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# THE ECOZOIC READER

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*Critical Reflection, Story and Shared Dream Experience of an Ecological Age*



*If we are moving into an ecological age . . .*

## *Where Are We Going?*

*"The historical mission of our time is to reinvent the human-at the species level, with critical reflection, within the community of life systems, in a time-developmental context, by means of story and shared dream experience."*

—Thomas Berry

# The Great Work

We are about the Great Work.

We all have our particular work—some of us are teachers,  
some of us are healers, some of us in various professions,  
some of us are farming.

We have a variety of occupations.

But beside the particular work we do  
and the particular lives we lead,  
we have a Great Work that everyone  
is involved in and no one is exempt from.

That is the work of moving on from a terminal Cenozoic<sup>1</sup>  
to an emerging Ecozoic Era<sup>2</sup> in the story of the planet Earth . . .  
which is the Great Work.

—Thomas Berry

<sup>1</sup>Our current geo-biological era, the Cenozoic Era, began 65,000,000 years ago following the mass extinction of dinosaurs and many other species. Now Earth is undergoing another mass extinction of plant and animal species, this time caused by the impact of human activity on the community of life systems. The Cenozoic Era is ending.

<sup>2</sup>That another geo-biological era will follow the Cenozoic Era is not in question. What is in question is whether humans and other forms of life as we know them will continue to flourish. Will we achieve a viable mode of human presence on the Earth? The "Ecozoic Era"—a time of mutually enhancing relationships among humans and the larger community of life – represents the hope that we will.

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## Center for Ecozoic Studies

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### Membership and Subscription Information

A subscription to *The Ecozoic Reader* is a benefit of membership in CES. Membership in CES means a personal commitment to research, education and artistic expression concerning the Ecozoic Era and how to bring it about.

Dues are \$25.00 US per year for individuals or families (outside of the USA, Mexico and Canada, add \$10.00 US). Sustaining memberships are \$125.00 US. (Reduced cost memberships are available for \$15.00 US per year.)

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### Statement of Purpose

The purpose of the Center for Ecozoic Studies (CES) is to contribute through education, research and the arts to the realization of the Ecozoic Era. CES emphasizes critical reflection, story and shared dream experience as ways of enabling the creative advance needed to bring into being a new mode of human civilizational presence, and also discerning the practical steps leading toward the Ecozoic. CES is dedicated to the principle that we live in a meaningful, continuously evolving universe. In such a universe, the Ecozoic Era is a process concept—not something to be arrived at, but rather something ever to be created. Its hallmarks are inclusiveness, interdependence, and appreciation; communion, differentiation, and subjectivity; and sensitivity, adaptability, and responsibility. It crucially involves more just and cooperative relationships among humans, as well as transformed relationships of humans with the larger natural world.

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# Critical Mass!

By Ellen LaConte

Critical Mass is . . .

1. The sum of the destructive consequences of  
***LIVING BEYOND EARTH'S MEANS.***
2. A condition which triggers life-altering,  
***CATASTROPHIC READJUSTMENTS.***
3. A local, regional and global syndrome with  
***INTER-RELATED CAUSES, EFFECTS  
AND DEPENDENCIES.***
4. *The number of humans working in  
any locale*  
***NEEDED TO BRING ABOUT SWEEPING  
CHANGE.***

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# End of the Petroleum Interval

*Excerpt from The Long Emergency By James Howard Kuntsler\**

Here again are some of the salient facts of the global oil situation:

- The total planetary endowment of conventional nonrenewable liquid oil was roughly two trillion barrels before humans started using it. Since the mid-nineteenth century, the world has burned through roughly one trillion barrels of oil, half the total there ever was, representing the easiest-to-get, highest-quality liquids. The half that remains includes the hardest oil to get, lowest-quality liquids, semisolids, and solids.
- Worldwide discovery of oil peaked in 1964 and has followed a firm trendline downward ever since.
- The rate of oil use has accelerated tremendously since 1950. The explosive rate of world population growth has run parallel to our rates of oil use (in fact, oil has enabled the population explosion).
- The world is now using 27 billion barrels of oil a year. If every last drop of the remaining one trillion barrels could be extracted at current cost ratios and current rates of production—which is extremely unlikely—the entire endowment would last only another thirty-seven years.
- In reality, a substantial fraction of the remaining half of the world's total oil endowment will never be recovered.
- After peak, world demand will exceed world capacity to produce oil.
- After peak, depletion will proceed at 2 to 6 percent a year, while world population is apt to continue increasing (for awhile).
- More than 60 percent of the remaining global oil endowment lies under the Middle East.
- The United States possesses 3 percent of the world's remaining oil reserves but uses 25 percent of world daily oil production.
- The United States passed peak in 1970 with the annual rate of production falling by half since then—from roughly 10 million barrels a day in 1970 to just above 5 million in 2003.
- The ratio of energy expended in getting the oil out of the ground to the energy produced by that oil in the U.S. oil industry has fallen from 28:1 in 1916 to 2:1 in 2004 and will continue falling.

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\* From James Howard Kuntsler, *The Long Emergency: Surviving the Converging Catastrophes of the Twenty-First Century* (New York: Atlantic Monthly Press, 2005), 66-67.

## End of the Petroleum Interval

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## Overview of Swimme and Berry's Vision of the Ecozoic

By Herman F. Greene

If we are moving into an ecological age . . . “Where Are We Going?”

No better answer can be found than in the last chapter of Brian Swimme and Thomas Berry's book on *The Universe Story*.<sup>1</sup> We have arrived, they say, at a critical moment in Earth's history and if we are to have a viable future, we must move into “The Ecozoic Era.”

Here are some excerpts from “The Ecozoic Era,” Chapter 13 of *The Universe Story*:

The terminal phase of the Cenozoic was caused by a distorted aspect of the myth of progress. . . . Progress has been measured, not by the integral functioning and florescence of the Earth community, but by the extent of human control over the nonhuman world and the apparent benefits that emerged for humans. (241)

This term *progress* is itself something of a parody of the inner dynamics of the universe. . . . That the universe, in the diversity and abundance of its expression, has been so successful over vast periods of time is a wonder that we only now begin to appreciate. (242)

Presently we seek to remedy the devastation of the planet by entry into a new period of creativity participated in by the entire Earth community. This new period we identify as the Ecozoic era, a fourth biological era to succeed the . . . Cenozoic. (242-43)

That the universe is a communion of subjects rather than a collection of objects is the central commitment of the Ecozoic. Existence itself is derived from and sustained by this intimacy of each being with every other being of the universe. (243)

Because of [its] organic quality, Earth cannot survive in fragments. . . . The integral functioning of the planet must be preserved. (243)

To preserve the economic viability of the planet must be the first law of economics. (243)

To preserve the health of the planet must be the first commitment of the medical profession. (243)

To preserve the natural world as the primary revelation of the divine must be the basic concern of religion. (243)

The well-being of the Earth is primary. Human well-being is derivative. (243)

Without reciprocity the Earth could not survive. Failure to understand this is one of the reasons for the devastation of the late Cenozoic era by its human component. (244)

In the early civilizations the cosmological order was consistently experienced in terms of human society, and human social order was conceived in terms of the cosmological order. . . . When we propose that the future might be designated as the Ecozoic era we have in mind the restoration, in a new context, of this primordial mode of human awareness. (244)

It has been difficult for humans to appreciate that the planet is given to us as a one-time endowment. Although the Earth is resilient and has extensive powers of renewal, it also has a finite and a nonrenewable aspect. (247)

It is already clear that in the future the Earth will function differently than it has functioned in the past. In the future the entire complex of life systems of the planet will be influenced by the human in a comprehensive manner. (247)

Only a comprehensive commitment to the Ecozoic can effectively counter the mystical commitment of our present commercial-industrial establishments to the Technozoic. There is a special need in this transitional phase out of the Cenozoic to awaken a consciousness of the sacred dimension of the Earth. (250)

The immediate goal of the Ecozoic is not simply to diminish the devastation of the planet that is taking place at present. It is rather to alter the mode of consciousness that is responsible for such deadly activity. (250)

The comprehensive objective of the Ecozoic is to assist in establishing a mutually enhancing human presence upon the Earth. (250)

The basic obligation of any historical moment is to continue the integrity of that creative process whence the universe derives, sustains itself, and continues its sequence of transformations. (251)



The primary need is to withdraw from our efforts to impose a mechanistic overlay on the bio-systems of the planet . . . [t]hen we might listen to the natural world with an attunement that goes beyond our scientific perceptions. However helpful these may be, they cannot deal with the spontaneities that ultimately determine the course of things in the biosystems of the planet. (252)



[The] Western addiction to commercial-industrial progress as our basic reference for reality and value is becoming an all-pervasive attitude throughout the various peoples and cultures of the Earth. Efforts to present the reality of the situation are [met with opposition due] to the subservience of our religious, educational and professional establishments to our industrial culture. (254)



[T]he tendency to minimize the difficulties before us is the greatest obstruction to the radical change in human consciousness [of] the order required for entry into the creative phase of the Ecozoic. This change is something [on the order of a religious transformation]. Our new sense of the Universe is itself a type of revelatory experience. [W]e are moving beyond any religious expression so far known to the human into a meta-religious age that seems to be a new comprehensive context for all religions. (254)



The Ecozoic Era requires a comprehensive human consensus. It needs such support for its planetwide programs. The entire planet would then be considered as a commons. (254)



Religion begins to appreciate that the primary sacred community is the universe itself. In a more immediate perspective, the sacred community is the Earth community. The human community becomes sacred through its participation in the larger planetary community. (257)



Beyond all this and in a sense more encompassing than any of these is the role of women in the future. The need presently is recognition of women in their capacity to interpret the human venture at its most basic level in the context of the universe and the planet Earth. (257)



Our Cenozoic dictionary cannot deal adequately with the realities of existence in this new period. We need an Ecozoic dictionary. (258)



Humans are becoming much more sensitive to the nonhuman languages of the surrounding world. We are learning the mountain language, river language, tree language, the languages of the birds and all the animals and insects, as well as the languages of the stars in the heavens. (258)



What we seldom think about is the human as species. We will never come to appreciate the full significance of human adjustment in this new biological era until we begin to think of the human as a species among species. . . .Until we begin to think about our human story as integral with the larger life story and the larger Earth story we will not be fully into the Ecozoic period. (259)



What the Ecozoic era seeks ultimately is to bring the human activities on the Earth into alignment with the other forces functioning throughout the planet so that a creative balance will be achieved. When the curvature of the universe, the curvature of the Earth, and the curvature of the human are once more in their proper relation, then Earth will have arrived at the celebratory experience that is the fulfillment of earthly existence. (261)



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<sup>1</sup> Brian Swimme and Thomas Berry, *The Universe Story* (San Francisco: HarperSanFrancisco, 1992)

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# We Have an Obligation to Endure

By Andrew Angyal

## I. Taking Stock

It has been over forty years since Rachel Carson published *Silent Spring* in 1962, the book that gave rise to the modern American environmental movement, and we might well ask how much has changed and what has been accomplished since the date of that publication and her death in 1964? To what degree has the environmental movement been able to achieve its goals? At best it has been a mixed success. We can point to the first Earth Day in 1970, the founding of EPA in 1972, and major environmental laws such as the Clean Air Act (1967, 1970), the Clean Water Act (1965, 1977), and the Endangered Species Act (1973), but now we sense a waning public interest in the environment, especially since 9/11. The current administration led by George W. Bush seems determined to weaken virtually every major piece of environmental legislation. And it is doubtful that the present Congress would pass any significant new environmental laws. While public opinion polls show that most Americans claim to support the environment, only 1-2% rank it as a political priority. While the public responds vigorously to scares over SARS, Mad Cow disease and avian flu, people seem to respond apathetically or with disbelief to the more serious warnings from scientists about the dangers of global warming and the decline of fossil fuel reserves. There is less political support for sustainability initiatives in the United States than in any European country. The sad truth is that for a variety of complex reasons, the environmental movement seems unable to significantly impact contemporary American culture.

Consider the impact of consumerism. Even though the environmental movement challenged many of the basic assumptions of the consumer culture, Americans seem more firmly enmeshed in consumerism today than forty years ago. Though Americans claim to support the environment, they rarely make the connections between specific environmental issues and their personal behavior. Suburban mothers who drive their asthmatic children to the emergency room in their SUVs do not make the connection between the worsening air quality, their child's asthma, and their consumer decisions. Americans claim to be energy conscious, yet they continue to purchase vehicles with low gas mileage. They want clean water, yet they continue to drench their lawns

with pesticides and chemicals that wash into our streams and rivers. They claim to support recycling, yet most states do not support a deposit return on soft drink cans and bottles. They want healthy food, yet they fail to support organic agriculture. Contradictions abound, and they amount to our overall failure to support an environmentally sustainable culture.

“Health is the capacity of the land for self-renewal,” according to Aldo Leopold. In order to achieve sustainability, we need to develop what Leopold called a “land ethic.” We must learn to evaluate every environmental policy decision according to whether or not “it tends to preserve the integrity, stability, and beauty of the biotic community” (Leopold 1949). As Bill Ross, the secretary of the North Carolina Department of Environment and Natural Resources has observed,

There are limits to the natural resources we depend on, and we have to pay attention to those limits. We've got to make our activities sustainable on a broad scale—statewide, nationwide, and worldwide. We need to write a new story. In the old story, Americans waged war against nature and claimed a false sense of unlimited resources. It was a flawed story, and it isn't functioning any longer, but we don't have a new one to replace it. The new story has to be based on a more humble understanding of our place in nature and a more realistic sense that our natural resources have to be protected.” (*Wildlife in North Carolina* 4).

Part of the problem may be in how the environmental message has been cast. Too often environmentalists appear negative. They use scare tactics, dire warnings, scientific predictions, or other negative messages that do not resonate well with the general public. Environmentalists have allowed themselves to be ignored, dismissed, stigmatized, or ridiculed, and have failed to capture the imagination of the American public. They have failed to generate the moral fervor of the Civil Rights Movement or the passion for equality of the Women's Movement. There has been no Martin Luther King, Jr. to lead the Environmental Movement. Environmentalists have allowed themselves to be cast as a special interest group instead of as advocates for the common good. And they have

**The sad truth is that for a variety of complex reasons, the environmental movement seems unable to significantly impact contemporary American culture.**

failed to put polluters on the defensive by articulating a basic human right to a clean and healthy environment. There is probably no issue that touches ordinary Americans more directly than “quality of life,” because it is the measure of how well we are able to achieve our national dream of “life, liberty, and the pursuit of happiness.” But it is apparently not obvious to Americans that a deteriorating environment will affect their quality of life. Too often the benefits of pollution-producing activities are seen as immediate, while the costs are passed on to the future generations.

But what exactly do we mean by “quality of life” or “the pursuit of happiness”? Do these guarantees consist of an *individual* right to the pursuit of happiness, or a sense of the *common good*? Is the individual pursuit of happiness unlimited, or are there social limits to personal ambition? And should corporations enjoy the same constitutional protection as individuals? These are perennial questions of American political philosophy, and they have direct bearing on the ways in which Americans have responded (or failed to respond) to the environmental crisis. Put simply, any perception that environmental protection will compromise or reduce Americans’ standard of living is a nonstarter for most people. This is the ploy that the opponents of the environment have used: business, corporate, and free market interests have run a very successful anti-environmental public relations campaign to discredit the environmental movement as extremist and anti-growth. And so they have been able to blunt, diminish, or in some cases roll back important environmental legislation, especially in the courts, by charging that environmental laws amount to unlawful taking of private property. Virtually every anti-environmental coalition employs some clever euphemism such as “wise use movement,” “sagebrush movement,” or “Americans for sound energy policy,” to disguise their real interests and motives.

But how does environmental quality affect our quality of life? How do the basic notions of individual rights and the common good relate to environmental protection? Why is it essential that we protect the quality of our forests, lakes and rivers from exploitation and destruction by special interests? In particular, at what point does the individual or corporate desire to make a profit conflict with the common good? And if we identify a healthy environment with the common good, how do we legally protect it, since the American Constitution provides no specific rights, protections, or legal standing for the natural environment? In fact, the Constitutional protection of private property virtually guarantees an individual’s or corporation’s right to do anything it wishes with its private property. There have been some suggestions about the need for a Constitutional amendment to protect the air, soil, and water, but given the difficulty in amending the Constitution and the failure of the

Equal Rights Amendment to pass, that would be an uphill battle probably not winnable in the current political climate.

The problem lies in the fact that the prevailing culture views humans and the natural world as separate entities, instead of as parts of a single Earth community. This is a tragic misconception. As Lester Milbrath (1989) explains, the health of the individual depends on the health of the larger community of life:

I can imagine a biocommunity thriving well without any human members but I cannot imagine a human society thriving without a well-functioning biocommunity. Similarly, I can imagine human society functioning well without a given individual but I cannot imagine an individual thriving without a well-functioning biocommunity and a well-functioning human community. Therefore, individuals desiring quality of life must give top priority to protection and preservation of their biocommunity (their ecosystem). Second priority must go to preservation and protection of the good functioning of their social community. Only when people are careful to protect the viability of their two communities is it acceptable for individuals to pursue quality of life according to their own personal desires.

This view directly challenges our consumer culture’s emphasis on maximizing our personal good, regardless of the cost to society or to the environment. Our growing consumer economy puts increasing demands on the natural world to meet ever-expanding material demands, and Americans are becoming increasingly isolated from functioning biotic communities. The growth of our consumer culture has been justified by the assumption that unlimited economic growth is both desirable and possible, and that any attempt to regulate or restrict economic growth is unacceptable. Our cultural heritage has not led Americans to accept the idea of limits, but it is clear that to accommodate twice the current population in the same land area with the same natural resources, we will either have to become twice as efficient or make do with half as much. We need to begin thinking now about how to make the transition to sustainability in every area, including energy, water, food, land use, transportation, construction design, and fiber and clothing. We will need a combination of much more efficient technologies, sustainable energy production, and comprehensive recycling and reuse of materials. We will need to study both the ecology of natural systems and human ecology in order to understand how our technological culture can best fit into the natural world. What will it take for Americans to be persuaded to undertake these challenges?

Growth and progress have become the bywords of our consumer culture, and we are told that we cannot sustain our economy without continued growth. Yet the current human population growth, technological growth, growth in consumption, and economic growth must eventually come up against physical limits, probably early in this century. Free market economic models assume unlimited economic growth, but this is simply not physically possible in the natural world of which we are inextricably a part. As we run up against natural limits, nature will leave us no alternative but to change. A prudent culture would try to anticipate and adjust to limits, but our consumer culture has chosen largely to ignore them. As nature's "free" services of clean air and water, soil, land and fossil energy come to an end, we are told not to worry because in the future we will be able to purchase these as commodities. Some see a commodified nature as industrial capitalism's answer to our environmental crisis, but even if such commodification were possible, the likelihood is slim that the market's distribution of these commodities would be done with the equitable beneficence of nature. Moreover, such "free" market solutions have little capacity for anticipating the long-term future because the "efficiency" of the market is its ability to respond to current fluctuations in supply and demand. Waiting until prices rise before we conserve will result in future generations being deprived of natural resources because we have consumed or wasted them. Environmental assets are part of the public good—like police, fire, libraries, schools—and they can generally best be protected by government, not by private self-interest. Maintaining the integrity and good function of its ecosystem should be the most fundamental goal of a sustainable society. In order to maintain the ecological health of the planet, it is essential to understand the human economy as a subset of the natural ecology of the planet, not vice versa. We must understand that human and environmental health are inseparable: healthy humans cannot live on an unhealthy planet.

## II. Post-Consumerism and the End of Oil

Let us imagine what a post-consumer culture might be like—isn't this in part what Thomas Berry means by our "Great Work"? First of all, we could certainly affirm that it would be a sustainable culture, but what do we mean by "sustainable"? The World Commission on Environment and Development, in the 1987 Brundtland Report, defined sustainability as "achieving overall human and ecosystem well-being without compromising the ability of future generations and ecosystems to meet their own needs." Some Native Americans define sustainability in terms of the "seventh generation" concept—acting in such a

way as to ensure the well-being of seven generations into the future. Some ecologists may define it as protecting and preserving functioning ecosystems and their biodiversity. Clearly, sustainability involves a reduction in our current levels of consumption so that we do not deplete the resource base upon which future generations must depend for their survival. It means both accepting limits and consciously planning for the future.

