humanism emerged in Europe in the late 1300s, as an awakening of humankind's awareness of itself. Humanists argued that human beings must understand their own nature, and their place in the greater order of nature, if they were to have any chance of fulfilling their own destiny. Against religious authority, which was based on the study and interpretation of scripture, humanists proposed that human beings also study and interpret the book of nature. We cannot assume that God will guide us in our daily lives, procuring us food, clothing, shelter, justice, and clearing the garbage from the streets. God helps those who help themselves—so we had better learn to help ourselves. Humanists thus provided an argument for science and religious tolerance, which in turn laid the foundations for the modern world order. Humanists understood humankind as part of nature, not opposed to it. Our good

was understood to have its proper place in the fabric of nature. Our technology, our science, our art—even our pleasure—were seen as natural, part and parcel of the meaning of the universe as a whole.

Humanism, despite its sweetness and light, never really caught on. As a humanist, as a scholar within the “humanities,” that group of thinkers that seems forever marginalized by heftier actors like religion, politics, or science, I want to advance the humanist project. I want to shout it from the rooftops to all of humankind: let us seek our own good! Our good is *not* opposed to the goodness of God or the goodness of nature—it is instead and indeed *part* of it, just as we are part of nature itself. Which part? Answering that question is the business of this essay. At a first approximation: we are the emerging nervous system of the planet. Even now we can discern the forming outlines of the planetary embryo, the traces of its optical-fiber axons, the clustering of its neurons in functional systems, the budding of its eyes and ears, and the first beginnings of planetary motor-control. We are developing Terra’s brain.

1. Reflections on Metaphor

Since we are traveling by metaphor in this essay, it behooves us to stop and think for a moment just what this mode of intellectual transport involves. Let us be clear right from the start that it does not license nonsense or encourage flights of mere fancy. As a humanist, I am used to being looked down upon by those thinkers who claim, at least, to work to a higher standard, namely that of *literal* truth. To these thinkers, all of whom ally themselves with science and self-identify as scientists, whether physical or social or practical, I will point out that there is a vast body of literal fact that is included in the admittedly metaphorical idea that we are an embryonic brain. It is *literally* true that *Homo sapiens* information processing surpasses that of other organisms by many orders of magnitude in both quantity and quality. We are alone among the life-forms of the planet when it comes to understanding the fundamental situation of life in general: that we have evolved over billions of years upon a planet that is orbiting around a medium size star at 29.79 kilometers per second. Clearly there are uncountably many facts of this sort that we, and we alone, know.

Moreover, I would remind scientific thinkers that they, too, rely on metaphor. The idea of *nature as mechanism* is itself a metaphor, indeed, the central metaphor animating the scientific world-view (Abrams 1994). Scientific theories are themselves models of natural phenomena, and models are elaborate metaphors, namely analogies. When geologists tell us that a volcano is dormant, the use of the French word, *dormant*, may mask the fact that they are telling us the volcano is asleep, but the metaphor remains under this mask. Much the same can, and must, be said of other scientific concepts. Darwin’s “natural selection,” for example, is a metaphorical extension of the artificial selection he saw practiced by plant and animal breeders. Newton’s concepts of “work” and “energy” were metaphorical extensions of human and animal work (Latin *ergon*) and the inner potential for work (*in*

ergon). Examples of this sort could be multiplied indefinitely, but there is an easier way to cut to the chase, and that is through realizing a fact about language itself: there is no sharp boundary between the literal and the metaphorical.

One way to come to this realization is by reflecting on the fact that, even though the last sentence has a literal content, it was nevertheless a metaphor: the talk of a *boundary* between the metaphorical and the literal involves a transference of the logic surrounding countries, and the holding of territories (not coincidentally an essential aspect of the Age of Agriculture), to the linguistic domain (not literally a domain, of course, in the territorial sense, but only in the metaphorical sense of academic specialties, or the fences that divide up the intellectual territory). Every word in the dictionary bears the tell-tale traces of its metaphorical growth into new areas of application. The most-literal use of the word *run* refers to self-movement by motion of legs and feet. An animal can literally run down the street. But, through metaphorical transference, fences also run between houses—as do the streets themselves! Dictionaries do not mark these meanings of the word *run* as metaphorical. They are instead listed among the many literal meanings of the word. As far as the dictionary is concerned, you are not branching out into metaphor when you say your nose is running, or that you are running for office, or that the last printing of your book ran to 500 copies.