There is a wonderful story about the oak beams in the ceiling of College Hall at New College, Oxford. When they needed to be replaced, carpenters used oak trees that had been planted in 1386 when the dining hall was first built. The 14th century builder had planted the oak trees in anticipation of the time, hundreds of years in the future, when the beams would need replacing. How different this is from corporate behavior today with its emphasis on this quarter's results! The bottom line question is what kind of a world will we leave to our children, and our children's children?

In the first chapter of *Silent Spring*, Rachel Carson painted a grim picture of a world without songbirds, but the future we contemplate today is much grimmer. It is a 21st century world of runaway global warming climate change, acid rainfall, poisoned, industrially controlled food supply, over-fishing, mass extinctions of species, depletion of rainforests, loss of crop and grazing lands, massive human migrations because of overpopulation, famine and disease, chronic water shortages, polluted air, shortages of fossil fuels and raw materials, enormous stockpiles of toxic and radioactive waste and garbage, and a landscape utterly ravaged by overdevelopment and suburban sprawl. This could be the legacy of our modern corporate-consumer culture unless we find the will to make some serious changes in our behavior.

Thomas Berry calls for the human community to turn from its anthropocentric norms to a geocentric norm of reality and value. Earth belongs to itself and to all component members of the Earth community. Industrial exploitation is plundering Earth, leading to deep cultural and ecological pathology. The question of the viability of the human species is ultimately connected to the viability of the larger biotic community. The Earth community—the community of all species—is the greater reality and value. Hans Jonas (1984) warns us never to place humanity's existence or basic humanity at risk, but this is precisely what we are doing by ignoring the environmental crisis.

Make no mistake about it, becoming a sustainable society will require enormous social change. Achieving sustainability will require a paradigm shift in all our thinking from our present consumer worldview to an ecological worldview. How can we persuade people to become caring as regards to

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the larger community of life and be willing to make sacrifices for the common good? Rarely do societies embark upon voluntary social change unless they are confronted by some immediate and serious crisis. Crisis is already upon us, as evidenced by the devastation following Hurricane Katrina and by the daily devastation occurring in less developed countries, often hidden from our eyes. Waiting for serious and immediate *global* crisis before we change would be to wait until it is too late.

Perhaps change is so hard because we lack a cultural memory that would prepare us for the magnitude of the challenge that lies ahead. The industrial revolution and now our advanced technological society have for the most part steadily improved human conditions in the West. Indigenous cultures practiced restraint because they had experienced famine and thus had learned the consequences of over-harvesting natural resources in their tribal area, but we are wedded to a worldview without natural limits. One measure of sustainability is a person's, an area's or nation's "ecological footprint," which is a measure of the resources used. The United States presently has the world's largest "ecological footprint" at 23.7 acres per person—while a sustainable footprint is estimated at 4.6 acres. It would take five Earth's for the world's population to live as we do. We are like people living in a walled castle oblivious to the suffering around us, not knowing that these walls will soon be breached and the woe of the world will be upon us.

What would sustainability mean from an ordinary perspective? Whether we are aware of it or not, the world we know runs on cheap oil and natural gas. All human activities require energy, which physicists define as "the ability to do work." With less energy, less work can be done for us by mechanical or electronic means, from manufacturing to shipping, to driving our cars, cutting our lawns or even drawing our water. Currently, we depend on fossil fuels for about 83% of our energy, but estimates indicate that we have only about forty years of proven oil reserves remaining. Though fossil fuel reserves in coal, shale and tar sands will remain, they cannot substitute for the cheap oil of the petroleum interval. Worldwide oil consumption is increasing by about 2% per year—we are consuming oil as if we had hundreds of years of reserves left. Yet, as the Chevron ad bravely notes, it took 150 years for humans to consume the first trillion barrels of oil, but it will take only 30 years for the second trillion barrels to be consumed . . . and this is all there is. Our children will probably face the end of the "age of oil" within their lifetime. We clearly need a national energy policy that will confront these realities without the fantastic notion that abundant, cheap and clean energy sources are available if we simply unleash the power of the markets.

M. King Hubbert, an American geophysicist, first predicted the end of the fossil fuel era in 1949, showing

in his "Hubbert curve" that discovery and production of oil in America and other world regions follow a classic bell curve. American oil production peaked about 1970 and has been declining ever since; and experts predict that sometime within the next ten years, world oil production will also peak and begin to decline. If you are skeptical, check the website for BP Petroleum, which has already adopted the motto "beyond petroleum," or do a web search for "oil depletion." With only 5% of the world's population and only 2% of the world's oil reserves, the United States consumes 26% of the world's oil supplies. A crisis will inevitably occur when the global demand for oil exceeds global production capacity, and we are experiencing the beginnings of this now. How will we respond? A rational person would want to plan ahead to minimize suffering during the inevitable transition period to alternative, renewable energy sources.

Making the transition to sustainable energy sources—which will mean living with less energy—will be a major challenge for all cultures, especially the advanced industrial societies.

### III. The Transition to Sustainability

I believe that impending global oil depletion will force us to live more sustainably, but making the transition to a sustainable culture will not be easy. Not only do we depend upon cheap energy for transportation, but petroleum is also an essential raw material for many manufactured goods, such as plastics, pharmaceuticals, fertilizers, paints, solvents, and much more. Finding substitutes for petroleum will be difficult, although it may be possible to synthesize some organic substitute products from biomass. Living sustainably will require us to adopt a bioregional vision. We will need to produce more of what we use closer to home because of the increased cost of transportation. We will need to become more interdependent. We will need to learn how to accept limits, shortages, and inconveniences, even though Americans have not been very good at accepting them. So far Americans have not been willing to conserve energy or resources, so I wonder how well we will face this challenge? Could we rediscover the spirit of sacrifice of the World War II generation? It will take a concerted national effort to muster the energy, creativity, and resources to make the transition to a sustainable economy. Will it be possible to persuade Americans of the need to consume less?

Moving to a small farm eight years ago has taught me some hard lessons about sustainability. I doubt if most Americans would be willing or able to raise their own food, heat with wood, or accept a life of voluntary simplicity. Small farms are labor intensive, and if everyone heated with wood, it would not be sustainable! But we must try to preserve more farms and find ways to

generate more of our electricity with solar and wind power. We should try to buy locally or regionally to support the local economy. We will have to design our homes and offices to be more energy efficient and be willing to use public transportation. Large institutions may find it advantageous to generate at least some solar or fuel cell power. Communities will need to accommodate bicycle or footpaths. The obesity problem will take care of itself as Americans become more active and physically fit. Recycling and reuse of essential raw materials will become mandatory. Sustainably-generated electricity will gradually become the major power source, with increased use of hydrogen-powered fuel cells to store excess capacity. Electrical appliances will become much more energy-efficient. Public environmental awareness will increase.

Here are some tentative ground rules for sustainability:

- Stay within current solar and renewable energy resources.
- Aim for zero waste and 100% recyclability of metals, plastic, glass.
- Create a steady-state economy based on natural models.
- Practice complete composting, recycling, and detoxification of all organic waste.
- Aim for organic, local food production.
- Use sustainable, passive solar building designs.
- Employ bioregional materials, production and distribution models.
- Design a regional public transportation network.
- Create a comprehensive local and regional land-use planning network.
- Increase public awareness of ecology through education.

#### IV. Transformation of Culture and Values

The environmental crisis reflects a deeper crisis in Western culture, a crisis of values and spirit. No culture can survive for long on a foundation of individual selfishness and greed. Cultures also need altruism, idealism, generosity, sacrifice, and mutual aid, motivated by a vision of the common good. The illusion of our consumer culture, fostered by advertising, is buy more and you'll be happy. In contrast, the wisdom traditions of the world teach us to want less and love more—love our neighbor, creation, and God.

There are four core values in a sustainable society with a high quality of life—security, peace, compassion, and justice—and these values must be extended to the natural world. A compassionate society is more sustain-

able than a competitive society that sets us against each other and against Earth. All of the great world religions are united in their understanding of the need to protect Earth's environment as the foundation of life. The vast majority of the world's population wants to live with dignity and respect in a clean and healthy environment. Our corporate-consumer culture is clearly not sustainable within the bounds of Earth's renewable cycles, but it will be forced to change by the impending depletion of global oil supplies. Our task is to make a transition from a consumer culture to a sustainable culture, and the support of organized religion will be indispensable in order for this change to occur.

We must decide whether our future choices will be driven by consensus decisions made for the common good, or by personal and group selfishness. We are facing a momentous historical challenge: Will we be able to plan rationally for a sustainable future for our advanced industrial culture, or will we become the victims of the unintended consequences of our material prosperity? As Rachel Carson observes, "We have an obligation to endure." What we need is a new ecological paradigm that emphasizes humans living in harmony with nature, rather than trying to dominate it (Milbrath 1989). Americans need to learn how to live lightly on the land and leave a small ecological footprint. If these cultural changes occur, perhaps we will finally learn to be at home on this planet.

As Lao Tsu observes in the *Tao Te Ching*, "Therefore he who knows that enough is enough will always have enough." (46).

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#### Sources Consulted

- "Alamance County: Destination 2020 Strategic Plan." Destination 2020 Planning Workgroup, 2003.
- Carson, Rachel. *Silent Spring*. Boston: Houghton Mifflin, 1962.
- Earley, Lawrence S. "Conservation Visions: One North Carolina Naturally." *Wildlife in North Carolina* 68, 4 (April, 2004): 4-9.
- "The Earth Charter." UN Earth Charter Commission, 2002.
- Goodstein, David. *Out of Gas*. New York: W. W. Norton, 2004.
- Leopold, Aldo. *A Sand County Almanac*. New York: Oxford University Press, 1949.
- Milbrath, Lester. *Envisioning a Sustainable Society: Learning Our Way Out*. Albany: State University of New York Press, 1989.
- Tsu, Lao. *Tao Te Ching*. New York: Vintage Books, 1997.

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## Principles of Ecological Sustainability

*Excerpt from Ecological Literacy By David W. Orr\**

1. There *are* limits to the human ability to comprehend and control. Or to put it in theological terms, “We humans cannot escape our creaturehood, no matter how sophisticated our technology becomes.”
2. When we accept our creaturehood, we humans have the capacity to develop a feeling of commitment to the earth, or better to particular places on the earth, and this “sense of place,” as it is often called, leads us to act responsibly in relationship with the earth and our fellow creatures. Some call nurturing this sense of place becoming “ecologically literate.”
3. When it comes to sustainable living we have much to learn from past practices and traditions as much as we do from the new technologies. Especially, we have much to learn from those who have lived with a strong sense of connectedness to place, as have many indigenous communities.
4. Nature is not just matter to be used or a set of limits but nature is a model for sustainable living to which we in the so-called developed world must pay much closer attention.
5. Sustainability requires political and economic decentralization and appropriate scales of growth.
6. We are not separate from nature. The distinction between self and world upon which the modern world and the myth of technological sustainability depend must be transcended and replaced with a profound sense of interrelatedness.

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\* From David W. Orr, *Ecological Literacy: Education and the Transition to a Postmodern World* (Albany: State University of New York Press, 1992), 23-40.



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# Overview of Oberlin College Forum on “Envisioning a Sustainable and Desirable America”\*

*Overview by Alice Loyd*

The first ESDA future search conference was held at Oberlin College in January 2001. Participants representing “a cross-section of U.S. society with a few foreign representatives” constructed a “vision of life in the United States in 2100.” The vision was based “on a set of realistic assumptions both about people and the rest of the world that embodied the latest scientific research findings.” The assumptions included “no major technological breakthroughs, but rather assumed historical rates of technical change.” The report is divided into four categories: worldview, built capital, natural capital, and human capital. It assumed that “people would not be fundamentally any different than they are today.”

## I. Worldview

### Values

- Humans will re-establish a spiritual connection to nature.
- People will recognize that humans are part of nature . . . and must obey the laws imposed by nature.
- Ever increasing consumption will no longer be considered an integral component of human needs.
- People will pay attention to their other needs and desires, such as joy, beauty, affection, participation, creativity, freedom, and understanding.
- Status will not be conferred by high incomes and high consumption (individual ends) but rather by contribution to civil society (community ends).
- As more and more people come to understand the inherent complexity of ecosystems and human systems, an ecological worldview of complexity and indeterminacy, inspired by nature as mentor—holistic, integrated, and flexible—will replace the worldview of mechanical physics.
- Individualism will still be extremely important, but it will be tempered by a concern for the common good.

### The Economy

- A steady state economy will be compatible with the carrying capacity of the planet.

- Since the carrying capacity is subject to change, adaptive management will be a guiding principle.
- The economy will be solar powered.
- Production will focus on quality, not quantity.
- Services rather than goods will be the most important product.
- Gross National Product replaced by measures such as the Index of Sustainable Economic Welfare or the Genuine Progress Indicator.
- People will recognize that complex moral and ethical values cannot be boiled down to simple equations and pure rationality.
- Emotion will no longer be disdained in the decision-making process, but will be recognized as a fundamental component of the human psyche.
- Technology will be a servant helping us to meet the moral and ethical ends we decide on together, not an end in itself, not a master.
- Science will still be respected within its sphere, but people will recognize that that sphere does not include moral decisions of right and wrong.

Finally, this worldview allows for people to disagree with it. “We also envision a society robust enough, productive enough, and tolerant enough to allow room for a wide range of people with differing worldviews to live together in harmony.”

## II. Built Capital

### Integrated Communities

- Technological advances will have less effect on “built capital” than altered priorities due to a changed worldview.
- Communities will integrate living space, community space, and work space with recreational needs and nature.
- Workspace includes the stores that supply our every day needs as well as production facilities for most of the goods those stores supply.
- People will live very close to where they work, where they shop, and where they play.

- Communities in general will be much smaller, though specifics of community size and design are determined by local ecosystem limits.

The report says, “People walking together in the same direction naturally converse, establishing friendships, informing each other of current events, and discussing issues of relevance to the community. In fact, developing community and social capital will become one of many explicit goals for designing built capital.”

#### Cities and Villages

- Communities will be surrounded by common natural areas appropriate to the region (no grass in the desert).
- Private homes [in America] will be smaller, but still large by world standards.
- Private gardens will supply most of the food the community eats.
- Cities will be aggregations of smaller communities but will still be organized, in many cases, on ethnic or cultural lines, offering exceptional cultural diversity and richness.
- Countryside villages will house their own industries and service providers.

#### Transportation

- Long commutes will be replaced by healthy exercise minus vehicle exhaust and road rage.
- Walking and bicycle riding will be the primary modes of transportation in good weather.
- Between communities people will travel by high speed rail.
- Within communities public transportation will be abundant and convenient.
- Buses and taxis will be powered by fuel cells.
- Private vehicles—hydrogen powered hypercars—will be expensive, and their owners will pay a higher share of costs of road maintenance.
- When private transportation is absolutely required, most communities will rent out hypercars, which also may prove a clean and efficient source of electricity for those rare occasions when local solar cells are insufficient.
- In huge cities there will still not be enough land to provide all the agricultural production and raw materials for manufacture they require, and much of this must still be shipped in.

#### Energy Usage and Production

- Renewable resources will meet virtually all of the nation’s energy needs.
- The conversion from hydrocarbons will be facilitated by continuous increases in efficiency.
- Photovoltaic tiles will be ubiquitous in roofing materials, and roofs alone will meet over half the nation’s energy needs.
- Much of the electricity from wind farms and solar farms will be used to create hydrogen for fuel cells.
- Large scale hydropower will be decreasing in importance as more and more rivers are restored to their natural states, but low impact mini-turbines will be increasingly common.
- In spite of the abundance of renewable, non-polluting forms of energy, energy efficiency research will still be important, the primary goal being to reduce the area of the country covered in solar cells.

#### Industry

- Industry will be locally owned and located near the population to which it supplies goods and services.
- Industrial design will be based on closed loop systems in imitation of nature, where the waste product from one industry becomes the feedstock of the next.
- Wasted heat from industrial processes will be used to heat nearby homes and workspaces, and the waste that is produced will be regulated and managed locally.
- With local ownership and production for local markets, the importance of trade secrets and patents will be reduced.
- Competition will be replaced to some extent by cooperation, leading to a decrease in the size of the advertising industry, making products better or simply more affordable.
- Permanent buildings will be constructed to last several generations, while temporary structures will be recyclable and/or biodegradable. For example, “straw bale houses with stucco and thatch roofs will have modular electric and plumbing systems that are easy to remove. The remaining structure can then be knocked down and plowed under, enriching the local soil.”

The discussion about patents is related to statements in the report about climate change. “The problems with patents will become more obvious with the tremendous growth in green technologies. Green technologies will prove themselves capable of slowing climate change, reducing pollution, and decreasing our demands on scarce ecosystem resources. However, they will only be able to achieve these goals if used on a large scale. Patents on these technologies and the monopoly profits they imply will mean that much of the world will be unable to afford them. The global community will come to realize that it cannot afford to have large numbers of people not using these technologies. Fortunately, the free flow of information inspired by the Linux revolution will lead to impressive new innovations, often making patents obsolete. Some industries will retain substantial economies of scale, using fewer resources per unit when produced in enormous factories. This may be the case for solar cells, for example. Large corporations may still exist to produce such goods, but will be subject to government regulation. Corporate charters will be issued for the short term only, and renewal will be tied to responsible action on the part of the corporation.”

### III. Natural Capital

- The imitation of healthy ecosystems will be a standard approach, further reducing waste and promoting “active investment” in natural resources.
  - America will be actively engaged in restoring and rebuilding its natural capital stocks by planting forests, restoring wetlands and increasing soil fertility.
  - The former philosophy of natural capital as free goods provided by nature will have disappeared.
  - Most forms of natural capital will be recognized as intergenerational assets.
  - Legislation will explicitly prohibit Americans from extracting renewable resources beyond the rate at which they can replenish themselves.
  - Property rights to land will be explicitly extended to future generations, and there will be steep fines or even criminal penalties for leaving land in worse condition than when it was purchased.
  - Green taxes will force both consumers and producers to pay for the damage caused by resource depletion and waste emission. When these costs are unknown, those undertaking potentially harmful activities will be forced to purchase bonds or insurance that guarantee reimbursement to society for whatever damages do occur.
- Energy for industrial processes will still be reliant on “carbohydrates produced by plants as a feedstock for many industrial processes that currently rely on hydrocarbons, . . . (but the) ability to build non-toxic, biodegradable carbon polymers from CO<sub>2</sub> extracted directly from the atmosphere will actually be more important.” As it is this technology that will contribute the most to stabilizing and even reducing CO<sub>2</sub> in the atmosphere.  
If global warming leads to dramatic changes in weather patterns and climates, plant and animal communities may only be able survive if they have uninterrupted wildlife corridors through which to migrate to more favorable climates. Also, almost total reliance on renewable resources will require high sustainable yields of raw materials that can only be provided by vast areas of healthy ecosystems.”

### Human Capital

- Workers will be valued less for how they contribute to profits than on how they contribute to the broader goals of society.
- The primary emphasis will be on knowledge, skills, and abilities that help people contribute.
- Education will be a lifelong enterprise integrated into everyday life, with schools everywhere rather than in a physical place.
- Education about civic responsibilities and roles will be heavily stressed.
- Youth will be schooled in civic responsibility by actively participating in the community.
- Apprenticeships will be an integral part of the learning process.
- Technology will play an important role in education, including virtual learning environments, but it will by no means predominate.
- The emphasis of advanced education and science will be synthesis rather than reduction. Analyzing problems by breaking them down into their parts will be taught, but system processes will dominate in research as in nature.
- Communication will be a theme, as will creative expression.
- Knowledge and science will not be portrayed as value neutral endeavors—students will learn that the very decision of what to study is a moral choice.

- The goals of education will be to cultivate wisdom and discernment, emotional maturity and responsible decision making.
  - “People will recognize the absurdity of applying technology to the problem of producing more goods to be consumed during leisure time regardless of the drudgery involved in production itself.”
  - To secure employees, industry will have to make work itself attractive.
  - There will also be less distinction between what today would be considered gainful employment and volunteer work.
  - Everyone will participate in civil society, both in decision making and in maintaining the public space. This will not be an onerous chore, but a pleasurable time for socializing with neighbors and community.
  - The typical workweek in traditional “jobs” will be much less than today.
  - Society will be able to provide a satisfactory living wage to all who work, and meet the basic needs of those who do not.
  - Remuneration for work will be restructured to provide the greatest rewards to those who provide the greatest amount of service to the community, such as teachers and child care providers.
  - The population will have stabilized at a level compatible with the carrying capacity of our resources and ecosystems.”
  - Many industries will be owned by the workers and placed in the communities where they live, thus making them accountable to the neighbors for price and quality. “High quality production will be a source of pride, while low quality and high prices will be perceived as incompetence and laziness, decreasing the individual’s social standing in the community, and reducing their social capital.”
  - America will have rid itself of the racism, sexism, regionalism, and other prejudices that are all too prevalent today.
  - Local currencies will increasingly be used, “backed only by trust that other members of the community will accept them in exchange for goods and services.” Immune to global economic trends, these will increase financial security for local communities, while strengthening the ties neighbors have with each other.
- “America in 2100 will no longer be a weak representative democracy, but a strong, participatory one. In a participatory democracy, the people must discuss at length the issues that affect them to decide together how they should be resolved. With smaller communities of neighbors, a far shorter work week, and engaged, active citizens, participatory democracy will be perceived as a privilege of citizenship and not an onerous chore.” Where it is impractical for issues to be decided at the local level, representatives will be chosen through direct participation by people to whom they have strong social ties and obligations.”

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## Global Ecological Policy and Sustainable Sufficiency

By Dan Figgins

Public awareness and support for the concept of “sustainable economic development” was catalyzed by three widely discussed books: *Silent Spring* (1962), by U.S. biologist Rachel Carson, *The Limits to Growth* (1972), by the international Club of Rome led by Donella Meadows, and *Our Common Future* (1987), by the World Commission on Environment and Development led by then Norwegian Prime Minister Ms. Gro Harlem Brundtland. “Sustainable development” means consuming resources and disposing of waste products only at a rate at which the “carrying capacity” of the habitat can support for an indefinite number of human generations. It means not treating the atmosphere, land, rivers, and oceans as if they were merchandise in a “going out of business sale.”

Since the introduction of this concept, many men and women of goodwill have applied it responsibly with a sincere intent to achieve sustainability, but others, including leaders of corporations and government policy makers on all continents, have only used the concept “sustainable development” to “greenwash” continued “business as usual.”

An additional shift is needed if we are to achieve the intended goal of sustainability in human management of natural resources and human consumption. There is a need to shift from “sustainable economic development” to “sustainable economic sufficiency.” “Sustainable sufficiency” would mean reduced use of resources (including energy) by the *over-privileged* of the Earth *down* to sufficiency. “Sustainable sufficiency” would also mean more consumption of resources (including the products of industry) by the *under-privileged* of the Earth but only *up* to sufficiency.

Why do the underlying assumptions about human use of the non-human world need to change from “sustainable development” to “sustainable sufficiency?” Because a growing global population, all with aspirations for increased consumption, has reached and surpassed the carrying capacity of some planetary natural resources and some chemical balances. Protection of all humans amid protection of the non-human world requires more moderate reproduction and more moderate consumption both of renewables (such as food) and of nonrenewables (such as fossil energy-producing fuels).

Further, human enterprises in agriculture, industry, electric power production, transportation, and urban conglomeration have already so intruded into many natural cycles of nature that natural processes are unable, as in the past, to repair these cycles by themselves. For example, three global biogeochemical cycles, in particu-

lar, will be seriously out of balance unless we humans act more intelligently. These are the short-term and long-term water cycle, nitrogen cycle, and carbon cycle.

In the case of the water cycle, human agricultural and livestock methods are drawing down the Earth’s long-term, fossil ground water\* at a rate at which this water cannot be restored by the short-term water cycles of precipitation and evaporation. In the case of the nitrogen cycle, humans are using nitrogen fertilizer and expelling nitrogen from fossil fuel combustion at rates beyond the capacity of natural processes to absorb and re-balance nitrogen in the land, water and air.

In the case of the carbon cycle, the long-term carbon cycle has been accelerated by releasing carbon at unabsorbable rates into the air by burning coal, petroleum, and natural gas. The atmosphere is burdened with carbon dioxide in quantities that will continue to raise the average planetary temperature with dramatic and tragic consequences for some regions. Simultaneously, under current human management practices (or inattention), extra carbon in the form of carbon dioxide is also being released in the short-term carbon cycle by cutting (or worse, burning) trees to clear land while not replanting forests.

Human activity taking place in the midst of stable, self-repairing “balance of nature” is a thing of the past. Human activity has fundamentally disturbed natural processes and must participate in their re-balancing. The needed “fixes” are partly technological, for example, water treatment plants. But clearly, restoration of many of these balances will not be possible without restoring the natural processes themselves and mitigating human damage—for example, by allowing wetlands to filter water pollution and wilderness areas and unpolluted seas to absorb excess carbon dioxide. A final type of “fix” is to introduce technologies which interfere less in the first place with short and long-term cycles of elements such as water, nitrogen, and carbon.

Finally, no maintenance of the balance between humans and the non-human part of creation—nor justice among humans—will come to pass unless we collectively act from the concept of sustainable sufficiency. The *over-privileged* should move *down toward* sufficiency, while the *under-privileged* should move *up toward* sufficiency. And all peoples should no longer measure their well-being solely by levels of consumption of material goods.

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\* Fossil ground water is water that has accumulated in underground basins over thousands of years.

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# The Turning Point of Western European Civilization—the Capitalist Economic System and the Global Environmental Problems

By Chuichiro Hirose

## 1. Is the Capitalist Economic System Incompatible with the “Valuable Sustainability of Civilization”?\*

In this paper I address the issue whether human society, already integrated across the ultimate, maximum area of Earth’s surface, can overcome the global environmental problems. I will analyze the issue from the perspectives of politics, economics and culture and focus, in particular on the adequacy of the Western European roots of the present globalized society. I will also use Alfred North Whitehead’s philosophy of organism for illumination of the problems and solutions. The global environmental situation presents the most widespread, common and serious challenges facing international community and civilization, challenges so great that they put the continuation of civilization in question. Though we have entered the 21st century, there is no sign that the environmental problems will be solved. The reports published recently by the UN Environment Programme (UNEP) and the Intergovernmental Panel for Climate Change (IPCC) point out that the situation has been worsening, and has been approaching the “critical point” forecast in “*Limits To Growth*” in 1972.<sup>1</sup>

With the advancement and development of information technology, economic globalization has rapidly progressed since the 1990s and now spans the entire Earth. Five years into the 21st century, we can say the capitalist system of market economy has been globalized and even includes China whose economy is referred to nominally as a socialist market economy. The political, economic and social systems controlling this new world are fundamentally based on the political and economic ideas originated in Western Europe. To say that we today are “living, so to speak, in an age when Europe has become the world”<sup>2</sup> is not an exaggeration. This trend of globalization of the capitalist economy as the sole economic system involves all of the world’s countries that have differing histories and cultures. They consist of (i) the advanced countries of Western Europe and advanced non-Western Europe countries that have attained a similar level of development, (ii) developing countries, and (iii) less-developed countries which suffer from poverty and population explosion.

In all of these diverse countries, because of the restrictions caused by global environmental problems and the constraints of the accelerated pace of economic globalization, antagonism among different interests has become so intense that sustainable growth has reached

its limits. The power and the effectiveness of the market economy system grounded on the modern democracy and capitalism deriving from Western European civilization has significantly contributed to the development of human society. However, at the same time, despite their contributions, the modern democracy and the capitalist system are today confronted with economic globalization problems and global environmental problems that contradict the value system that lies at the profound root of Western European civilization.

## 2. Economic Globalization as an Extension of Western European Civilization.

We will begin by citing three features that characterize the current trends of economic globalization:

(1) Economic globalization refers to the expansion of the market-driven economic system over the entire Earth based on liberalism and supported by modern democracy and capitalism. This expansion has given rise to huge economic imbalances and income disparities in the international community. At present, under this market-driven economic system, the advanced nations, which account for only 20% of the world’s population, own 80% of the world’s wealth. This imbalance is at the heart of the global environmental problems we face today.

(2) The range of political, economic and social interests among states has expanded to the maximum framework of Earth. Globalization of interests has reached its final stage where the potential of creating a new market in a new continent no longer provides a solution to the world’s socio-economic problems. Not only economic interests, but also the interests of nation-states or federations of states themselves have become international. This, in short, is the globalization of national interests. The expansion and interplay of national interests have intensified the conflict between different interests (relationship of tension) and complicated the mutual dependency (symbiotic relationship) between them.

(3) The global expansion of information, communications and transportation resulting from advances in science and technology has turned not only the economy that deals with goods and services but also the various forms of knowledge and culture of the world into simultaneous platforms in terms of both time and space. As a result, the artificially and forcefully created “compression” and “chaos” on a global scale threatens immediately cultural diversity and respect for the values of each culture. Under such economic globalization, human soci-



ety led by the advanced countries transplants the anthropocentrism of Western European civilization into various countries and places it at the core of their political, economic and social system. This has enabled them to sustain the growth of its material civilization based on mass production, mass consumption and mass waste disposition. But a worldwide warning has been sounded against continuation of this kind of development.<sup>3</sup> Today the Western-style socio-economic system as it has expanded over the entire world has triggered global environmental problems that have resulted in a fundamental contradiction. The contradiction is that by giving the priority and dominance to Western-style socio-economic system, the “valuable sustainability of civilization” is imperiled. As a result of these historical developmental processes, the values that spark the relationships among humans, among humans and nature, and among humans and material civilization as well as the order that prevails over all these relationships are about to be lost.

In the age of globalization, properly speaking, human society should reconstruct a value system of civilization consistent with the global environmental prob-

lems. Today’s global environmental problems are the extension of this cultural experiment in globalization that the human race has brought about within our Earth’s finite space. Ultimately, we are entering a phase where reform in human values holds the key to the valuable sustainability of civilization.

### **3. Breaking Away from Incomplete Anthropocentrism**

While the development of democracy and capitalism since the political revolution and industrial revolution, which took place first in the Western Europe, has contributed to the liberation of humans from the fetters of feudalism and improved the standard of living, the expansion of modern democracy and capitalism has given rise to disparities in economic development and wealth worldwide as well as to a loss of humanity and an emergence of global environmental problems. However, with regard to the various problems facing the world today, signs have begun to appear that point to the establishment of a new sense of values consistent with the view of civilization advanced by Whitehead.

These signs demonstrate clearly the merits and demerits as well as the imperfection of anthropocentrism originating in Western Europe. In order to combine the tributaries of the broad array of individual signs into a single great river, we will need to use the organic philosophy of Whitehead to integrate social sciences with natural sciences and technologies, and to synchronize the various concepts of values of civilization that support such integration.

#### **4. Establishment of Consistent and Complementary Sense of Civilization Values with Worthwhile Sustainability.**

Economic globalization has expanded rapidly in recent years amid the currents of the political, economic and social systems based on modern democracy and capitalism. Today's democracy and capitalism are based essentially on the Western European concepts of human rights, individualism, rule of law, pursuit of profit, and market-based economic principles, among others. In the light of the view of civilization that should be adopted in the age of global environment, some of these concepts as practiced in today's governments, economies, and social systems have a number of incompatibilities and inadequacies.

For example, the individual's right to "freedom and equality" was emphasized in the historical development of Western European civilization, but it was discussed only in terms of the basic human rights of individuals in the tradition of Western Europe, and was established as the rights and responsibilities of individuals within a range that had not considered the sustainability of the natural environmental conditions and "the worthwhile sustainability of civilization" for future generations.

The "rule of law" is an order guaranteed by the sovereignty of a democratic nation state or that of a federal state founded on the basic human rights inherent in the concept of individualism. The "pursuit of profit" and the "principle of market economy" were also rooted in these basic human rights of individuals, "freedom and equality," and the "rule of law." The pursuit of profit and the principle of market economy have inevitably given rise to concerns about the sustainability of Earth's environment including the imbalance in income and the increase in antagonistic relationships. The problems have reached a state where they now inhibit the sustainable growth of civilization in human society.

The so-called anthropocentrism originating in Western Europe was extremely effective in enabling man to break off from the fetters of feudalism, achieve advances in modern science and technology, and improve standards of living. However, the incompleteness of this development as an idea of civilization for human society in the 21st century, being an extension of

that anthropocentrism, has also been exposed in various places. In other words, this is a form of anthropocentrism that has brought about globalization only in the narrow sense of the term. Moreover, there is critical blindness or incompleteness in some aspects of the development of science and technology achieved during the modern age.<sup>4</sup> We have a golden opportunity now to share in the solidarity that will emerge in the process of searching for "truth, beauty, adventure, art, and peace" and reset the focus of that activity to a form of anthropocentrism as an organic body in the "age of globalization in an expanded sense of the word."

#### **5. What Will Change and How?**

To see what changes will be needed to attain this new age of globalization in an expanded sense of the word, I will examine the three themes of modern democracy, capitalism, and science and technology..

##### **(1) Regarding the Essential Incompleteness of the Principle of "Freedom and Equality" at the Core of Modern Democracy**

The principle of freedom and equality was formed in the history and tradition of Western European civilization that views humans as having a special status on Earth. In addition, because the principle of "freedom and equality" was conceived in the "narrow sense" of the term, sustainability of the Earth's environment and intergenerational ethics were externalized from their concern. So the top priority is to "internalize" these alienated concepts into the principle of "regenerated democracy." We should develop the principle of "freedom and equality" based on the principle of rights and responsibilities of individuals in a "broader sense" of the term and in a way that is consistent with human society and sustainability of Earth's environment. This will create a new form of universality comprised of "freedom" that takes into consideration the concept of "valuable sustainability of civilization" and the principle of "equality" before the law based on that freedom.

##### **(2) Regarding the Incompleteness of the Concept of "Capital" at the Root of Capitalism**

Under the principle of free competition, the economic system based on capitalism has recognized only production capital as the main "capital" required in pursuing profit. It has extracted resources from nature by investing in monetary capital to raise the necessary working capital, thereby achieving the purposes for which business activities are undertaken in commerce and industry. Consequently, in order to gain profit through commercialization and industrialization, a structurally understated selling price was established based on a low estimate of manufacturing cost that excluded consideration of the cost of commercialization and industri-

alization in terms of the sustainability of Earth's environment. For this very reason, the economic system based on capitalism developed rapidly, making the pursuit of profit so much easier and accelerating the speed at which the said economic system approached its own limits. Consequently, modern capitalism has inherently not been an economic system that sustains the regenerative power of Earth's environment.

For sustainability of economic growth, "capital" should be a concept for "expanded capital goods" needed to ensure "valuable sustainability of civilization" that includes circulating and restoring natural resources and artificial substances. Capitalism up to now lacked in substance "another important part of capital." Social and environmental capital that has led to external diseconomies should first be exposed and then "internalized" within the system under which private economic activities are managed. At present, the possibility of developed countries reaching a basic consensus on this issue exists.<sup>5</sup> If achieved, that consensus will inevitably increase the cost of economic activities during a fixed period of time, that is, until "internalization" goes full circle in society as a whole. However, the increase in investment and cost of engaging in personal economic activities will, in the long run, help reduce the financial burden of undertaking administrative activities in the public sector.

### (3) Regarding the Ethical Incompleteness of Modern Science and Technology

Scientific and technological research has been devoted to pursuing cutting-edge inventions and their development and application. On the whole, it has neglected to promote the contrasting domain in which technologies are developed for sustaining our natural environment by taking into account the recycling of artificial objects and

substances and restoring and preserving natural systems. In truth, science and technology should aim to strike a balance between enhancing Earth's capacity to regenerate itself and human's economic activities by placing greater emphasis on harmonizing with the value system of civilization, enhancing energy efficiency and circularity of natural resources and artificial objects, and reducing environmental and energy loads, all of which should fully complement "creative destruction" through appropriate levels of production and consumption. For sustainable growth of the human civilization, promotion of interdisciplinary research that integrates scientific and technological research into the humanities and the social sciences is becoming inevitably more important.<sup>6</sup>

## 6. Limits of Western European Civilization and the Applicability of Organic Philosophy

In light of the worthwhile sustainability of civilization, historical development of Western European civilization is reaching its limits. The principle of "freedom and equality," the principle of "rule of law," "modern democracy," and "capitalism," which, among others, represent the core values of Western European civilization, accompany, in part, inherent incompleteness. A fundamental shift in the values of civilization is to be sought in order to revise this inherent incompleteness. The criterion for making that shift should be "valuable sustainability of civilization" an orientation that will enable humankind to extricate itself from its traditional "anthropocentrism" and shift toward a value of civilization that genuinely encompasses the entire world in its larger sense, including the natural community.

Without the aforementioned fundamental shift, economic globalization will only serve to undermine efforts to realize worthwhile sustainability of civilization, thereby becoming an aggravating locomotive of the global environmental problems. Viewed from another perspective, today's globalization is a historical extension of a diversity of civilizations and cultures. By being almost instantaneously cast and by expanding at an historically hyper-accelerated rate into the "present location" in line with the Western European civilization and culture, today's globalization has become a phenomenon that occurs simultaneously in both time and dimension in the world. It is as if by having time, and cultural and environmental differences "compressed," civilization has fallen into a "chaotic" condition. This compressed chaos, as we may imagine the universe was prior to the big bang, has yet to be unified into a shape with a central core. After going through a number of processes including adjustment, adaptation, separation, and inte-



gration, a meaningful future form of civilization will emerge from this compressed chaotic situation, thus paving the way for the formation of the following two major currents:

a. A current—mainly in countries belonging to the Western European cultural sphere in which the anthropocentrism of Western European civilization and the tradition of the principle of democracy are inherited—that carries out a “moral renovation” leading to the formation of guiding principles attuned to the “worthwhile sustainability of civilization.”

b. A current—in countries outside the Western European cultural sphere, including China—that aims to establish a sense of value that develops, becomes independent and branches off by incorporating the good points of Western European civilization into the indigenous cultures outside the Western European civilization.

Whitehead’s view of civilization based on his philosophy of organism has also been taken up in the United Nations for resolution of problems that it faces.<sup>7</sup> The reason is that it is precisely Whitehead who, with his deep insights into the history and values of Western European civilization in fostering solidarity in the world, presents a principled vision of Western European civilization’s capacity for holistic development. With Whitehead’s insight into the civilization values originating in Western Europe, we have to transcend the limits of the contemporary understandings of Western European-style individualism, rationalism, modern democracy, and capitalism. If this transcendence occurs, the developed Western European countries (including the United States, an expression of Western European civilization), which effectively dominate the world today will come to accept Whitehead’s view of civilization, thus paving the way for a possible establishment of common value that will be acceptable to even countries outside the sphere of non-Western European civilization.

Placing the universal values based on Whitehead’s view of civilization—“truth, beauty, adventure, art, and peace”—at the core of these new currents will thus enable us to transcend the incompleteness of prosperity as presently conceived in the civilization and culture originated in Western Europe, and which has become the driving force and almost universal attraction of globalization. This, in the final analysis, will bestow civilization’s true light on those things that we have turned into external diseconomies, alienated, or blindly pursued. In other words, the values on which human civilization are based will be developmentally rendered benign. To actually put this into practice will, of course, be difficult. We will need to be aware that we are like sailors on “Neurath’s Ship.”<sup>8</sup>

## 7. Conclusion: “Voluntary Dialogue and Organizational Action from the Viewpoint of the Philosophy of Organism”

Modern democracy and capitalism, which represent the core cultural values of Western European civilization, have been transplanted in the political, economic and social systems of many countries and are about to evolve further. Economic globalization has accelerated the expansion of Western European democracy and capitalism with the inadequacies described above, and thus has worsened the problems of sustainability within the environment of the world.

The main theme of this paper is to investigate whether the capitalist economic system has become incompatible with the “worthwhile sustainability of civilization.” Today, the problem of the world environment as a common issue for humankind has been incorporated in the tide of economic globalization. The locomotive of economic globalization is the market economy system of capitalism, which, in turn, is dependent on the science and technology supported by the values of Western European democracy.

The capitalist economic system up until the present has accomplished its development by “externalizing” the issue of the limit of natural resources as well as the biological sustainability of the world, although, since the late 20th century with consciousness of these problems. Furthermore, democracy has similarly been transplanted in non-Western European countries by “externalizing” natural resources and environmental sustainability through the imperfect anthropocentrism originating in the Western European individualistic conceptions of freedom, human rights, rule of law and pursuit of profits. The same can be said regarding modern science and technology that predominantly focuses on the development of advanced frontier researches and thus puts aside industrial recycling and reusing technologies relating to materials “externalized” from the main current and other regenerative activities.

Today, the European Union, though it is most deeply steeped in Western European civilization, has been promoting efforts toward the “internalization” of these themes that have been externalized. Recognizing the evolution of the European Union’s processes of internalization, a number of other new valuable trials of “internalizations” have taken place not only in each country within the European Union, but also in various international organizations.