Like most words, we can see that there was a primary use of *run*, namely for bipedal (or quadri-pedal, or centi-pedal,...) motion, and that this literal use then led to the metaphorical use of the term for other purposes, as for brooks that run downhill or cups that run over and so on. As these metaphorical extensions of the term became common, they were incorporated into the literal definition of the word. So the literal is just frozen metaphor (though not literally frozen). Or, conversely, the metaphorical is just an extension of the literal (though not literally an extension). Thus, the metaphorical is, so to speak, the bastard offspring of sense and nonsense.

Given this preliminary realization that there are innumerable blends of the literal and the non-literal within language, it is now useful to draw some more precise distinctions. Some forms of non-literal language are fairly straightforward. In overstatement we exaggerate: it hit me like a ton of bricks; he had the strength of a thousand men. In understatement we minimize: a wound is called a scratch, a million dollars is called small change. In sarcasm or irony the meaning of words is reversed: “How very clever!” we say, in response to some stupidity. Metaphor, our topic here, is grouped with simile, analogy, allegory, and the like, as carrying over the logic of one thing to another quite different thing (Greek: *meta* – over, and *phérein* – carry). What, then, distinguishes metaphor from simile, analogy, allegory and the rest? The official answer is that simile, analogy and allegory announce themselves. A simile says, for instance, “She is *like* a butterfly,” while a metaphor boldly says “She *is* a butterfly.” While this is right, so far as it goes, it does not seem, as it were, to get to the heart of the matter. What is it that really distinguishes metaphor from other non-literal uses of language? I put this question to Jeff Rubinoff (while

he showed me some of the works in his sculpture park), and he instantly answered: you would die for a metaphor, but you would never die for a simile or an analogy.

I think that is true—more or less literally. And, it is extremely important. Metaphors can have a power that other non-literal forms of language do not. And that is good, given that the business at hand, the destiny of humankind, demands such power. Terra's brain *is* worth dying for. The issues we are considering here require the power of metaphor if they are to be handled with the deftness and delicacy demanded. We must admit—nay, we must proclaim—right at the outset, that our metaphors must be handled with caution. Insofar as they are vague, they must submit to demands for clarification. Just as checks must be cashed for their value to be taken in hand, so too metaphors must be cashed for their literal meaning to be grasped. Given the limits of this single essay, we cannot cash out all, or even most, of our metaphors here, but we must nevertheless realize that they must be cashable if they are to work.

And once again, lest we forget, metaphors are worth dying for, and this is obviously another reason they have to be handled with caution. If the pen is mightier than the sword, then metaphors are fuel that can sometimes go nuclear. And since every battle requires organization, and organization requires the use of words, words are just as much an essential part of a battle as are swords. And as the power of the word was magnified by the invention of the written word, so too the power of the pen exploded with Guttenberg's invention of the printing press, making our battles larger and larger, leading up to the global conflagration of war in the last century. That planetary phenomenon stopped, as we all know, with two nuclear explosions, the twin infants of the following words: $E=mc^2$. Energy equals mass times the square of the speed of light. Amazing words. Whether poet or physicist, the bewitching aura of these words is evident to your ear. Energy equals mass. In other words, everything is made of energy itself. And the amount of energy of which a stone or you or I are made is mystically tied to the speed of light, the highest velocity at which information flows.

And it was this information—that e truly does equal mc^2 —that brought us to the edge of nuclear holocaust. Words are, of course, the medium of exchange for information, the standard currency of information exchange. And so, yes, the pen is truly mightier than the sword, for the pen brought us to the edge of nuclear holocaust—and that has changed everything. The world is experiencing metamorphosis, and we are not quite sure, yet, what entity is emerging.