The common “main symphonious tune” among these various international initiatives may be summarized as a search for “valuable sustainability of civilization.” It leads to the conclusion that the world-wide synchronization to this “main symphonious tune” is the most important issue in our contemporary world. For

the accomplishment of this issue, it is definitely necessary to investigate philosophically the value of humankind within the planetary community in light of each and every natural and social science and with paramount concern for an organic understanding of humans within the global environment over concerns for specific historical, multicultural, and individual problems. It will certainly be an imperative precondition that the synchronization of these individual elements toward the “main symphonious tune” necessarily involves symphonious value-creation at the heart of its future elaboration. It would probably lead to the creation of a totally new view of the values of civilization. This also requires the holistic thoughts grounded on worthy, philosophical and conceptual contemplation. I trust that the philosophy of organism of Whitehead assures the capacity, the structure and the suitable tolerance available in tackling this theme in every respect.

For the valuable sustainability of civilization, I believe it is important and ineluctable for us to engage in a “truly total overview and analysis” of our current crisis of civilization in the 21st century. It is notable that the countries of the European Union, those very countries that gave birth to modern democracy and capitalism, have recently started to show an aspiration of vol-

untary transformation in line with the above-stated challenges. And China, which had been outside the global dialogue, has firmly established national policies and ideas that are adapted to the time of economic globalization in the 21st century and yet seeks its own form of development within its indigenous culture.<sup>9</sup> However, in the challenging adventure of “truly total overview and analysis,” it is crucial that we look beyond the ideas today’s globalized intercultural civilizations that are simultaneously “compressed” in terms of the same historical time frame as well as the same physical dimension. To take on this multidimensional project of “truly total overview and analysis”, scholars and researchers will need a new framework, one that must employ a constructively postmodern organic philosophy, such as that of Whitehead, in order to deepen their holistic thoughts, observations and verifications. Nothing less will suffice

In conclusion, I trust that I have set forth the context for understanding a task that must surely and outstandingly be cross-cultural and which may lead to the realization of the “valuable sustainability of civilization” in its processes of development by opening the way to new values and to concrete proposals for actions.

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\**Editor’s Note:* Mr. Chirose’s term “valuable sustainability of civilization” may be understood as “the value of sustaining human civilization within a multicultural, globalized society, and within the limits, life systems and processes of nature.”

<sup>1</sup> A Report to The Club of Rome (1972), by Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III. Published as Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, *Limits to Growth* (New York: Universe Books, 1972). See also Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, *Limits to Growth: The 30-Year Update* (White River Junction, Vermont: Chelsea Green Publishing Company, 2004).

<sup>2</sup> Yasuaki Onuma, “*Human Rights, the State and Civilization*” (Chikumashobo, 1998), 201.

<sup>3</sup> Fabian Society: In a report dated August 2003, England’s Protestant churches asserted: “In the race to make economic and demographic growth environmentally friendly, growth and the resultant increase in environmental load have the upper hand. As things stand, “we are postponing the thorny issue of consumption of natural resources that will be impossible to sustain.”

<sup>4</sup> This blindness may, in part, be overcome through “bird’s-eye-view research.” This is a research method that makes use of scenarios derived from social structure and thus may be called scenario-driven research. In this project, researchers from two separate fields of learning participate. In the first, researchers work to realize the main goals of the project by generating new knowledge, and in the second, researchers not only assess the academic (or commercial) value of this new knowledge, but also predict the social conditions that will result when this new knowledge is applied. Hiroyuki Yoshikawa, in *ILLUME* No. 24, 2000, vol. 12. No. 2, 26.

<sup>5</sup> Specifically, this entails striking a balance in economic activities of private corporations between “environment” and “management” based on a new concept of capital. Current movements that support

this balance include socially responsible investment, comprehensive business reporting, corporate social responsibility, intellectual property rights in natural environment, product service system, resources lease system, eco-assets system, and green house gas emissions controls.

<sup>6</sup> Hiroyuki Yoshikawa, x26.

<sup>7</sup> Kennedy, G. “Ethnics of Leaders Who Think about the Future,” UNUnexions (published by the United Nations University Public Relations Department, p. 7, May 2002.

<sup>8</sup> Neurath’s Ship: Neurath was an Austrian philosopher. He compared reforming human consciousness to that of repairing a ship on the open sea, Neurath states: “We are like sailors who on the open sea must reconstruct their ship but are never able to start afresh from the bottom,” 1921.

<sup>9</sup> In a speech—titled “Correctly Treating a Few Important Relationships in Modernizing Socialism”—given at the end of the 14th Congress of the Central Committee of the Communist Party of China, held on September 28, 1995, Jiang Zemin declared the following 12 “relationships”: 1. Relationship among reform, development, and safety; 2. Relationship between speed of growth and economic effects; 3. Relationship between economic construction on the one hand and population, resources and environment on the other; 4. Relationship among primary, secondary, and tertiary industries; 5. Relationship between eastern region and Midwestern region; 6. Relationship between market mechanism and macro adjustment; 7. Relationship between an economy based on public ownership and other economic forms; 8. Tripartite relationship of state, company and individual; 9. Relationship between opening-up to the world and adherence to self-help; 10. Relationship between the central and regional governments; 11. Relationship between national defense construction and economic construction; and 12. Relationship between building material civilization and building spiritual civilization. Wong Jieming, Zhang Ximing, and two others; “Kohtakumin to Kataru” (A Talk with Jiang Zemin), *Nihon Keizai Shimbun-sha*, 1997.

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## Overview of The Jo'Burg Memo: Fairness in a Fragile World\*

By Bill Rickard

As we grope our way into the Ecozoic Era, many closely interwoven problems seem to require nearly simultaneous solutions. The tapestry of environmental destruction and global poverty requires mind-boggling concentration to even attempt to lay out a vision of a possible future with any degree of depth or certainty. How do we change or even ameliorate the fact that 60% of the world's people live on less than 6% of the world's output, contemplate the estimate of 40,000 children per day dying from diarrhea and malnutrition, internalize a sense of global warming, species extinction, massive pollution, the end of cheap oil, depleted fisheries and on and on? The subtitle of *The Jo'burg Memo*—Fairness in a Fragile World—links us to the Great Work of reweaving the tapestry of life in the 21st century by offering a practical roadmap based on fairness, fairness to Earth, its culture and all humans.

Prepared as a comprehensive background memo in preparation for the 2002 Johannesburg World Summit on Sustainable Development by a diverse international group of authors under the direction of Wolfgang Sachs, the *Memo* asks the question “Development yes, but what kind of development and for whom?” The document explores the interrelationship between ecology and equity and offers a comprehensive set of recommendations rooted in these twin concerns. The *Memo* lays out an agenda for coming decades founded on consistent well-thought-out alternatives to current ways of living.

There is one caution in reading *The Jo'burg Memo*: Go slow, frequently a sentence or two captures the essence of a problem and summarizes a course of action. For example, consider this sentence: “Environmental care is key for ensuring livelihood and health for the marginalized sections of the world's citizenry. In fact, there can be no poverty eradication without ecology.” The *Memo* deals with global problems from the viewpoint of a life-or-death vantage point.

*The Jo'burg Memo* is divided into five parts: (1) Rio in Retrospect, (2) The Johannesburg Agenda, (3) Livelihood Rights, (4) Fair Wealth, and (5) Governance for Ecology and Equity. Each part is important in providing solutions to the ecological destruction of the planet and the degradation of most of its people.

**Part 1, “Rio in Retrospect”** (concerning the the 1992 UN Conference on Environment and Development held in Rio de Janeiro and often called the “Earth Summit”), looks at the years from 1992-2002, reviews several institutional advances, and concludes that few

tangible global results have been achieved. The Rio Conference popularized the term “sustainable development” as the new term for progress. Southern countries (undeveloped and developing) viewed the conference as a development conference rather than an environmental summit because their citizens have been the victims of systematic neglect of fairness in world politics. They expected that the “trickle-down effect” from industrial and corporate development would raise their living standards. Not so. The Northern countries have for the most part only asked their people and institutions for voluntary restraint—hardly enough of a demand to meet the global challenges of the environment and poverty.

**In Part 2, “The Johannesburg Agenda,”** (concerning the 2002 World Summit on Sustainable Development held in Johannesburg) the *Memo* asks a key question and offers each of us an entrée into the idea of global fairness. “Above all else, this question is critical: what does fairness mean within a finite environmental space?” These are the key parts of the Johannesburg Agenda:

1. Fixation on the historically obsolete development model of the North, as if the crisis of nature does not exist, means sliding back behind Rio and a disservice to the South since equity can no longer be separated from ecology.
2. The conventional distinctions between North and South are misleading—these are diplomatic artifacts. Instead, the real global divide runs through each society—between the globalized rich and the localized poor.
3. Excessive use of environmental space withdraws resources from the world's marginalized majority. Fairness demands reducing the ecological footprint of the consumer classes in North and South.
4. Poverty is a lack of power, rather than of money. Reinforcing rights of the poor is the condition of poverty removal.
5. Leapfrogging into the solar age is a chance to turn “underdevelopment” into a blessing. A solar economy holds the prospect for including people and saving resources.

Fairness calls for enlarging the rights of the poor to their habitat while cutting back the demands of the consumer class for more and more resources. It has become clear that the economic development model that worked for the North is obsolete and cannot be replicated by the South.

**Part 3, “Livelihood Rights”** is aimed at reversing the notion that care for the environment is not consistent with poverty reduction. The *Memo* shows that, in fact, environmental protection is the condition for poverty elimination in the South. The Livelihood Rights part is particularly useful for understanding the linkage between livelihood and biodiversity, land and water, energy, and the urban scene. These are the key findings from Livelihood Rights:

1. Make environmental protection an integral part of poverty mitigation. As clean water, fertile soils, fisheries and forests secure livelihoods and health of the poor, so are the communities, once in control, stewards of nature. Make equity an integral part of nature conservation.
2. Food security is linked to farmer security is linked to biodiversity.
3. Women are pivotal guardians of local knowledge, skills for survival, biodiversity, and cultural memory.
4. Organic agriculture avoids soil degradation and erosion of livelihoods.
5. Renewable energies ensure livelihoods. Without them, woodlands get depleted or climate change looms.
6. In cities, contaminated water, infected air, and dangerous housing threaten people’s health. Move against pollution to improve the lives of the poor.

**Part 4, “Fair Wealth,”** is both blunt and honest—“poverty alleviation cannot be separated from wealth alleviation.” Poverty is the Siamese twin of wealth. As we become increasingly aware of the biophysical constraints to economic growth—for example, the calamitous prospects expected to be caused by the peak pumping of oil and natural gas—the problem of raising the living standard of the poor may well be achieved best by dropping the living standards of the rich, which is to say, sharing more equitably. This part is particularly rich with insights of wisdom such as “Nature, once put on the world market, gravitates toward the North, attracted by the force of high purchasing power.” The key observations on Fair Wealth are as follows:

1. Poverty talk is common, wealth talk is taboo. Will the well off be able to live without the surplus of environmental space they occupy today?
2. De-intensify South to North material flows.
3. Look beyond the Kyoto Protocol. Adopt a contraction and convergence approach, in order to provide equal rights to the atmospheric commons.

4. Include forests and water in international governance. Learn from the biodiversity convention the principle of fair access and equitable benefit sharing.
5. Protect community knowledge systems of food and agriculture against the claims of governments and corporations. Whose knowledge is free and whose knowledge turns into patents for which royalties must be paid?

Fair Wealth can be summarized as follows: “no equity unless the corporation-driven consumer classes in North and South become capable of living well at a drastically reduced level of resource demand.”

**Part 5, “Governance for Ecology and Equity,”** recognizes that today the battle lines are drawn between various sectors of the global community with competing and conflicting visions and interests. Two main thrusts are the technological connectedness of the peoples of Earth via the Internet, television, and wireless communication and the second, the wave of deregulation, privatization, and the liberalization of trade and capital flows. The shrinking of distance and the acceleration of time must be considered in devising governance suitable for fairness in a fragile world.

The key findings of Part 5 are grouped into six areas:

1. Community rights
2. Environmental rights for every citizen
3. Valuing nature
4. Markets and common good
5. Restructuring financial architecture
6. Facilitating institutions

The critical part of this fifth section is the development of international mechanisms that would enable the previously discussed equity and ecology balance to be accomplished. And that is needed . . . Today!

The *Memo* is a practical manifesto of how Thomas Berry’s proposal for the reinvention of the human living in a mutually beneficial presence to Earth can be actualized. It is reasonably comprehensive, logical, and well argued. Its implementation will be driven by how the world defines “fairness.”

*The Jo'Burg Memo* may be downloaded at [www.joburgMemo.org](http://www.joburgMemo.org). The entire document is about 85 pages.

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\* Wolfgang Sachs, coordinator and editor, *The Jo'Burg Memo: Fairness in a Fragile World*, 2nd ed. (Berlin, Germany: Heinrich Böll Foundation, 2002). Available for download at [www.joburgMemo.org](http://www.joburgMemo.org).

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## Selected Articles on “Sustainable Development” from *Rachel’s Environment & Health News*

Overview by Fred Lanphear

### I. Beyond Growth—The Steady State Economy.<sup>1</sup>

The phrase “sustainable development”, introduced in 1987, focused on meeting current needs without jeopardizing future generations’ ability to meet their needs. What is not clear in this definition is the meaning of “needs.” A definition by Herman Daly, in *Beyond Growth*,<sup>2</sup> focuses on “Development without growth—without growth in throughput beyond environmental regenerative and absorptive capacity.” In Daly’s definition, “throughput” refers to the flow of materials and energy through the human economy. “Regenerative and absorptive capacity of the environment” refers to the ability of the environment to provide high quality raw materials (natural capital) for our human use and places to dispose of our wastes, hopefully turning the waste back into useable raw materials. This definition acknowledges the physical limits of Earth—development dependent on growth cannot be sustained, though development to improve the quality of life can.

The three economic problems that affect sustainable development are allocation, distribution, and scale. Allocation has to do with deciding how to allocate limited resources to provide the goods that people desire and are able to purchase. This problem is handled by “the market” through pricing. Distribution has to do with apportioning goods “fairly” among different people, although there is little agreement on the meaning of fair. When this problem is not solved by the market, it must be decided and achieved through public policies. The problem of scale has to do with how large the economy can grow before it exceeds the ecosystem’s ability to regenerate itself or absorb its wastes. This has already happened locally in the depletion of various mineral resources and globally, as in the damage to Earth’s ozone layer and in the degradation of the world’s fisheries by over-fishing. The market does not provide real-time answers for deciding what is a desirable scale or how to achieve one.

The first two economic problems are generally recognized, but the problem of scale is not acknowledged by most economists. Our economic and political leaders believe that continued growth is good, a principle that has been a dominant factor in European societies for the past 400 years. In fact, it has been a way of avoiding the

problem of fair distribution, since growth is seen as benefiting all people through its “trickle down” effect. When the only concerns related to growth are fairness and efficient allocation and distribution, this leaves scale unaddressed. The scale of the economy can be too large and damage the ecosystem. All three problems need to be addressed and each affects the others. Addressing the problem of scale by ending growth, for example, will radically change the economic landscape, requiring the issue of fairness to be dealt with in a new way.

The organizing principle of growth as a primary ideology was embodied in the stated goal early in the 18th century of the “greatest good for the greatest number.” However, with the impending end of growth as we continue to run into the limits of nature, this goal is clearly unattainable. Instead, we must ask “How much good can we achieve for how many people for how long?” Daly favors seeking “sufficient good for the greatest number,” recognizing that this implies there is some limited number of people that can be supported indefinitely into the future. Allowing population to continue expanding will cause ecosystems to collapse, which would end the population expansion, though at the cost of great suffering. A major factor that creates and sustains inequality is the high birth rate, since an abundance of people ensures cheap labor and drives wages down. This may well explain why the knowledge and means for controlling fertility are more accessible to the wealthy than the poor.

When growth was established as an economic organizing principle in the 18th century, natural capital was abundant, while the human technological capital was short. The situation is now reversed. There are unrealistic assumptions that human technology can overcome the limits of natural capital through innovation and substitution, and Daly argues that our dependence on natural capital has been ignored; “natural and human capital complement each other—we need them both to sustain both our economy and the natural systems that support us and the other creatures.”

The most appropriate approach to improving renewable natural capital is by not using it and allowing it to replenish itself. The attempt of “cultivated capital” in the form of fish and tree farms has had severe limitations. Scientists concluded from results of the Biosphere

**The three economic problems that affect sustainable development are allocation, distribution, and scale.**

2 experiment in 1991-93, “No one yet knows how to engineer systems that provide humans with the life-supporting services that natural ecosystems produce for free.” In regards to non-renewable capital, it obviously cannot be “improved,” but it can be preserved. When possible, our economy should rely more on renewable resources at a rate aligned with their rate of renewal. This can be encouraged through changes in public policies including (1) stop counting consumption of natural capital as income; (2) tax labor and income less, and tax throughput more; and (3) move away from the idolatry of global economic integration by free trade, free capital mobility, and export-led growth.

We must understand the forces that are misdirected in terms of bringing our economic activities in alignment with Earth’s limits. Daly believes that a chief factor is “free trade.” He says that it “undermines environmental standards, drives down wages, weakens our capacity to do better, and undermines our sense of community.” He further states “Free trade makes it very hard to deal with these root causes at a national level, which is the only level at which effective social controls over the economy exists . . . .” In place of free trade, Daly favors “regional trade among national communities that share similar community standards regarding wages, welfare, population control, environmental protection, and conservation.”

There is a growing movement promoting “fair trade” instead of “free trade”(see [www.fairtradefederation.com](http://www.fairtradefederation.com)). It is international in scope and includes such principles as: workers are paid a fair, family-sustaining wage; the businesses are cooperatives or producer associations; raw materials are obtained locally and managed in a sustainable way; the organizations involved respect the cultural identity of the trading partners; and public accountability is required.

The major shift that is required is from our present growth-driven economy to a steady-state economy. This will require increased efficiency. An important requirement in a steady-state economy, according to Daly, is to establish the principle of limited inequality. This means that there will need to be a maximum and minimum allowable income. This is a way of: (1) reducing the gap between the rich and the poor, (2) reducing the pressure of the present generation on future generations, and (3) reducing the impact on other creatures.

## II. The Natural Step<sup>3</sup>

A popular approach to defining and acting on the core meaning of sustainability is “The Natural Step” (TNS), a system of guidelines for judging whether human activities are sustainable or not. They were developed in Sweden and have been adopted by many governments and businesses. Advocates of TNS refer to these as “The Four System Conditions”, which state that in

order for a society to be sustainable: nature’s functions and diversity will not be systematically

- 1) subject to increasing concentrations of substances extracted from the Earth’s crust,
- 2) subject to increasing concentrations of substances produced by society,
- 3) impoverished by physical displacement, over-harvesting, or other forms of ecosystem manipulation, and
- 4) resources are used fairly and efficiently in order to meet basic human needs globally.

It was noted that meeting this last condition avoids violating the other three.

**“The future of our planet is in the balance. Sustainable development can be achieved, but only if irreversible degradation of the environment can be halted in time. The next 30 years may be crucial.”**

The TNS approach is particularly applicable to business. In the book, *The Natural Step for Business*, four case studies of firms that adopted TNS are documented. It is evident that this system revealed unsustainable practices and allowed TNS to be integrated into business practices. Businesses that follow the four system conditions will be well-prepared for a future of declining resources. However, most businesses will only adopt a system like TNS because they are required by legislation. Proactive businesses using TNS catalyze and hasten the legislative process. The only question is whether we will make the transition in time.

## III. Scientists Say Future Is in the Balance<sup>4</sup>

In a rare joint statement in 1992, the Royal Society of London and the U.S. National Academy of Sciences made it very clear that if population continues to expand and the current patterns of economic activity persists, “science and technology may not be able to prevent either irreversible degradation of the environment or continued poverty for much of the world.” The global population is expected to reach 10 billion by 2050 with 95% of the growth occurring in the less-developed countries. Science and technology have contributed significantly to world development, but should not be relied on to “solve problems created by rapid population growth, wasteful resource consumption, and harmful human practices.”

The joint statement concludes; “The future of our planet is in the balance. Sustainable development can be

achieved, but only if irreversible degradation of the environment can be halted in time. The next 30 years may be crucial.”

#### IV. Living Within Limits<sup>5</sup>

Where are we in our awareness and acknowledgement of sustainable development since it was introduced in 1987? An article in *The New York Times* in November, 2004 provides good and bad news. The good news is that the environmentalists’ perspective has become mainstream and shows up as a passion for the need for limits and the need to be cautious about economic development, as there could be negative consequences. The bad news is that the *Times* was still defending the conventional position that there are no limits to economic growth and that we can find innovative ways of getting around nature’s limitations. This may be an economist’s perspective, but there is a strong consensus among scientists that there really are limits to growth.

The *Times*’ article correctly points out that economic growth is critically needed in the Third World. It does not, however, point out that the developed countries need to limit their growth. In place of growth, the principle that should determine economic activity is what is necessary. The shift that is beginning to happen is from short-term gain to long-term sustainability.

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<sup>1</sup> *Rachel’s Environment & Health News*; Nov. 11–Dec. 16, 1998 – Nos. 624–629.

<sup>2</sup> Herman Daly, *Beyond Growth* (Boston: Beacon Press, 1996).

<sup>3</sup> *Rachel’s*; Sept. 8 & 11, 1999, Nos. 667 & 668.

<sup>4</sup> *Rachel’s*; Sept. 22, 1999, No. 669.

<sup>5</sup> *Rachel’s*; Nov. 25, 2004, No. 805.



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## **Alternatives to Economic Globalization: A Better World is Possible (2nd Edition), Edited by John Cavanaugh and Jerry Mander\***

*Overview by Fred Lanphear*

**T**here has been a dramatic shift in the status of economic/corporate globalization since the first edition was published in mid-2002. A turning point marking the end of U.S. domination in global economics and politics is reflected in the unrealized expectations of WTO talks at Cancun and Miami, as well as the massive demonstrations of global civil society against the war in Iraq. This has set the stage for aggressively looking at alternatives to economic globalization that are emerging locally, nationally and globally.

Economic globalization goals have not been realized. The gap between rich and poor within and between nations continues to widen, and environmental degradation is on a crisis path. The gap is both cultural and economic. The rich, corporate globalists see progress in privatizing public assets and opening markets as essential to economic growth. The poor, on the other hand, do not recognize this effort as being successful. Instead what they know is that in terms of meeting basic needs of the masses, the world continues to grow poorer.

Corporate globalization has been a dominating force for the past five centuries. It has taken different forms, from colonialism to its current form of placing economic values at the forefront and creating structures like the World Bank, the International Monetary Fund (IMF) and the World Trade Organization (WTO), to implement these values. These structures were put in place in 1944 at the Bretton Woods (New Hampshire) Conference. The intent of the conferees was to create a centralized global economic system that “would prevent future wars, reduce poverty, and help the world rebuild.” What has resulted is a shift in economic and political power away from local and national governance to global corporations at the expense of local and national control, social diversity and the environment. Fortunately, all of this can be revised and/or reversed.

The 1999 “Battle of Seattle,” where a powerful union of environmentalist and teamsters brought a WTO meeting to a standstill, was also the birthplace of ten core principles that should inform future economic policies and institutions. They are

1. create a new or living democracy that includes those who will experience the consequences in the decision-making process,
2. promote local economic decisions and activities whenever possible,

3. observe and honor the rules and practices of ecological sustainability,
4. protect the common heritage resources, *i.e.*, natural, cultural, and public services, from being privatized,
5. encourage and sustain economic, cultural, and biological diversity,
6. respect and enhance human rights,
7. promote worker rights and assure the livelihood of their families,
8. promote local self-reliance in the production of healthful, safe foods,
9. strive for greater equity within and between nations, and
10. exercise precaution whenever there is risk to the environment, human, animal, or plant health.

One of the greatest challenges in reversing the trends of economic globalization is reclaiming “the commons”—the natural resources and other aspects of life

that have long been considered collective property. Global corporations have made major in-roads into privatizing and commodifying the water we drink, the gene pool in the form of seeds used for replanting, and communal lands. In reclaiming the commons, governments, which have

public interest as priority, not profits, should act as trustees of these public goods. Three proposals are offered to correct the current practice of privatizing the public commons: (1) prevent the continuing corporate takeover of the commons and reduce the authority of global trade and financial institutions, (2) strengthen the multilateral environment agreements and the agencies that are designated to protect the commons, (3) evaluate and utilize appropriate forms of public trusts as a strategy for protecting the commons.

Another challenge is to recover local control over economic and political activity. This concept, known as subsidiarity, means moving decisions and economic production, labor, and markets closer to the people who are most affected. There are trends that are supporting this local recovery, such as high distribution and transportation costs, niche marketing, and a shift from goods to services. Yet, strategies are needed that actively favor localization or the shift of power from global corporations to the most appropriate lowest unit, for example, a sub-group within a nation-state or the nation-state itself.

**Corporate globalization has been a dominating force for the past five centuries.**

Some recommended strategies include reintroducing safeguards like tariffs, import quotas, worker and environmental standards, subsidizing local enterprises rather than large-scale schemes, corporate controls, recycling profits to the location where made, taxation for environmental impact, and so forth. Finally, investment and financing policies need to be re-shaped to favor local economies, as in keeping capital local, removing tax advantages for global corporations, and developing investment schemes for local, long-term investments.

The ten principles listed above are not aimed only at bureaucracies and corporations, but at the practical operations of society through its economic systems, for example, energy, agriculture, transportation, and manufacturing. These operating systems need to be redesigned for sustainability. The most critical is the dominant energy system based on fossil fuels, which does major social, environmental and political harm. The good news is that most of the technology needed to transform this energy system to one that utilizes renewable resources is available. The United States has been slow and reluctant to distance itself from the vested interests of oil companies while other countries, like Europe and Canada, are moving aggressively away from dependence on oil. The transportation systems of ocean, air, and trucking, which are primarily dependent on oil, have radically expanded in response to the growing global economy. It has been suggested that decreasing the volume of international and long-distance transportation could have the single greatest impact on improving the health of the planet and the quality of urban life. The increase in international transportation is greatly influenced by developments in manufacturing as many countries are now interconnected within a global production system. Not only does this increase the need for international transportation, there is also an imbalance between corporations and workers, resulting in a loss in wages and worker rights. A localized manufacturing system based on sound, sustainable principles could avoid most of the negative social and environmental results of global production systems.

Along with redesigning these key economic systems as a way of shifting away from economic globalization, we need a more relevant economic measure than the current gross domestic product (GDP), which reflects the expansive goals of global corporations. The negative costs, such as depletion of natural resources and the cost of managing pollution and waste, should be factored into the equation. The new economic indicators need to reflect the extent to which the basic human needs are met, particularly among the most vulnerable—children, the poor, the elderly.

The other two systems that need to be redirected are agriculture and media. Global, industrialized agriculture has increased landlessness, hunger and food insecurity, and it is increasing with the support of the World Bank,

IMF, and WTO, as well as from lobbying and promotion by corporate agriculture. There is growing opposition from millions of farmers and landless peasants around the world, particularly against corporate biopiracy of biodiversity and indigenous seeds, and in support of land reform. Significant changes are required, such as tariffs and import quotas that favor subsidiarity, removal of property rights claims on biological materials, localizing food regulations and standards, allowing collective pricing for local produce, eliminating direct export subsidies, promoting redistributive land reform, and supporting local efforts of production and marketing.

The global media, which is owned and operated by very few firms, actually shape global consciousness. It is frightening to realize that this powerful communications system, which tells people how to live, is dominated by a handful of corporate executives. However, there are signs that resistance and reform are beginning to take place.

Global economic systems are controlled by a few mega-corporations along with the World Bank, IMF, and WTO. By their very size and scope, these giant corporations can overpower nations. It is the very nature of corporations that is the underlying contradiction, as they operate on the principles of profit, growth and territorial expansion, and the need to control the regulatory policies that are intended to hold them accountable. Citizen action against corporate power is taking place on several fronts. In any efforts to reduce the capacity of corporations to rule society there must also be efforts to rebuild the integrity of democratic structures.

There is growing disillusionment with the World Bank, IMF, and WTO, as the result of disastrous failures in Asia, Africa, Eastern Europe and Argentina. Alternatives to these institutions are proposed, including strengthening UN-related structures such as UNCTAD and creating new structures under the UN.

Finally, steps are offered that individuals can take to counteract economic globalization, as a consumer, as a worker, as a depositor and investor, and as a citizen.

Salient among the recommendations are (1) as an informed consumer, buy local, join a CSA (community supported agriculture), and support fair trade, (2) as a worker, support socially responsible investment of your pension funds, and form and support worker-owned co-ops, (3) as a depositor and investor, use socially responsible banks or credit unions that support local community development, and (4) as a citizen, get involved in local, national and global organizations and efforts that are taking action to create viable alternatives to economic globalization.

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\* John Cavanaugh and Jerry Mander, eds. *Alternatives to Economic Globalization: A Better World Is Possible*, 2nd ed., International Forum on Globalization (San Francisco: Berrett-Koehler Publishers, 2004).

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## Ecozoic Medicine: Penetrating the Autistic Veil to Reveal the Universe as Personal Revelation

By River Raven

Like Thomas Berry, I was lucky enough to have a revelatory experience of the numinous quality of nature at a very young age. Though it arose out of a traumatic, near drowning experience, that ecstatic experience continues to echo through my perception of Earth and cosmos. It serves to replenish itself in both unexpected and intentional events of communion. It has certainly made me especially available to the wisdom and truth held in *The Dream of The Earth*<sup>1</sup> and *The Great Work*<sup>2</sup>.

I find that one of the most compelling aspects of Thomas Berry's work is his observation of the autism that we Westerners carry in relation to nature. Born from the wounds of our own cultural past, who can say that this autism is not as pervasive as the air we breathe? I have surely felt it in members of my family and community, those moments of blindness that separate us from this sacred world in which we are so blessed to exist. I have also experienced it in myself, though it is difficult to see. Who can identify his or her own blind spots? They must be pointed out by those who see.

No single word could express our alienation so well as autism. In observing it in myself, this autism feels like an absolute shutting out of the natural world. It is beyond numbness, for that implies some deadened sensitivity that will eventually come awake again of its own accord. It is as if we have been locked up inside a glass jar. We can see and intellectually discern the natural world, but to participate with full consciousness in the communion of subjects that our planet offers us is not available to many, and to some of us in only small degree.

This separation wounds us as well as propels us collectively into a state of wounding our cherished home, Earth. Those of us who may have difficult life experiences to endure, do so cut off from the guiding wisdom of the world in which we live. We so often believe that our personal pain and suffering exists solely within ourselves and that it has no relation to the external world, much less resonance within the cosmos. For many of us, seeking wisdom, healing, and growth through direct sacred interaction with life seems absurd. Similarly, we view the simple events that make up our daily lives within the limitations of our own culture and not within the community of life systems, subsequently blindly pollute the world, seemingly without end. We could instead see even the most mundane activities of our own life as being resonant with the universe in which we live. We could seek our healing in Earth itself because as her children, she is ultimately the medicine we need.

Connecting the personal to an experience of sacred communion with nature lies at the heart of the ecozoic transformation. While our culture's autism may be driven at times by forces larger than a single individual, it must also be said that our collective autism is made up of infinite moments of personal alienation from life. The false veil of alienation that our culture presents is allowed to exist by virtue of the intimate daily actions of each one of us. Contrary to our autistic perceptions, our illnesses and emotional processes do not belong to us alone. They too must be seen as an aspect of the universe's self-revelation. We tend to define our very existence as a drama separated from the universe. In truth, from birth to death we are enacting some aspect of the life of the cosmos in every moment. Our own dance is a reflection of the dance of life.

A truly transformative revelatory experience reaches to the root of our personal identity and touches the universal transcendent, bringing us into accord with life. It allows us to directly experience our own being as a reflection of the divine. It makes autism impossible. This authentic revelation attracts community to it. Living in a communion of subjects is both attractive and necessary to our spiritual development. Some part of ourselves yearns for it. Just as our bodies, when they are strong enough, work to heal themselves, so too do aspects of our own spirits look for true reflections of the divine to heal themselves. As our personal ecozoic transformation finds community in the world, our species community can find its rightful place in the world by virtue of a collective transformation. The vision of Thomas Berry has ignited vision in others. As we kindle and develop that initial flame, a transformative fire will grow.

There are no perfect beings in this work of ecozoic revelation. We all carry elements of the wounding, elements of the transformative vision, and elements of the healing. Each one of us carries a piece of our collective autism that we may have to revisit time and time again throughout our lives. Sometimes the autistic veil can be a manifestation of a wound deeply personal and intimate. The anger and pain of our own lives can cause us to close ourselves to the rapture that is available in life. These wounds may need to be cleansed and healed time and time again. Sometimes the veil can be a manifestation of a truly cultural illness. As with racism, though we may thoroughly hold the ethic of racial equality deeply, the cultural tendencies of racism may still be found within our behavior after decades of self reflection.

While working with autistic parts of ourselves may seem to be a burden, it can quickly become empowering when we realize that we are able to directly participate in the Great Work by investing in healing and empowering ourselves within the context of life systems. So much of the Great Work can be discovered within the choices we make and experiences we have on a day-to-day basis.

Shifting from an autistic world view to one of numinous relation is the shift from life as a collection of objects to life as a communion of subjects. It is in this place of communion that sacred, nature-based revelatory experience is possible. Embarking upon personal transformation with the community of life systems constitutes an initiation back into the world of life as a communion of subjects. We step across a threshold that is intrinsically illuminated and intrinsically healing because it carries us into wholeness. It is an initiation that many of us will have to repeat over and over again throughout our lives if we wish to maintain a sense of communion that serves ourselves as well as the family of life systems to which we belong. The deceiving veil of alienation is removed and the opportunity to truly heal—to find meaning that resonates deeply within ourselves and the natural world—presents itself. All of creation becomes an ally in our own processes of being, and we open up to becoming an ally to all of creation.

### Personal Experience in Penetrating the Autistic Veil

In my college days, I struggled to find a spiritual process to guide and contain the flow of my life. I felt, as I believe many young people feel, a lack of meaning and connection in my own life. Though I invested several years exploring meditation and sacred movement as a mode of sustaining spirituality, I continued to feel a great absence. I had seen an interview with Joseph Campbell in which he said: “A successful mythos is one that resonates within the individual deeply enough to give her or him an experience of what it truly is to be alive.”

This mythos must find resonant harmony with the community of life systems in which it exists. I now interpret the nature of that experience to be one in which I am in full communion with life. As a young man I decided to experiment with Campbell’s statement as a guide in my own life process. Intuitively, I felt it was appropriate I look to this living world for a seed, something that resonated within me profoundly as sacred mystery. I thought this would give way to an authentic spirituality, one that was vital and true.

**So much of the Great Work can be discovered within the choices we make and experiences we have on a day-to-day basis.**

I have always had a personal connection to animals. Even today when I look into the eyes of a wild animal, any doubt that every moment of being and every aspect of creation is sacred is instantly wiped away. I decided a spirituality that was somehow connected to animals would probably resonate with me most deeply. As a result, I began reading poetry and story from indigenous people who had rich traditions of animals as sacred deities. I chose the sacredness of our animal kin as my seed.

The veil of autism did not slowly dissipate, rather, it exploded open, like flood gates. My life became inundated with dreams, visions and synchronistic events that threatened to overwhelm me at times. I was not attempting to recreate another’s indigenous tradition, but the messages from those authors sparked something within me. My inner world responded with a tidal wave of images and stories of the sacred power of Earth. For a time, these new-found visions were chaotic and without context. This began for me a struggle in which many of us working in areas of nature-based spirituality are involved—that of creating an authentic and powerful spiritual context that is honestly resonant with the natural world and the cosmos, and true to whom we are as individuals.

### Ecozoic Mystery Traditions

I am sure that many of us who are excited by or directly involved in the Great Work have had moving experiences like the one I have just described. Many of us have gotten on this path of “Spirituality in Nature” because of powerful, spontaneous experiences. These revelatory breakthroughs can sometimes be quite unsettling. What work can we do to sustain and further develop seminal experiences? If we are to open to joining with creation in our development and the wellness of our planet, how do we encourage these experiences in a sustainable and beneficial manner? Similarly, how can we learn from these experiences and offer initiatory experiences to others who are seeking to break through the autistic veil that separates us from the communion

by which we are naturally fed? So much of the success of ecozoic work seems to depend upon a collective resonance with a sacred experience of communion with our communities of life systems.

What seems to be needed is the establishment of an Ecozoic Mystery Tradition. Historically, Mystery Schools were established to promote spiritual, intellectual, and personal development within the mythos of the presiding priestly casts. I do not propose anything so contained or organized, but rather a series of processes individuals and

groups can work with to help encourage their ecozoic development. This may sound like a daunting task, but when you consider that we are simply working to restore an innate wonderment, potentially available to most people, many creative possibilities begin to open up to us.

## Transformative Tools

While I'm sure the activities one could engage in to promote the Great Work from a personal perspective are myriad, I'm going to discuss some very tried-and-true methods that are deeply native to the human species. These activities can serve as some of the most important building blocks to an evolving Ecozoic Mystery Tradition. They are readily available, and a part of our species' basic makeup. I believe that creation itself has endowed us all with the ability to naturally and easily open to illuminated communion with life. Our tools exist as a part of our lives, though are often obscured by our own culture. When used in concert together with the proper intention, these tools can offer us a pathway to communion. This is not always easy and blissful. To find our sight after a lifetime of blindness can be difficult, especially if we are focused on elements with which we have problematic relationships. But this is meaningful work, both blissful and frightening. A Jungian psychologist writing an analysis of Navajo ritual practices wrote: "Human Beings can endure endless suffering, what they can't endure is meaningless suffering." To step into this world is to step into the Great Work that lies at each of our doorsteps—one feels it in one's bones, even when the going gets rough.

## Prescription for Healing: Ritual, Journey Work, and Sacred Medicine

### 1. Re-energized Ritual

Perhaps one of the most powerful dimensions of shared dream experience might be said to be ritual. For those of us raised in a religious environment and for those of us lucky enough to participate in or witness ritual performed by indigenous peoples, there can be no doubt of the transformative power of ritual. It brings us into accord with Earth and cosmos. It can be understood as literally bringing our inner energies into accord with the energies of life.

Much of our ritual in the West has been robbed of its transformative vitality. Cut off from nature and controlled by a priestly cast entombed in a cold tradition, our rituals lack the potency needed to carry us beyond our own limited self concepts. The root energy of life is not often welcomed in our ritual life, unless it is a sporting event or music concert. Whether by design or unconscious repression, the rituals most common in our culture function to keep us away from the rapture of life,

rather than to bring us into an intimate relationship with rapture. It only serves to re-enforce our autism. For some time, the performing arts have acted as the container for our ecstatic dance, sacred drama, and poetic trances. It is here, often removed from the concerns of the sacred, that we are able to be swept into an archetypal world, and possibly touch transcendent forces that have the power to totally shift our consciousness. Unfortunately, without the communion of our world, these works often stop short of their true potential.

Matthew Fox has explored this in his work with Creation Spirituality. Transforming Sunday Service into an ecstatic dance jam, he offers a place to begin the work of re-energizing our ritual. Powerful, passionate music and art are necessary aspects of ritual. Is it surprising that our culture seeks to separate religion from the passion of creativity? It is in this creativity that we rejoin the primal energies of the cosmos and risk stepping into an authentic numinous participation in the communion of life. If we were living daily as a participant in that communion, how long would we as a culture stay imprisoned in our autistic jar?

Other Westerners interested in the sacredness of our natural world have been experimenting with the power of ritual for many decades. Pagans, neo-pagans, and practitioners of Wicca have worked through several generations to re-connect with the powerful energies in life within a ritual context. From the broadest perspective, this work must be said to still be in its infancy, but for those exploring this aspect of the Great Work, there is a treasure trove of experience to draw upon. This work often has the added benefit of specifically focusing on evoking the feminine aspect of deity. Working with the guidance of the feminine forces often has a tremendously potent effect for many practitioners. Many have thirsted for centuries for the touch of the divine feminine in their lives. What more powerful metaphor for the birth of a Gaia-centered age than the rebirth of the Goddess?

### 2. The Shamanic Journey

It must be said that central to the Shaman's work is the spirit journey. As Michael Harner and others have indicated, the Shaman will work with helping spirits to effect a cure of a patient or community's illness. The shamanic journey is fundamental to establishing a relationship with helping spirits as well as discovering the cause of illness. The practice of entering an altered state of consciousness and taking a journey into the unseen world of Non-Ordinary Reality (as The Foundation for Shamanic Studies refers to it) is at the heart of the Shaman's ability to effect a cure. The experienced Shaman can become extremely knowledgeable in the spiritual aspect of the cosmos and the natural world. She or he can come to have profoundly powerful relationships with the spiritual dimension of our world.