2. Nuclear Holocaust and the End of the Age of Agriculture

Perhaps the main consequence of nuclear holocaust was that it made war in its original sense—as a battle in which there are literally no rules at all—impossible. And with the impossibility of war came the end of the Age of Agriculture. These facts are breathtaking from the human point of view, and significant even from the point of view of planet Earth

itself. Understanding them requires unpacking the metaphors in which they are wrapped together.

Nuclear holocaust is a metaphor. A holocaust is a burnt offering, something that is sacrificed by being totally consumed by fire. There is no more horrific way to die than by fire, and nuclear holocaust is the image of humankind sacrificed whole to nuclear fire. Nuclear fire, to use the physicist's nickname for the direct conversion of mass to energy by the inner chemistry of atoms in their nuclear cores, is the very same source of power used by the mighty sun itself. The Pandora's box opened by the physical formula, $E=mc^2$, made the sort of power available to us that magicians of old could only imagine. Our nuclear wizards concocted their deadly mixture of isotopes, and the fire of the sun burned here on Earth, incinerating all flesh close enough to a point designated by the runic phrase, Ground Zero.

In his famous image of nuclear holocaust in his novel *On the Beach*, Nevil Shute (1957) pictured us dying off not in the flash of nuclear fire, but slowly in the grips of nuclear poisoning. Nuclear poisoning = death by nausea, and this equation led in Shute's vision to mass suicide, and a sort of spiritual starvation as the human race slowly withered away while the rest of nature seemed to survive more or less intact. This was fitting punishment for our crimes. We were guilty of all of the horrors of war, albeit on a new and global scale. The first half of the 1900s were the age of World War, a new phenomenon made possible by world-wide communication, by the acceleration of words to the speed of light by telephone and radio. We were guilty of systematic attacks on civilian populations—we had learned long ago that war must attack the economic root of the enemy in order to be victorious—but now on a global scale. This systematic, impersonal murder for territory—which is the basis of agriculture and hence of civilization itself—was augmented by a holocaust of another, and familiar sort: genocide. The word, "holocaust," is also used to refer to the systematic murder of Jews by the Axis powers of World War II, one of the largest manifestations of tribal warfare in the 20th century—one which the Allied powers did nothing about until it was too late. It was entirely fitting that we, humankind, the guilty party, should vanish from the face of Earth, while life went on without us. Such was Shute's vision of Nuclear Holocaust, and it spread among humankind with chilling effect.

It was no accident that the Jewish Holocaust is the metaphorical twin of nuclear holocaust. They represent the twin crisis points of warfare in its tribal and agricultural forms. Both forms of human organization, the tribe and the state (the latter being the expression of the agricultural requirement of territory), persist today. But, they have come to their Armageddon. Neither the tribe nor its territory can be preserved, much less enlarged, by nuclear warfare. Controlled, non-nuclear conflict is still a lively and indeed active possibility, but warfare in the core sense of the term, as conflict in which there are no rules, and nothing is sacred, has become impossible. Warfare is impossible precisely because unrestricted conflict entails nuclear weapons, but nuclear weapons cannot possibly gain the fruits of war: winning more territory for one's tribe, one's kinsmen, one's fellow citizens. To put it bluntly, neither the rulers nor their generals can get out of the line

of fire, and so they have lost their enthusiasm for war. They much prefer to control nuclear weapons and sign treaties banning even the testing of nuclear fires here on the surface of Earth, or below. When you see them doing this, you are witnessing the end of agriculture.

3. Our Expulsion from the Garden of Eden into Agriculture and Civilization.

To understand the options in front of us, we must understand our changing relationship to the rest of nature. This is the subject of *Beyond Environmentalism: A Philosophy of Nature* (2009), in which I present an argument for starting a new philosophical specialty, the Philosophy of Nature. This philosophical study will differ from environmentalism in a fundamental way: it will begin with the fact that we human beings, we members of the species *Homo sapiens*, are entirely natural, having come from the womb of nature and remaining to this day firmly and inescapably part of the natural order. Not only us, but our food, our clothing, our shelter—in a word, all of our technology—are integral parts and products of nature. That includes, therefore, nuclear fire, just as in our primordial beginnings it included ordinary fire. From our earliest beginnings, even as far back as our ancestral *Homo habilis* form, our species has used fire. Human-controlled fires, including those used for flushing game from forests or fields, or clearing forests or fields for agriculture, are completely natural phenomena. So too, therefore, are our nuclear fires—and our rocket ships and telecommunications satellites and all of the other “wonders” of modern technology.

How did we ever get the notion that we are opposed to the natural order, that we somehow stand outside it? Why is it that even today the idea that a cell phone is just as natural as a dandelion rings hollow in our ears? The future automobile-bearing strata of our planet will be just as natural as the dinosaur-bearing strata—and a similar arrangement will be found on every planet in which there is advanced life. Why do we feel that we are separate from nature, or *alienated* from nature? It is common practice at this juncture to point to the peculiarities of Western religion, and to locate the blame, yes blame, there. Why blame? Because we feel *guilty* for our perceived distance from the rest of the natural order, and guilt must be expiated. And there is no doubt that the pagan religions that preceded Western monotheism did not divide us nearly as much from nature.

But even paganism did portray us as alienated from nature, as the ancient myth of Prometheus shows. In that myth, the pagan gods had decided to exterminate our species, but were stopped from doing so when Prometheus stole fire from the gods and made us their match, thereby permitting us to survive. Promethean fire was a metaphor for the inner fire of human intelligence, and of its fruits, all of our technology, as the ancient texts show. In Aeschylus' *Prometheus Unbound*, Prometheus seeks our forgiveness for giving us not only fire, but the divination of dreams, medicine, ship-building, and *agriculture and architecture*. In a word, Prometheus gave us *civilization*, thus angering the Gods. The pagan Prometheus myth *agrees* with the monotheistic Garden of Eden myth on the most primordial fact: in the far distant past we were like other animals, hunting and gathering in

the forests and fields. Our fire, our stone tools, our technology has made us incredibly and obviously *different* from the rest of the natural order. It is only a small step from there to imagining that we are not part of that order at all, that we are not of this Earth but of the heavens above.

But science has revealed that we are not gods, not even small-g pagan gods, not even demi-gods, not even semi-divine and immortal creations of the one and infinitely remote capital-g God of Western monotheism. We are instead large-brained apes, a branch of the tree of life that gained a decisive advantage in the evolutionary struggle by virtue of that large brain—and our nimble fingers. *Even so*, the myth of the primordial garden turns out to be correct about a fundamental truth, the reality of our ur-human genesis: there was a time when we lived more like other animals, hunting and gathering with our animal brothers and sisters for the fruits of the Earth. Perhaps because we identify our ancient historical origins with the comforts and blessings of childhood, we tend to see our origins through a romantic haze. Looking in the other direction, we tend to see our adoption of agriculture and the development of civilization as a *sin*. This sense of *alienation* from nature, of having *sinned against* nature, is an essential part of the Garden of Eden metaphor just as it was an essential part of the Prometheus metaphor. We did not just decide to leave Eden, we were *cast out* for eating the fruit of knowledge. Prometheus was *punished* for his theft of fire by being chained to a rock so that birds of prey could peck away at his liver each and every day.

Environmentalists are still motivated in large part by the mythical guilt associated with our development of agriculture, and everything that flowed from that: civilization, technology, and the industrial revolution. As industrial counter-revolutionaries, environmentalists long for our hunter gatherer days. They would like us to return to the Garden of Eden. They would like to take control of the fire given us by Prometheus, under the guise of controlling greenhouse gases. They want us to scale back our use of fire, to use less energy, to return to simpler ways, to *repent*. Of all of the economic forms that humankind has taken, there is only one that is emotionally acceptable to them: the hunter gatherer form. They want us to walk, not ride; they want us to eat local foods and wear clothes spun from the wool of local sheep. They want us to return as close as is humanly possible to the small hunter-gatherer groups from which we sprung.