It is the Shaman's job to understand the forces of the cosmos that can affect the individual, community, and community of life systems. It is the Shaman's job to work a cure that brings the patient into greater balance and harmony with life. The fundamental aspect of shamanism, the ability to journey, is available to all of us as human beings. It is literally part of how we are wired. While the personage of the Shaman is often a unique individual within a community who may be propelled into his or her work by unusual circumstances, she or he gains the ability through basic practices that require no special gift, simply sincere dedication. I myself have found great assistance in my own life by contacting helping spirits.

It is perhaps no surprise that Western cultures have often worked to outlaw or decimate the Shamanic aspect of indigenous cultures. It is not unheard of in some cultures colonized by Westerners for the Shaman's most basic tool, the drum, to be illegal and possession of it punishable by the most severe means.

It is my belief that the coming Ecozoic Era requires the re-establishment of shamanic practices. It is the most fundamentally human aspect of the Great Work. Thankfully, there are individuals who are working to preserve the essential practices of shamanism by supporting the work of remaining indigenous Shamans and by developing a set of central Shamanic practices. The Foundation for Shamanic Studies develops relationships with the remaining Shamans they are able to locate, and it has also developed a series of courses they call "Core Shamanism." Its purpose is to provide us with a means to re-instill our lives and our culture with the basic processes of shamanism. For many of us who have taken part in their training, the work is profound and life altering. Information about their work is available at [www.shamanism.org](http://www.shamanism.org).

### 3. Sacred Medicine

I first experienced the use of sacred plant medicine in an Ayauasca ceremony. Ayauasca is a South American hallucinogen that has been used by healers dating back to pre-Christian times. The details of that experience are too extensive to go through here; however, it was the first time I had experienced a plant brew as a method to directly access the mystical aspect of nature. Through this medicine I came to directly experience the presence of a deity in my body, working on my behalf.

Anyone who has ever worked with Ayauasca will tell you that it can be an extremely intense experience. I am not recommending its use in this article. I would, however, like to introduce the concept that Earth has provided us with medicine to help heal ourselves psychically and spiritually just as it has provided us with medicine to heal ourselves physically. There are a host of hallucinogenic medicines that when used with the proper

intention by sincere individuals can open gateways of communion with spirit that are profoundly transformative and healing.

Underlying much of my work with plant medicine has been the theme of receptivity. As humans we have a tremendous ability to receive stimulus. Some thinkers have theorized that what makes us physically unique as a species is not the size of our brains, but the complexity of our nervous system. We have, in fact, more ability to perceive than we can functionally cope with. Our brain moderates the intake of stimulus, so that we are able to function effectively in the practical aspects of our lives. However, when the gateways to stimulus are opened, the perceptions available can have a profound effect on the individual. As William Blake stated: "If the doors of perception were to be cleansed, man would see everything as it truly is . . . Infinite." In consciously stepping outside of our limitations, we are offered the opportunity to dance in the sacred of our world.

### Returning to the Traditions of our Species

Combining the three processes above has been like coming home for me. Walking into a forest to call out to the spirits, honor the gift of creation, and take part in sacred medicine has felt so basically human as to be beyond reproach. Though my journeys have sometimes been difficult, they have always in the end been profoundly rewarding.

Through this work, I have come to believe that Earth has given to all of us what we need to realize the Ecozoic Era. Earth is, in fact, working through us to realize its own healing, and the realization of a healthy, self-reflecting species that lives in accord with Earth. We, the human species, do not have to do this work alone. The cosmos, Earth, and Earth's children are working with us and through us. When our descendants look back at this transition time in our history, perhaps what will be seen is not only the West's rediscovery of the spiritual aspect of nature and its rightful place in it, but the discovery that our own spiritual and emotional fulfillment are inexorably tied to the processes of Earth, and that when we invited Earth into the processes of our own personal development, Earth worked through us to heal us and itself. Indeed, perhaps we will see we are that aspect of the Creator witnessing and discovering itself through the very processes of our lives. We only need to agree to work with the Earth tools that have always been with us.

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<sup>1</sup> Thomas Berry. *The Dream of the Earth*. (San Francisco: Sierra Club Books, 1990).

<sup>2</sup> Thomas Berry. *The Great Work: Our Way Into the Future*. (New York: Bell Tower, 1999).

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## Ecozoic Technology

By Herman F. Greene

Earth is full of technology. Here are some of the technologies of Earth: A great hydrological system brings rain that causes plants to grow. Then plants release water and the water returns as rain. Sun is the great source of energy, past, present and future. When we extract coal or oil, we harvest ancient sunlight. Carbon is the building block of life. We breathe it out and it is absorbed into plants and used in creating plant cells, plant cells become nutrients for animals. Animals die and decay and become food for other organisms. Earth is in a state of controlled turbulence. If Earth were static, it would be like Mars. If Earth were too much in motion, it would be like Jupiter. If the atmosphere of Earth were too thick, it would be like Venus. Earth is full of technology.

According to the American author, Thomas Berry, Earth is “self-emerging, self-sustaining, self-educating, self-governing, and self-healing, and it is the self-fulfilling community of all living and nonliving beings of the planet.”<sup>1</sup> Further, Berry states Earth is “the primary law-giver, the primary economic corporation, the primary scientist, the primary technologist, the primary healer, the primary revelation of the divine, the primary artist, the primary teacher, and indeed the primary source, model and ultimate destiny in all earthly affairs.”<sup>2</sup>

If this is true, for one to become educated, he or she must be a student of Earth’s processes. While there is no one term to describe such a discipline of study, the closest term we have is “ecology,” which is, by definition, the study of the interrelations of organisms and their environments. To Berry, ecology must become the queen of the sciences, and not only of the sciences but also of the humanities, economics and the studies of the professions. It should not be thought of as a separate course of study, but as “the foundation of all courses [and] programs.”<sup>3</sup> Thus, for example, “[e]cology is not a part of medicine; [rather] medicine is an extension of ecology [because medicine is an extension of the healing powers of the Earth].”<sup>4</sup> The same can be said for law, architecture, and engineering. Also Berry says to take the study of ecology seriously, geography must be studied intensively. Geography provides a means for “understanding the functioning of the Earth in its larger structure, [and it] is even more useful in [understanding the functioning] of

the various regions into which the planet is divided. In this manner it provides the context for ecological understanding.”<sup>5</sup> Yet it is not geography in its present form that we must study, it is “ecological geography,” a geography informed by biology that will teach us of the interdependent life systems of Earth and of Earth’s relatively self-sustaining bioregions.

Industrial technology is new in history dating only from the late 18th century when in England the steam engine became widely used and textile manufacturing was mechanized. The “industrial revolution” is rightly described as the most significant event in human affairs since the introduction of agriculture 10,000 years ago. This revolution changed everything.

We would call attention to two aspects of this revolution that are little understood. The first aspect identified by Karl Polanyi in *The Great Transformation*<sup>6</sup> is that industrial technology brought about the need for a “market economy,” and this, in turn resulted in a “market society.” As Polanyi explains, industry required large sums of capital, the cost of which could only be recovered over long periods of time. Thus, markets were needed to sell goods to pay for the capital. Productive capacity exceeded regional needs, so markets had to expand, and further they needed to be continuous so that goods could be continuously produced. If goods could be continuously produced and marketed, then profits would result. Profits would buy more innovation and more productive capacity, which required even more markets for the goods produced. Markets were, however, not only needed for goods produced, but, also, for the inputs to industry—land, labor and capital. Every element of industry needed to be for sale. According to the liberal economic theories that supported the rise of the industrial economy, if everything had a price and was freely tradable, the market would be self-regulating and the result

**To Berry, ecology must become the queen of the sciences, and not only of the sciences but also of the humanities, economics and the studies of the professions.**

would be efficient allocation of goods and services and rising wealth. As Polanyi points out, however, “labor is only another name for a human activity which goes with life itself [, and] land is only another name for nature.” They are “obviously *not* commodities . . . produced for sale.” Yet, the myth of the power of self-regulating, free markets and their benefits has been so persuasive that not only has the economy been transformed under the

sway of this myth, but society itself. The market economy ultimately resulted in the market society, a society where the purpose of social structures was to promote free markets. Polanyi provides an analysis to support the position that historically the economy was an outgrowth of the social structure. The inversion of this in the industrial economy was that society became an outgrowth of the economy. According to Polanyi, this was “the great transformation.”

The second aspect of the industrial revolution, as identified by Thomas Berry in *The Great Work*, is that in the 19th century, industrialized nations moved from an “organic economy” to an “extractive economy.” As Berry explains, “[T]his was the time that we set forces into motion that would disturb the chemical composition of the air, water, and soil to an extent that would affect the entire network of organic life on the planet.”<sup>7</sup> For an organic economy, which “is by its very nature an ever-renewing economy,” we substituted an extractive economy which “is by its nature a terminal economy,” one dependent on extracting non-renewing resources, placing ourselves where “we could survive only so long as these endured; or so long as the organic functioning of the planet was not overwhelmed by the violent intrusion involved in extracting and transforming these substances [and] from the contaminants that resulted, especially from the chemical industry.”<sup>8</sup>

The period of the industrial revolution is relatively brief, only a little more than 200 years old. The industrial economy has produced material wealth, but perhaps it has made the world poorer. Over any longer period of time, history will show that wealth is not in industrial production as it has thus far been conceived. Wealth is, as it always has been, in the land. Not in land as a set of resources to be extracted and used by industry, but land as a repository of the fertility of Earth, a fertility maintained not simply by the bare minerals that constitute the soil, but also by the microorganisms in the soil, roots of plants that fix nitrogen in the soil, birds and bees that pollinate the plants that fix the nitrogen, rain that falls to water the soil, and sunlight and air that energize the plants and animals that nourish the soil. From an ecological viewpoint, the accumulation of wealth for some cannot exist at the expense of the many—the many being all the plants, animals, and inorganic beings who live together in an interdependent community of life.

To accumulate ecological wealth for the many is to bring the dynamics of the human community into a mutually enhancing relationship with the dynamics of Earth. This depends on “ecozoic” technologies.

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At this point, a word needs to be said about the term ecozoic. “Eco-” is from the Greek word *oikos*, which means house, and *-zoic* from the Greek word *zoin* meaning “living being.” So *eco-* and *-zoic* put together as the word *ecozoic* means “house of life.” It follows that *ecozoic* technologies means those innovations that enhance the house of life.

There are those who are already thinking of technology in these terms. Paul Hawken, Amory Lovins and L.

Hunter Lovins have written *Natural Capital*<sup>9</sup> based on the premise that “nature’s services” must be counted as capital in planning the future economy. They call for “radical resource productivity; investing in natural capital; imitating nature by allowing for the constant reuse of materials in continuous closed cycles, and often by eliminating toxicity; and by shifting the economy from goods and purchases to services and flows.” Janine

M. Benyus in *Biomimicry*<sup>10</sup> has identified a route to technological innovation through the study of nature.

Nanotechnology, biotechnology, computing and attention to natural flows offer the promise of “gathering energy like a leaf, weaving fibers like a spider, computing like a biological cell, and running a business like a forest.” Lester R. Brown, in *Plan B* proposes an alternative to “Plan A: Business as Usual.” His plan focuses on “raising water productivity, raising land productivity and cutting carbon emissions in half.”<sup>11</sup>

These are all *ecozoic* technologies, yet more radical measures than these may be required over intermediate time horizons. Wringing the excess out of industry will not change the fundamental nature of the extractive economy. Brian Milani in *Designing the Green Economy*<sup>12</sup> calls for a “postindustrial alternative to corporate globalization.” Based in part on a Marxist analysis, Milani critiques the separation of politics, economics and culture in an industrial system based on materials and money. He calls for changing the patterns of development based on the centrality of landscape, following a “soft energy” path of renewable energy, distributed generation, integration with the needs of the community, and living in a de-materialized world of smaller scale, greater craft, better design, and more benign materials. In his classic book, *Small Is Beautiful*,<sup>13</sup> E.F. Schumacher writes that whatever else we do, we should use “appropriate technology.” There is no need to build vast dams and water distribution systems when rain harvesting and water reuse will do, no need for battery-powered bicycle tire pumps, when hand pumps will do.

Finally, *ecozoic* technology must be concerned not only with the physical scale of production, consumption

and resource use, but also with the social scale of how we see the world and how we are to live in it. Wolfgang Sachs envisions a world of selective slowness, one where resource sufficiency is the goal, not resource efficiency. It is a world where it is recognized that the economic system is subordinate to the natural system and where economic demands are adjusted to those that the natural system can withstand. He says “[eventually] the social scale of the economy will also have to correspond to the economy’s physical scale. . . . As it is not plausible to seek limits to economic expansion only in one dimension—the physical one—research on sufficiency must also explore limits in the social and cultural dimensions.”

From all of this we must conclude that while in the short term “advanced technology” may consist of those innovations that make goods faster, better and cheaper; in the intermediate and long term advanced technology must consist of ecozoic technology.

<sup>1</sup> Thomas Berry, *The Dream of the Earth* (San Francisco: Sierra Club Books, 1988), 107.

<sup>2</sup> Thomas Berry, *The Great Work* (New York: Bell Tower, 1999), 81.

<sup>3</sup> *Ibid.*, 85.

<sup>4</sup> *Ibid.*

<sup>5</sup> *Ibid.*

<sup>6</sup> Karl Polanyi, *The Great Transformation: The Political and Ecological Origins of Our Time*, 2nd ed. (Boston: Beacon Press 2001) (originally published: New York: Farrar & Rinehard, 1944).

<sup>7</sup> Berry, *The Great Work*, 138.

<sup>8</sup> *Ibid.*, 138-39.

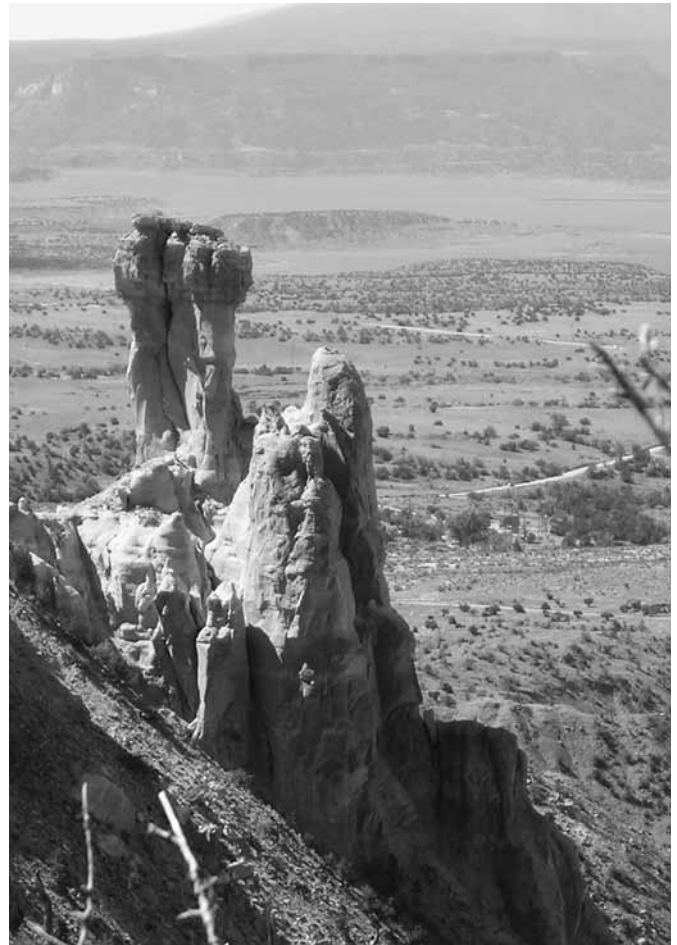
<sup>9</sup> Paul Hawken, Amory Lovins and L. Hunter Lovins, *Natural Capitalism. Creating the Next Industrial Revolution* (Boston, MA: Little, Brown & Company, (1999).

<sup>10</sup> Janine M. Benyus, *Biomimicry: Innovation Inspired by Nature* (New York: Quill William Morrow, (1997).

<sup>11</sup> Lester R. Brown, *Rescuing a Planet Under Stress and a Civilization in Trouble* (New York: W.W. Norton, 2003).

<sup>12</sup> Brian Milani, *Designing the Green Economy* (Lanham, MD: Rowman & Littlefield Publishers, Inc., 2000).

<sup>13</sup> E.F. Schumacher, *Small Is Beautiful: Economics as if People Mattered*



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## Organic Democracy

By Ellen LaConte

For three years I've been endeavoring to acquire the understandings and language necessary to synthesize and share two insights I was given in separate mid-night "ah-hah" experiences in the summer of 2002. These split-second intuitions followed on decades of reading, writing and working around the edges of home-steading, environmentalism, future studies, and social commentary and criticism.

### The Problem

The first came as a sort of inner hearing: "critical mass." I knew it to be the name of the world our global economy is making as it affects the state of Life on Earth, which we have not made and, if we're talking about starting from scratch, can't remake. A version of my definition of critical mass appears on the first page of this journal; my assessment of the consequences of global critical mass appeared in Volume 4, Number 1 of this journal.

Challenging enough for a fairly reclusive, freelance scribbler was the thought that, like some happy solitary shepherd who'd been struck by the unwanted gift of prophesy and pointed at Jerusalem, I'd been somehow charged to convey this frightening concept to a large enough audience that a critical mass of us might rise up in response to it!

### The Solution

But that first task, which I could imagine myself at least taking a stab at, wasn't to be my only one. Within a month I was visited with another insight, one that was more unorthodox, perhaps even heretical, and far less obvious: "This is what democracy is for." Conveying the synthesis of the two would require me to work at the leading edge of anything I knew.

I'd been plugging away for a year on drafts for a book about the difference between institutionalized representative democracy—democracy as we know it—and the grassroots, hands-on sort that's practiced in some communities and organizations here and around the world when the top-down kind we've become accustomed to and dependent upon fails, as it has seemed to be doing for some time. But now I saw that what we needed democracy to do was to address the range and rash of problems we are afflicted with everywhere on the local level on account of having reached global critical mass.

### The Dream of Democracy

Even the grassroots version of democracy I was writing about was incompetent and incomplete compared to the democracy that seemed to shine at the heart of the vision I'd been given as in a dream. As I've come to understand it, this new democracy is related to what Thomas Berry refers to in his *Dream of Earth* as "our functional role within the creative intentions of the universe."

Because democracy is apparently in a perpetual state of creative emergence like Life, which operates by organic rules, it should be called "organic democracy."

It seems to me, that organic democracy would provide the necessary *process* by which, together, wherever critical mass finds us, we could recognize and select techniques, technologies, and tools appropriate to undertaking the Great Work that would bring about an Ecozoic Age.

### What if democracy . . .

What I want to do here, with you, is to begin to imagine where democracy might go, what it might become, if we freed it from the constraints of our presumptions about it. For, if democracy as we know it is not meeting our present challenges, the fault lies not in democracy but in our misunderstanding—our underestimation—of it which is equal in its significance to our misunderstanding of the nature and causes of critical mass.

For example:

What if, after all, democracy doesn't reside in nations, governments, political systems, or institutions? What if they are only a few among many possible expressions of a democratic spirit that actually resides in the human heart, a democratic wisdom that originates in deliberate dialogue, a democratic character that arises out of constructive interaction, and a democratic instinct that is latent in community?

What if what the framers of the American constitution *did* in the summer of 1789 was democracy but what they *produced* was a set of procedures for sharing rights and powers. The distinction would be equivalent to the difference between practicing the Ten Commandments, the Eightfold Path, the Golden Rule, or the Five Pillars and writing them down. Equivalent to calling yourself pious merely on the basis of having read and quoted from the sacred texts. What if experiments in institution-

al democracy so far have been just that—experiments? What if democracy as we know it has been a series of trial runs in preparation for the real thing?

What if, for example, democracy is a way of being, a way of being with each other, a way of participating *together* in the Life experiment on Earth, a way of being that was born in us when we were born into the world? What if it is a predisposition to cooperation and compassion that we only temporarily lost track of when we discovered “I” and “me” and “mine” and got stuck in our isolated, egotistical, individual selves? What if our brains and minds are still growing up to it, still growing it up? What if it is still emerging in us the way maturity (sometimes) emerges out of adolescence?

What if democracy is actually more like love than law, more like respect than rules of order, more like conscience than constitutions, more like our purpose in life than a political system, more like mutuality than majority? What if, in this world of things that might otherwise fly apart, it is more like gravity than it is like government?