This, I propose, is a huge—albeit understandable—mistake. There is very little to recommend hunting, and not much to say in favor of gathering, either. The solution to the problems we now face is not to be found in the Darwinian depths of our genesis. We should indeed seek to make peace with the rest of nature. But that does not mean that we should try to return to the Garden of Eden, which was, after all, only a myth, only a metaphor. There never was such a place or such a friendly relationship between humankind and the rest of nature. *Homo sapiens*, like all other species, is in a constant struggle to survive, engaged in battle on two fronts. First, there is the battle that all living things must wage against the elements merely to survive: the earth, air, fire, and water from which we arose still afflict all life with earthquake, flood, storm, frost, famine,

drought, and even ice ages. Secondly, there is the battle of each living thing with all of the rest, the evolutionary struggle. So, even though we all spring from nature, we must nevertheless struggle with it to survive.

Because of our big brains and nimble hands, human beings have been the first to gain the upper hand in this ongoing struggle. As we look around us to see the other species held at bay and the very elements themselves deflected by our shelters, we have once again assumed the posture of guilt and repentance. But we must not, despite the romantic vision of the environmentalists, try to return to the garden that never was. We must instead go forward. We must awaken to the new realities, rather than continue to dream the old dreams. Instead of seeking a return to the Garden of Eden, we must become Terra's brain. We must realize that the growth of intelligence and information technology are the real harbingers of the future. Our future lies in understanding, and to the extent that it is necessary and prudent, cautiously intervening in the processes of the tiny bubble of life, the star-paired biosphere we call home, in order to preserve the only known instance of life and secure the further evolution of consciousness. Nuclear weapons are not the shape of things to come, but the final punctuation marks at the End of the Age of Agriculture. The bombs that exploded at Hiroshima and Nagasaki are the two dots of a full colon at the end of a sentence:

What comes after is up to us.

Here is the shining possibility I want humankind to see: we could become Terra's brain. Our big brains, coupled with the acceleration of the word to the speed of light by modern information technology and the internet, present us with the possibility of being reunited with nature in a way never before contemplated: as Terra's brain. We can be united with the natural world in the same way that an animal's brain is united with the rest of the physical body in which it resides. You can't get any closer than that.

4. We Are the Destiny of the Planet

As a human being and a humanist, I am profoundly interested in the destiny of humankind. As a humanist, I want to see humankind prosper. Contrary to the mindset encouraged by a fundamentalist strand that runs through the very concept of environmentalism, I believe that human prosperity is not in conflict with the prosperity of nature as a whole. There are many signs that *Homo sapiens* is uniquely designed to assume the role of Terra's brain, and that this does not entail denying our own prosperity, or repealing the industrial revolution. We are, to employ yet another metaphor for our species, *informavores*.

Whereas other species hunt and gather information in order to live, we have taken this a step further: we live in order to consume information. Our arts, our sciences, our religions, our humanities—which are themselves creatures composed of words and information—have taken flight with the dawning of the information age. Consuming choice bits of this information, turning them over in our minds, recreating them and then passing them on

transformed to our fellow human beings, has always been one of the most desired and most fulfilling aspects of modern human life. We love our music, our dramas, our literature, our spirituality. We have always communicated to an extent unmatched by any other organism. We have always lived in a world enlarged and enriched by flows of information from distant places and distant times. The speed at which these distances are traversed has reached c —the same c that occurs in $E=mc^2$, the speed of light—changing everything in ways that we are just beginning to glimpse and understand.

There are many additional properties of our species that make us apt for the job of serving as a planetary nervous system, but we can only consider one more within the confines of this essay: our ability to *sympathize* with things apparently unlike ourselves. Efficiency suggests that we turn here to an event from my own experience that captures many of the tensions of modern human life and our relationship to nature. Like so human families down through the millennia, mine has adopted a dog as a friend and quasi-family member. We were walking our dog, Bonnie, down a sidewalk in Vancouver, when she got into a violent battle with a huge city-fattened rat that was lying hidden in the tall grass. Bonnie is a husky, a species of dog that may perhaps be described as just barely domesticated, more like the wolf in many ways than the normal pet dog. Presumably that had something to do with Bonnie detecting the rat which probably was used to being ignored by other dogs. The battle that ensued was fierce and noisy, and attracted a small crowd of passers by. Quickly and inevitably, Bonnie won the battle and killed the rat.

The interesting thing was that everyone, myself included, felt sorry for the rat. One lady even shed tears. Perhaps you, upon hearing this story, also feel some trace of sympathy for the rat. Even though the people who observed the fight all said that they were glad the rat was dead, that rats were dangerous, dirty, and so on, even so, all of them expressed some fellow feeling with the doomed animal. The rat, like the rest of us, worked to survive for a spell, but like the rest of us, cannot escape life's inevitable return to ashes and dust.

No other species has our ability to sympathize with creatures very unlike ourselves. People will even chain themselves to trees out of sympathy with their arboreal bretheren, to prevent them from being cut down. The trees themselves, so far as we know and understand these things, are as unconscious as a patient lying etherized on the operating table. Even so, we are able to take their point of view, and to see things from their perspective. In today's cinema, we depict creatures that are able to change their shape. These shape-shifters, as they are called, can assume the form of different species of animal at will. We are all point-of-view shifters: we can take the point of view not only of other animals, but even plants—even of geological entities like the land itself, as the famous "land ethic" of Aldo Leopold (1949) proves. Just as our nervous systems allow us to feel pain when our toe is damaged, even though the toe itself feels nothing, so too we are able to imbue the world around us with feelings. Although it is of course somewhat unscientific, one is tempted at this point to speculate whether or not there might be some logic to planetary evolution analogous to the logic of animal evolution, some order in the

unfolding of the universe so that consciousness gradually expands its domain to include the least among us.

One final point: human sympathies can only unfold to their full extent when humans have met their basic needs for food, clothing, and shelter. When we are struggling just to exist and to provide for our children, we have scant sympathy for the rest of nature or even for the rest of humankind. Environmentalists should take note: the sympathy of human beings for their *environs*, for everything around them, only blossoms when they are sufficiently prosperous. Insofar as the environmentalist programs now on offer result in increased struggle for mere survival, they will destroy the very sympathies on which they are based.

To put it another way, nervous systems must, and do, have a privileged position in the bodies they serve and enlighten. Should your body, or the dog's body, or the rat's body suffer from a shortage of food, or water, or oxygen, its nervous system will always be the last to experience this shortage. Because nervous systems are so beneficial to the animals that have them, they are provided special protection. As we evolve into the nervous system of the planet—if we do—we too will have this privileged position. We do not have it yet, although it is there beckoning us. For the good of nature, for the good of the planet, we should accept this role. We cannot do this unless we prosper.

So, the path ahead of us that I am recommending is one of human flourishing. It is therefore, a form of humanism. This form of humanism does not ask us to seek what is good for us at the expense of the rest of nature, but to seek the human good within the good of nature as a whole. It asks us to be on guard for the planet as a whole, to help it avoid collisions with meteorites that would wound it, to help it escape death by ice in the next ice-age, and so on. It asks us to take responsibility for preserving life and consciousness on this planet. It asks that we seek reunification with nature—as Terra's brain.

BIBLIOGRAPHY

David Abrams, "The Mechanical and the Organic." In *Scientists on Gaia*, Stephen Schneider and Penelope Boston, eds. Cambridge, MA: MIT Press (1991).

Jeffrey E. Foss, *Science and the Riddle of Consciousness: A Solution*. Dordrecht: Kluwer (2000).

_____. *Beyond Environmentalism: A Philosophy of Nature*. Hoboken, NJ: Wiley and Sons (2009).

Arthur Koestler, "Man—One of Evolution's Mistakes?" From *The Heel of Achilles: Essays 1968-1973*. New York: Random House (1974).

Aldo Leopold, *A Sand County Almanac*. New York: Oxford University Press (1949).

Erwin Schrodinger, *What is Life?* Cambridge: Cambridge University Press (1944).

Nevil Shute, *On the Beach*. London: Heinemann (1957).