What if, before it ever gives rise to a law or a constitution or an institution, democracy is a *manifestation* of love, respect, conscience, purpose, and mutuality that includes in its embrace all living things and the living systems we call “places” because they can sustain us only to the extent that we sustain them?

What if, like the forces that physicists call “strange attractors,” it is a force that binds us and other living things together even as gravity binds us to Earth?

What if democracy is not orderly and is not about order but about adapting gracefully to Life’s generally chaotic, tinkering tendencies and fitting ourselves to Life’s orders of service? What if it is never to be found in organizations but rather always in the shared activity of organizing, dis-organizing, and re-organizing in order to accomplish desired ends in ever-changing circumstances? What if it is found not in particular places or ways but in the on-going process of *making* our ways together in particular, ever-changing places? What if it is characterized not by rest—“There, that’s done.”—but by motion—“Just do it.”? What if it is not a destination but the journeying?



What if democracy is a secular liturgy? “Liturgy” comes from two Greek words that mean laity, or people, and work. The people’s work. What if “democracy” is the name for the work we, the people, undertake in the world on Life’s behalf?

What if democracy is the method by which we can organize ourselves in ways that harmonize with the methods by which Life organizes itself?

I-identity—the deep awareness of “me”—resulted in a particular period of history (the Axial Age) from the integration in our minds of consciousness with the instinct for self-protection. What if the next mind-shift, the one we are undergoing now, integrates consciousness—our singularly human capacity to be aware of what we are doing and choose what we will do—with conscience—our capacity to know with each other how Life works as if we and it were of one mind?

What if democracy—the deep awareness of “we”—is one of the behaviors that results from the integration in our minds of consciousness with conscience?

What if, at its most expansive and inclusive, democracy is Gaia-cracy? What if it is the “capacity for mutual presence on new and more comprehensive levels” (*The Dream of Earth*) that enhances the “web of relationships” we call Life? What if democracy is the practice that facilitates the “communion of subjects”?

What if, at its best, democracy is what love looks like away from home?

Or better still, since loving our neighbors or even liking them is increasingly problematic in our competitive, complex, contentious, critically-massed global economy, what if democracy is like gardening? What if *the practice of it* is what makes you good at it, gives you a feel for it?

What if *doing* democracy is what prepares the ground for love and respect; nurtures conscience; and cultivates recognition of common purpose and the common good? What if doing democracy is like *organic* gardening, *community* gardening? Working with Life in the ways *it* works, hands-on, together, up close and personal.

What if doing it would be a palliative, treatment, and preventative for critical mass, the way gardening and farming organically is a palliative for nutritionless, chemical-laden food; a treatment for the ravages of factory farming; and a preventative for the destruction of soils, waters, forests, species, diversity, cultures, and communities that factory farming causes?

What if what you got when you did democracy with analogies like these in mind, was authentically civilized, sustainable, democratically lived cultures—sustainable democracultures? What if coalitions and networks of sustainable organic democracultures were seed stock for the Ecozoic?

What if *that’s* what democracy is for?

Though it’s not where democracy is going, what if that’s where it and we *could go*?

We’ll consider how that might happen in the next issue.

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\* More of this organic, systemic way of thinking about how we organize ourselves is to be found in a couple of the sources that helped me to think this way: Margaret J. Wheatley and Myron Kellner-Rogers’ *A Simpler Way* (San Francisco: Berrett-Koehler Publishers, 1999) and Dee Hock’s *Birth of the Chaordic Age* (San Francisco: Berrett-Koehler, 1999) and Mary Parker Follett’s *New State* (1918) and *Dynamic Administration* (1940).

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## Overview of Sierra Club Electronic Roundtable on "Getting it Right: How to Ensure a Better Future"\*

Overview by Michiel Doorn

**A**n eclectic group of environmental visionaries gathers around an electronic roundtable. Question posed is: "Ordinary citizens are more and more concerned about the environment, but (collective) actions are not following. How can our collective behavior catch up with our individual concerns? How, in the next century, can we translate public attitudes into real environmental progress?"

**Bill McKibben (U.S. Environmentalist):** On a local level we are doing at least okay, but we fail politically because we can't manage to prioritize. We need to set up networks. Something may trigger radical change, a crisis or just a book like *The Silent Spring*, so we need to be ready and organized for when it happens.

**Paul Hawken (U.S. Leader on Business and the Environment):** What if the strength of the environmental movement is that it is divided? We need to organize, but not unite, because we need diversity, just as in nature. Perhaps we need to continue what we are doing, but do it better. We need to prepare for leadership and not loss. We need to prepare to win, not to be right when the ship goes down. There is a difference between blind heady optimism and the deep conviction that no force can counter the truths we share and hold so deeply.

**Carl Pope (Sierra Club Leader):** I am skeptical that we can win solely by a kind of phase transition. We not only need personal commitments, but we need some fundamentally new concepts of how to embed a new ethic into the modern human institutions that now run the global show. Environmental ethics needs to become part of their governing principles.

**Anne and Paul Ehrlich (Professors of Ecology, Stanford University):** It is possible to influence and change these institutions. Everyone can do something. We can all take on that responsibility.

**Homero Aridjis (Mexican environmentalist and social activist):** The juggernaut of globalization must be harnessed and tamed. Influenced by the global traders, the developing countries are positing poverty as the main reason for environmental degradation. But what about exploitation, corporate greed and simple plain ignorance? And what about the obscene advertising that we are bombarded with? Environmental degradation brought on by global exploitation causes disasters and thus more poverty, not the other way around. We need a return to local control, not more economic imperialism; fair trade not more free trade. The consciousness of the entire continent of Latin America in relation to the poor was changed by what at the beginning was only a handful of determined Roman Catholic priests dedicated to liberation theology. We need new enlightened and environmental preachers to go out and reach the unconverted. Our best minds and pens must craft messages that appeal. What I am recommending is a spiritual movement. We must change humankind's religious potential toward the defense of nature, helping people understand that the destruction of ecosystems is an assault on creation.

**John Sweeney (U.S. Labor Leader):** None of you express concerns beyond traditional environmental or sustainability matters, and the International Labor Organization adds environmental groups only as one of a list of possible partners. This speaks volumes about the nature of the work ahead for us both. Our task is to figure ways to move forward in global environmental stewardship in concert with activities in ways that protect workers, jobs, and communities.

**Paul Hawken:** We do have to step back and look at the system itself. We cannot protect communities, jobs, and the environment within a system that is designed by default to destroy them all. But let us not forget that there are also tens of thousands of seemingly disparate organizations that are already doing the hard work. What it comes down to is a matter of faith. If we do not have faith our work has no meaning.

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# **Visions of Alternative (Unpredictable) Futures and Their Use in Policy Analysis** by Robert Costanza\*

*Review by Michiel Doorn*

## **Introduction**

Dr. Robert Costanza is the Director of the Gund Institute for Ecological Economics at the University of Vermont. Prior to moving to Vermont in August 2002, he was director of the University of Maryland Institute for Ecological Economics, and a professor in the Center for Environmental Science, at Solomons, and in the Biology Department at College Park. He is well known for his efforts to allocate real costs to the services that nature provides.

There is a tendency in thinking about the future to simply extrapolate past trends. If we have been getting materially richer in the past, then the future will be more of the same. If the environment has been deteriorating, then it will continue to do so. But one of the lessons we can learn from history is that trends do not continue smoothly. There are turning points and discontinuities that were impossible to predict from past trends. The dissolution of the Soviet Union, the Berlin Wall coming down, and landing a man on the moon are three examples. In this paper from 2002, Costanza states that the world is at a critical turning point. There is significant uncertainty about how things will go in the next few years, but there is growing consensus that the immediate decisions we make as a society will determine the course of the future for quite some time to come.

A necessary ingredient to move change in a particular direction is having a clear vision of the desired goal which is also truly shared by the members of the organization or community. Vision can change the world. In fact, it is one of the few things that really can. The problem is, it can change the world for either better or worse, and the distinction is embedded in the vision itself. The challenge for the current generation of humans is to develop a shared vision that is both desirable to the vast majority of humanity and ecologically sustainable.

A vision is much more than an apparent dominant public opinion. Public opinion is notoriously fickle and inconsistent on those issues for which the public has not confronted the system-level implications of their opinions. Moving from having opinions to standing by them, requires a “coming to judgment” that involves three steps: (1) consciousness-raising or awareness; (2) developing under-

standing; and (3) resolution or action. A prerequisite for all three of these steps is bridging the gap between expert knowledge and the public. Coming to judgment is the process of confronting and resolving these inconsistencies by dissolving the barriers between the mutually exclusive compartments into which information has been put, as well as moving to action. For example, many people in opinion polls are highly in favor of more effort to protect the environment, but at the same time, they are opposed to any diversion of tax revenues to do so.

The processes of envisioning and goal setting are extremely important (at all levels of problem solving) and they are also very underdeveloped skills in our society. We must therefore begin to train people in the skill of envisioning and begin to construct shared visions if we hope to achieve a sustainable society. One of the most effective ways to start the dialogue and move quickly to public judgment is to present complex issues in the form of a relatively small number of “visions,” which lay bare the conflicts and inconsistencies buried in the technical information. The decisions we face today about the future of the planet are by far the most complex we have ever faced, the technical information is daunting even to the experts, and we have very little time to come to public judgment. To enhance this process, this paper lays out four future visions of the planet Earth. Each vision is described as a “future history:” a history of the Earth written from the vantage point of the year 2100. In this way, some of the details and colors of the visions can be articulated. The visions include both desired and undesired aspects, both hopes and fears, allowing a richer exploration of what the future may hold, and a conscious choice among complex alternatives.

**Vision can change the world. . . . The problem is, it can change the world for either better or worse, and the distinction is embedded in the vision itself.**

## **Four Visions of the Future**

The four visions derive from two basic worldviews, the technological optimist and the technological skeptic. The technological optimist vision is of continued technological progress that will be able to all current and future social and environmental problems. In this vision humans continue to expand their dominion over nature. This is the

default vision in our current Western society, one that represents continuation of current trends into the indefi-

nite future. There are two versions of this vision, however: one that corresponds to the underlying assumptions on which it is based actually being true in the real world, and one that corresponds to those assumptions being false. The positive version of the technological optimist vision Costanza calls “Star Trek,” after the popular TV series. The negative version of the technological optimist vision is called “Mad Max,” after the popular nineties movie that embodies many aspects of this vision gone bad.

The technological skeptic vision is one that depends much less on technological change and more on social and community development. It is not in any sense “anti-technology.” It does not, however, assume that technological change can solve all problems. Rather, it assumes some technologies may create as many problems as they solve, and that the key is to view technology as the servant of larger social goals rather than the driving force. The version of this vision that corresponds to the skeptics being right about the nature of the world Costanza calls “Ecotopia,” after the semipopular book by Callenbach (1975). If the optimists turn out to be right about the real state of the world, then what I will call the “big government” vision will come to pass, where government slows down progress to manage resources. The figure below gives a synopsis of the visions, which are more fully narrated in the on-line paper.

How should society decide among these four visions? Does it even need to decide? Why not just let what happens happen, letting everyone have their own independent vision of the future as it suits them? Isn’t that the essence of democracy? Costanza reminds us that a basic tenet of democracy is that individual rights are not to be limited unless *they impact the rights of others*. We live in a very interconnected world, one that is becoming more and more interconnected every day as the human population grows. All of our futures are intertwined, and the actions and decisions of everyone affect everyone else, both those alive today and those yet to be born. The essence of democracy in this “full world” context is *government by discussion and mutual value formation*. The key is coming to public judgment about the major value issues facing society, its goals and visions.

Democratically integrating the many goals and visions and their related forms of value into a social-choice structure requires a two-tiered approach. Tier 1 is the “reflective” level, where social discourse and consensus is built about the broad goals and visions of the future, and the nature of the world in which we live. This consensus then motivates and mediates Tier 2, the “action” tier, where various institutions and analytical methods are put in place to help achieve the vision. There is feedback between the two tiers, and the process of envisioning, goal setting, and value formation is an

|           |                        | REAL STATE OF THE WORLD   |  |
|-----------|------------------------|---|--|
|           |                        | Optimists Right   | Skeptics Right   |
| WORLDVIEW | Technological Optimist | <p><b>Star Trek</b><br/>Human cleverness and boundless clean energy from a novel fusion process have solved all problems, including environmental ones. Population pressure is dealt with by immigrating to exciting new extraterrestrial colonies. Because of the abundant energy and technological innovation, work is barely necessary and people devote time to family, leisure, voluntary societal enhancements.</p>   | <p><b>Mad Max</b><br/>Fossil fuels ran out and other types of cheap energy have not been found. The environment is degraded seriously and climate change has spun out of control. The population of Earth has declined rapidly as a result of famines, resource wars and disease. National governments have become weak and the power resides with a number of transnational corporations, yet most people are jobless and in pure survival mode.</p>  |
|           | Technological Skeptic  | <p><b>Big Government</b><br/>Government has retaken control of power and has revoked the charter of corporations that failed to pursue the public interest. Life is safe and regulated and the Governments are powerful, prudent and set clear policies to watch out over citizens, society, and the environment. Income is fairly evenly divided and economic growth is not a priority. Although the environment retained much damage, things have begun to improve.</p> | <p><b>Ecotopia</b><br/>Global eco-tax reform and inclusive dialogue, mostly over the Internet, was the key to change. Power was taken away from large corporations and resides with small democratic government and citizens. Ecological sustainability achieved; resources and property rights are distributed fairly; progress is measured with the “quality of life index” and not the GDP. Citizens live in smaller units, either urban or rural and use mass transit or walk. There is moderate need for labor and most people find reward in contributing freely to society.</p> |

ongoing and critical one. There is a vital connection between value formation and decision making. But according to Costanza the very existence and necessity of tier 1 is often ignored and instead, we are often left with a mere tier 2 implementation of fixed goals and values; the “illusion of choice.”

### Survey in Sweden and the United States of Preferences

Costanza has conducted a preliminary (nonscientific) survey among 418 mainly academic American and Swedish participants. The respondents were read each of the four visions in turn, and were then asked: “For each vision, I’d like you to first state, on a scale of -10 to +10, using the scale provided, how comfortable you would be living in the world described. This is not a vote for one vision over the others; consider each vision independently.”

The majority of those surveyed found the Star Trek vision positive (mean of +2.48). Given that it represents a logical extension of the currently dominant worldview and culture, it is interesting that this vision was rated so low. I had expected this vision to be rated much higher, and this result may indicate the deep ambivalence many people have about the direction in which society seems to be headed. Those surveyed found the Mad Max vision very negative at -8.12. The Big Government vision was rated, on average, just positive at 0.97. Many found it appealing, but some found it abhorrent (probably because of the limits on individual freedom implied). There were significant differences between the Americans and Swedes, with the Swedes (+2.32 ± 3.48 ) being much more favorably disposed to Big Government, and with a smaller standard deviation than for the Americans (+0.54 ± 4.44 ). This also was as expected, given the cultural differences in attitudes toward government in the United States and Sweden. Swedes rated Big Government almost as highly as Star Trek. Finally, most of those surveyed found the Ecotopia vision “very positive” (at 5.81). Swedes rated Ecotopia significantly higher than did Americans, also as might be expected given cultural differences.

### How Do We Decide? Insights from Game Theory

Costanza plotted the results in a “payoff matrix” and then goes on to explain what can be done. We can choose between the two worldviews and their attendant policies. Yet, whatever our choice we face pure and irreducible uncertainty concern-

ing the real state of the world. Who knows whether or not the perfect energy source will be invented? Should we choose the Star Trek vision (and the optimist policies) merely because it is the most popular, or because it is the direction in which things seem to be heading already?

From the perspective of game theory, this problem has a fairly definitive answer. This is a game that can only be played once, and the relative probabilities of each outcome are completely unknown. In addition, we can assume that society as a whole should be risk averse in this situation. The mean values of the numerical rankings for each vision, from the preliminary survey, offer some guidance. One would look at each row in the matrix (corresponding to a policy set) to see the worst outcome for that policy set. For the optimist’s policy, Mad Max (-8.1) is the worst case. For the skeptical policy set, Big Government (+1.0) is the worst case. One would then choose the policy set with the largest (most positive) worst case. +1.0 is much larger than -8.1, so we would choose the skeptic’s policy. This is a standard “maximin” decision rule. If we choose the skeptic’s policy set, the worst thing that can happen is Big Government, which is much better than the worst thing that can happen under the optimist’s policy set (Mad Max). The conclusion that we should choose the skeptic’s policy set is fairly insensitive to the specific values of the rankings. In fact, the way the payoff matrix is set up, Mad Max is the one really negative outcome and the one really unsustainable outcome. We should develop policies that assure us of not ending up in something like Mad Max, no matter what happens.

There are other considerations in favor of choosing the skeptic’s policies. The skeptical policies do not close any options. One could still switch to the optimist’s policies, once the real state of the world was shown to conform to that view. For example, if a perfect energy source were ever discovered, one could easily switch to the Star Trek vision from the Big Government vision.

The reverse switch from Mad Max to Ecotopia could not be made, because the infrastructure would not be there. The skeptic’s policies preserve options, the optimist’s policies do not.

Mind that both the players and the game are evolving and changing over time as our vision evolves and as we learn more. At the current moment, however, we have to decide on a set of general policies. The four visions, Costanza believes, summarize our current choices and fundamental uncertainties. One could also argue that the probabilities of each

**From the perspective of game theory, this problem has a fairly definitive answer. This is a game that can only be played once, and the relative probabilities of each outcome are completely unknown.**

state of the world being correct are not completely unknown. If one could argue that the prospects for cheap, unlimited, nonpolluting energy were, in fact, very good, then the decision matrix would have to be weighted with those probabilities. If anything, the complete dependence of the Star Trek vision on discovering a cheap, unlimited energy source argues for discounting the probability of its occurrence. It is like leaping off the top of the World Trade Center building and hoping that you can invent a parachute before you hit the ground. Better to wait until you have the parachute (and have tested it extensively) before you jump. By adopting the skeptic's policies, the possibility of this invention is preserved, but without utter dependence on it.

## Conclusion

Thus, by laying out four alternative “future histories” of the Earth, the critical assumptions and uncertainties underlying each vision can be more easily seen, and a rational policy set that assures sustainability can be devised. A cooperative, precautionary policy set that assumes limited resources is shown to be the most rational and resilient course in the face of fundamental uncertainty about the limits of technology.

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\* Robert Costanza, “Visions of Alternative (Unpredictable) Futures and Their Use in Policy Analysis,” *Conservation Ecology* 4(1): 5. [online] URL: <http://www.consecol.org/vol4/iss1/art5/>. Copyright © 2000 by The Resilience Alliance



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# **New Science, New Spirituality, New Consciousness and Integral Experience**

*By Michiel Doorn*

## **Science**

On September 26, 2000, there was good news for the Earth. It was not just news about a group of dedicated people saving a patch of land or obtaining a victory banning a pesticide. No, it was news that spoke to the core of science and how science sees the world and its role in it. The news concerned the results of a survey of leading international scientists, sponsored by the National Science Foundation, the principal academic body in the United States. A committee of scientists asked colleagues around the world to tell them what immediate problems needed to be addressed and where U.S. federal research dollars should be directed for the most good.

The results indicated that scientists wanted government funding to focus on four areas of research: biodiversity and ecosystem functioning; hydrologic forecasting; land-use dynamics; and infectious disease and the environment. Research on biodiversity and ecosystem functioning is needed to understand how changing the variety of living creatures that work in concert with each other affects the functioning of ecosystems and, therefore, their resilience. Hydrologic forecasting deals with understanding the complex local and global water cycles and how we may quench the thirst of seven billion people in the near future. This is an issue closely related to climate change, and so is the third issue, that of land-use dynamics, which tries to understand what it really means to the planet and its climate when humans cultivate so much land. The fourth research area looks at the interplay between infectious diseases and the environment and addresses the health effects of the three previous ones.

Not surprisingly, this news wasn't given much attention in the mainstream media. Yet, the significance is paramount for those of us who are interested in the fate of nature, not just because these research topics are themselves interesting, but because of what they have in common and the epistemological change they represent. This survey provides very important, large-scale evidence that, in the scientific academic world, the reductionistic, Newtonian paradigm is being replaced with a more holistic one. All of the aforementioned research areas deal with systemic or holistic approaches to understanding the natural world and humanity's role in it. Apparently, scientists are becoming conscious of the importance of the state of the natural world as the premier issue that will determine our future.

Yet, though the Newtonian scientific paradigm now

appears to be receding in the scientific academic world, it remains strong in the applied science and engineering that supports industry, not to mention in politics and economics. After all, the Newtonian paradigm has served the Western world relatively well for three hundred years. It has given us many of our technologies and conveniences, from flight, to telecommunications, to modern agriculture. It is characterized by linear thinking and reductionism, where an object is broken down into its parts and each part is studied separately. Properties of the parts are seen as intrinsic and capable of being extrapolated to understand larger systems, just as the workings of a sprocket wheel and a piston can be extrapolated to understand how a car moves forward. Indeed, this approach works remarkably well for car engines and patches of soil that are being readied for monoculture. But, as the survey indicates, we are realizing that this kind of extrapolation gives us insufficient information about system effects—at larger scales our marvelous cars are releasing massive amounts of greenhouse gasses, clogging urban highways and depleting fossil fuels and we are running out of soil to feed a growing population. We are realizing that we don't have a clue how the environment really works and that we had better find out fast.

In systemic or holistic science we are required to take the big picture into account right from the beginning. The whole is more than the sum of its parts. To a systemic thinker it comes as no surprise that land use change such as deforestation affects rainfall patterns, which in turn affects the spread of diseases, and so on. Important properties of the system cannot be deduced from analysis of its parts in isolation. Instead system properties emerge only when one takes a step back and takes time to observe. Then, at some point, the parts themselves dissolve, so to speak, and what is left is an intricate network of relationships and processes. For example, a bee may still be expressed as a separate little yellow brown insect, but its essence now becomes its intricate relationships with the flowers it pollinates and the birds or ants it provides nourishment for once its life is over. For the systems thinker, the bee and the flower are not two separate life-forms, but they form a system that in itself is again part of other systems, which ultimately make up even larger systems.

In summary, systemic science is the science of relationships. A primary area of application for this science is the environment, though it is also very much applicable to medicine, psychology, and social studies, as well

as a host of other fields. Within the systemic paradigm, it becomes impossible to see ourselves isolated from our environment. We are in intimate relationship with it.

## Spirituality

We are interdependent and deeply connected to our environment, just as all other life forms on the planet are. Systemic thinking provides the scientific basis for understanding this interdependence, but the relationship goes deeper than that described by science. In its deepest sense, the relationship is one of intimacy, about giving life and mutual respect and passion, and, therefore, it is also a spiritual relationship. Our relationship with the environment is not just about exchanging food and resources and returning waste. It is also the source of our inspiration. The core of spirituality may be described as the conscious awareness of a connectedness to something greater than oneself, and in this sense environmental awareness is spiritual awareness.

Julia Butterfly Hill sat in a 1000-year Sequoia tree in California for over two years. She was ready to give her life to save this tree from loggers. She did this because she was conscious of her greater connection and reciprocity with her environment. Julia named her tree Lana, and Luna is her blood kin. This is also why Jane Goodall tirelessly travels the world to fight for the world's great apes, when others would have long since retired. Dr. Goodall knows without a doubt that when she looks into the eyes of a chimpanzee, she is seeing her own relative, and ultimately herself. This awesome awareness is what keeps her going.

Science deals with the nature of things and so does spirituality. Science can be applied in a life-enhancing and honoring way and this is actually the case with the systemic science that is now becoming mainstream. Every time we discover another bio-chemical loop in our own cells or in an ecosystem, or another quantum-physical phenomenon, we can only marvel at the incredible cleverness and intricacy of their design. So the question whether science and spirituality are complimentary or contradictory can easily be answered. In the Newtonian paradigm of the past they were contradictory, but in the new holistic science they are complimentary. Both deal with relationships and illuminate each other. The question, then, is only, "How can greater humanity become consciously aware of this connection of the individual self with the Greater Self?"

## Consciousness

Consciousness is defined as knowing that we know. It is also the ability to reflect upon ourselves, our own existence and our environment. Consciousness evolves. With age and training, an individual may become more conscious, more adept at reflecting on his or her own existence, surroundings, and relationships. On a collec-

tive level, the same holds true. Over time, with increasing mental capacities, humans have become more conscious as groups, communities and cultures. Perhaps, analogous to systemic thinking, consciousness can be seen as a property that has always been present in potential form, until it emerges and evolves when the system reaches a certain level of complexity. What this means is that through our own consciousness and actions, we humans have a responsibility to help guide this ongoing evolution in directions that are mutually enhancing for all life. But what is it that inspires our consciousness? If consciousness is knowing that we know, what is there to know? Wouldn't that be the world in all its abundance and diversity, its sounds and colors, and its pleasures and its pains?

## Integral Experience of Science Spirituality and Experience

I live in North Carolina, a state known for its mild climate, although the four seasons are still distinct. In the winter, there may be a couple of weeks of snow, while the summers are hot and humid. Spring and autumn are usually splendid and luxuriant, save for the occasional hurricane. Our house rests on a small hill and has a back deck that elegantly protrudes into a large forested yard. Because the deck is up from the ground by perhaps three meters, we find ourselves at the level of the lower branches of the trees, making it easier to enjoy the winged visitors and squirrels that are attracted by the lushness and by the variety of bird feed that my wife diligently puts out.

One late Sunday afternoon in early November, I was sitting on my back deck. It was perhaps the last of the Indian summer, and the temperature had climbed up to a balmy 20°C, although autumn was already well underway. The trees were at their prettiest, adorned with hues of yellow, red and bronze. I was alone save my dog and cat and was finally unwinding from a busy week with work and family. I had brought a glass of wine and a book outside and had started reading. I read for a while and then felt the urge to put down my book. Dusk was approaching and the rays of the setting sun radiating through the upper branches of the trees, which were already vividly colored, put on a magnificent display. The sky had turned a deep turquoise. Because of the warm weather, the birds and even a lonely bat looking for an evening meal were out in exuberance. I then became aware of an extraordinary sensation within me. It was as if my senses had become magnified and I felt as if I was being absorbed by the sensuous display that nature was putting on. I heard bird sounds that I had not heard before and saw colors that I had not seen before. The experience was not just intense, indeed, it became mystical. I had the sensation I was not just a spectator to something that was happening anyway, but

that nature was putting on this show just for me. This may seem rather self-conceited, but the experience filled me with utmost humbleness and deep gratitude, to the point of tears. I thanked the birds for flying by me and for singing and I thanked the trees for their flamboyant show.

What happened next is hard to describe. I felt that my gratitude was reciprocated and then I became aware that I was not just a spectator, but actually a critical part of this event I was being thanked by all of nature around me for being there and being aware. Because I was the most conscious, if not the only conscious being that was aware of this splendor, I had given existence to the

splendor. It was my conscious awareness that helped nature to birth this phenomenal scene at this place and at this time. It was a reciprocal relationship.

The world creates us, as we create the world. We are in the middle of a continuous interchange of creativity and inspiration. Our consciousness depends on our world, as our world depends on our consciousness. To become aware of this relationship and to help bring forth the world to the benefit of all beings is the ultimate life task of humanity. To be well-equipped for this task, we need this new science, this new spirituality, this new consciousness and integral experience.



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## Creation Unfolding, Evolution Occurring, God Becoming: The Emerging Consciousness in the Meeting of Science and Religion

By Susannah Lach

I am part of a Generation called X. This term refers to the group of people who were born during the Vietnam War. We grew and developed our basic selves through the Nixon and Carter years. We created our sense of the world in the era of Reagan and MTV. We became adults in the age of Clinton. Perhaps we have gotten our famous “Generation X” title from the notion that X marks the spot in time where the sacred has reached an impasse. Certainly it has seemed that way since I can remember.

Through the efforts of activists in the 1960’s, 70’s, and 80’s, I grew up with the knowledge that I was partly responsible for much of the suffering and injustice that was taking place in the world. As a white person coming from an upper middle class family, I was experiencing white privilege as part of the elite in an economic caste system. As an American I consumed more than any other country’s citizens did. Unlike many of my Generation X brothers and sisters who have become overwhelmed with this awareness, I was in search of what to do about it. What needed to change? How could I know all of this—be told of my heritage of oppression—and still have hope and motivation?

In my last semester of college, a faculty member named Michael McAvoy organized a group of students to focus on solutions. He realized that it was not enough to point out what is wrong with society; we must provide alternatives and a space for resolution. This was the beginning of what has now become the New College Santa Rosa program of “Culture, Ecology, and Sustainable Community.” We learned about watersheds and their riparian corridors. We studied concepts of permaculture and community supported agriculture. This kind of education created a complete shift in my awareness. I realized that I did not know how to care for my community or myself. It was the first time I had thought about the most basic questions: “Where does my water come from? Where does my food come from? Where do my clothes come from?”

I completed my undergraduate degree with the overwhelming sense that there was something very wrong about the way young people are educated in our culture and that my years as an underachiever in school reflected the lack of opportunity of most teachers to really

Perhaps we have gotten our famous “Generation X” title from the notion that X marks the spot in time where the sacred has reached an impasse.

teach the wisdom of basic life skills. The focus in education and child development studies is out of synch with the state of our environment. As educators, we are skipping some vital basic information, focusing solely on human relationships and on developed society. We are graduating young people who have little connection to life’s natural dependencies. I decided to focus on this challenge and became a field teacher at an outdoor environmental science school. In the beginning I followed the traditional science-oriented lesson plan—teaching the details of the forest ecosystem and riparian communities. Every year, however, 90% of the kids who came to camp could not focus on any kind of lesson plan other than the simple discipline of can’s and cannot’s in the outdoors. I realized that there was a missing link in the

work that we do as educators. I was asking the children to learn the importance of the interdependent web without sharing the whole story. There was more going on in that forest of life than scientific naming. I wanted them to “know” the mystery of the forest, the secret puzzle of life that no one had ever taught me.

I decided to take a different approach, introducing field vision quests into my field teaching. I learned about Native American practices of the Medicine Wheel and used it to teach interdependence and nature theory. I spent much of my time on trails leading sessions of silence. I could see the increased attentiveness in the children. As the young people deepened their connection to Earth, I was developing my own sense of the holy. Everything began to take on the spiritual. It was as though God were speaking through me as I told the children stories of the universe. I knew in reality that I had accessed the knowledge of the ancestors.

It became time to take a journey on my own Vision Quest. I knew that I needed to make a change in my life—to move away from teaching select groups of young people and begin taking direct action for the environment. I focused on broad questions of “What is my purpose?” and “How can I best be of service?” One word kept coming into my consciousness—religion. Over and over again—religion, religion, religion. As a person who was raised Unitarian and as an adult who did not attend any kind of traditional church, this came as a bit of a shock. My question was “What’s going on with reli-

gion?” The answer that I received was “Yes.” And I was left to ponder this revelation. After much thought and struggle, I decided I better find out what is going on with religion. The idea of studying theology began to make perfect sense. The “missing link” I had spent years working on was somehow intricately wrapped up in the relationship of people to Earth, of humans to that which is sacred.

It was through these experiences that I began to develop my concept of “Thecology.” Thecology is the conviction that the point of our existence in this world is to harmonize with nature. Thecology, I believe, is the critical bridge to reinventing our culture. We each hold a story of our personal evolution in consciousness. This in itself is the work of creation, and this coming to be of each individual’s experience creates the realities of community.

My developing personal thecology stems from the belief that evolution and creation are of the same essence. At the center of this belief is the notion of “God Becoming,” of creation constantly unfolding with evolution as the driving force or of evolution as constantly occurring with creation as the driving force. These processes are of each other: this I believe, though conventional religions and conventional scientists hold these are two separate realities. This dualism has encouraged a secular organization of society, producing a secularized structure of public education and government. The role of the church has become one of strictly spiritual responsibilities, leaving world matters to the efforts of science. Although there are benefits to this organization of society, there are some critical problems, the greatest being our lack of connection to the interdependent web of life. By separating our thoughts concerning creation and evolution, we have removed our experience as “spiritual” beings from our experiences as “human” beings. And the results have become disastrous.

As the universe has been unfolding, so too has creation. In the birth of humanity, consciousness—the meeting place of life force and its development—became conscious of itself. This too has been shown to be an evolutionary process. As our consciousness has been evolving, however, creation has continued to unfold and through the distinctions of science and religion, we have disconnected our evolving consciousness from the process of creation. Therefore, we are developing an intellect that is disconnected from its source. We have allowed the brain to supersede the adjoining organs that allow life to exist, just as we have believed humanity to overrule the adjoining life species that provide our existence. In order

for the process of life to continue, consciousness must intercede and form community. This has been a recurring pattern in the evolution of creation.

If we look back to the earliest forms of life, we find the single-celled prokaryote, which was first able to trap sunlight. In this process, these cells began to emit oxygen that acted as a poison to other bacteria. Survival demanded that communities form to use oxygen as a positive agent, and these prokaryotes evolved into eukaryotes. This is a very early example of creation and evolution as one activity. As sunlight was harnessed, the prokaryotes invented a new energy, and in response to the creation, new life evolved. This is the foundation from which our consciousness has developed over millions and millions of years. And yet we find ourselves in a place similar to the situation of the first life forms. If we understand scientific theory as evolution and religious belief as creation, we can better understand the role that consciousness must play in the current environmental crises.

**By separating our thoughts concerning creation and evolution, we have removed our experience as “spiritual” beings from our experiences as “human” beings. And the results have become disastrous.**

The *Doubleday Dictionary* that I use at home defines these words:

Conscience — the faculty by which distinctions are made between right and wrong; ethical judgment or sensibility.

Conscious — being mentally aware of one’s inner thoughts and feelings and also of things external to oneself.

Consciousness — the state of being conscious.

All have the Latin roots *conscientia*: *con*=together *scire*=to know.

It is in this single root word that I believe we can find the meeting point between science and religion, and the purpose in our future. This is an unprecedented time in the history of humanity. We are currently faced with the universal challenge to continue the evolution of creation.

During my time in seminary, I worked on a program called “Science and the Spiritual Quest,” a four-year grant-funded program that brought leading scientists from around the world into dialogue on science and spirituality. This work helped me to learn the fields and individuals that comprise contemporary science. I also spent much of my time in seminary establishing and working with an ecumenical student group called “TREES,” the Theological Roundtable for Ecological Ethics and Spirituality. TREES’ focus is on the theological, spiritual, and ethical aspects of human activities that affect the health and sustainability of our interdependent web of existence.

As I become familiar with the scientists who are willing to participate in the emerging dialogue between science and religion, I find myself searching for the theologians who will represent the spiritual in this work. It is in this search that I realize we ourselves are the chosen ones. The call that brought us to become lifelong students of theology is also asking us to become conscious leaders of the environmental movement. Let us not get lost in the world of academia, but instead become the prophetic voices of the future generations that are pleading with us to change. We cannot continue to rely on our intellectual understanding of these matters. It is time to act. We must realize our role in the interdependent web of creation. We must walk in leadership towards sustainability. We must become the living examples of this vision.

I propose that the emerging dialogue between science and religion will give birth to the next efflorescence in creation. It will be through the act of conscious evolution that consciousness will continue to evolve. The crucial element that will activate this process is the awareness of humanity's dependence on its environment.

In the words of Pierre Teilhard de Chardin, the 20th Century French Jesuit paleontologist:

The day will come, when after harnessing Space, the wind, the tides, and gravitation, we will harness for God the energies of Love. And on that day, for the second time in the history of the world, we shall have discovered Fire.

As we reconnect to the natural world, a new energy will be born. This is the revelation that both science and religion have been searching for. It is up to us.



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## **The Book of Creation: An Introduction to Celtic Spirituality**

### **By J. Phillip Newell**

Review by Ann Loomis

If you want a treat, sit out on a deck or under a tree and read J. Phillip Newell's *The Book of Creation*. Newell, a scholar in the Celtic tradition of spirituality, states in the Preface that his earliest memories of creation are primarily of light, "a kaleidoscope of recollection, of light reflecting off the waters of northern Canadian lakes." Throughout his book, Newell repeats his underlying theme—that the gift of creation is essentially a self-giving of God, who is the light and life force within all aspects of creation.

In Celtic spirituality, two primary modes of God's self-revelation are the Bible and creation. In keeping with this tradition, each chapter in *The Book of Creation* reflects on one of the days of creation in the Book of Genesis. For example, Chapter One is titled "The First Day: The Light of God." Newell asserts that at the heart of all that has life is the light of God. While meditating on the light that is the heart of life, Newell became aware of a great fire of light within the center of Earth that was deeper than the darkness. At the end of this chapter, Newell suggests we also meditate on the light, saying the words, "Send out your light" as we breathe upwards, and "Let it bring me to your dwelling" as we breathe downwards.

All seven chapters end with a meditation. For example, at the end of Chapter Two, "The Second Day: The Wildness of God," Newell suggests we allow images and memories of wind and wildness to be recalled within us. This chapter is about our deep emotions and passions and making space for the wild energy from within ourselves. The ancient Celtic mission was not tightly controlled from one ecclesiastical center, which gave it a fluidity rather than a rigidity. The remote islands and rocky outcrops of the British Isles were often the places of monasteries and abbeys, inviting the mystery of God to reveal itself in creation.

The Celts insisted on the relationship between nature and grace. In Chapter Three, "The Third Day: The Fecundity of God," Newell makes clear that true justice and generosity are found in nature. The sun and the moon serve the poor and the rich equally. "The Earth is full of your goodness," from Psalm 33, is the suggested phrase for the meditation at the end of this chapter. Sun and moon prayers, as well as litanies on the grace of the skies and the stars, are given in Chapter Four, "The Fourth Day: The Harmony of God." This chapter focuses on God as neither male nor female, but rather as a wholeness and harmony of the masculine and the feminine. Celtic Christianity sees

Christ as the beginning of this "unification."

In Chapter Five, "The Fifth Day: The Creatureliness of God," Newell draws on animals as the showing forth or revelation of the mystery of God. Animals connect us with the instinctual side of ourselves. This chapter speaks of our inner and outer senses as a way of connecting us to the knowledge of God. For example, mystical insights are associated with the vision and sharpness of an eagle's eye. Birds in general are sacred to the Celts. The ability of birds to shift rapidly from air to Earth, or from sea to air, makes them powerful images of the communion between Heaven and Earth.

One of the points at which the Celtic tradition diverges from the Western tradition is explained in Chapter Six, "The Sixth Day: The Image of God." Newell writes that we are created out of the essence of God, and so essential is the Being of God to our being that if God's life were somehow extracted from ours, we would cease to exist. We can see in Celtic art the weaving of this interconnection of the divine in the human. To say that we are made in the image of the divine is to say that what is deepest in us is of God, rather than of a depraved human nature. The voice in the garden in the soul asks, "Where are you?" We have forgotten who we are and have departed from our true selves. In this way, we live out of fear and ignorance rather than out of love and wisdom. Celtic Christianity asserts that Christ restores the memory of our nature; he is our epiphany, showing our true selves.

In Chapter Seven, "The Seventh Day: The Stillness of God," Newell urges us to get back in touch with the rhythm of the seasons. Creation's outward profusion of life is rooted in its inner capacity for rest and renewal. Without the rhythm of restfulness and production, Earth's cycles of life would break down. Citing the analogy of a tree, Newell reminds us that we are restored at our roots, rather than merely at the branches.

From Psalm 46, the words "Be still and know that I am God" is a good way to listen to the One who speaks from the stillness of life.

I read *The Book of Creation* from my deck overlooking Lake Ellen on our property in Chapel Hill, North Carolina. It was one of those mercifully cooler days in August, a break between heat waves. As I read, a breeze stirred the trees around me, and I looked up to see voluptuous red blossoms of Crepe Myrtle trees swaying with the breeze. Five Canadian geese strolled through my yard, and the waters of the lake rippled slightly. It was as if Nature Herself knew that I was reading this book and She saw that it was very good.

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## ***The Inner West: An Introduction to the Hidden Wisdom of the West*** **Edited by Jay Kinney\***

*Review by Ann Loomis*

**T**he *Inner West*, edited and introduced by Jay Kinney, has five sections: (1) The Esoteric Roots of the West, (2) The Inner Side of the Religions of the West, (3) The Secret Teachings, (4) Esoteric Brotherhoods, and (5) Mystics and Teachers. For this review, I will focus on three chapters from two of the sections: “Sophia: Goddess of Wisdom” from the section on the secret teachings; and “The Apocalyptic Steiner” and “G.I. Gurdjieff: Meetings with a Remarkable Paradox” from the section on mystics and teachers. In my view, these chapters provide important insights into the Great Work and the theme of this issue, “Where Are We Going?”

### ***Sophia: Goddess of Wisdom*** **by Caitlin Matthews**

“Lady Wisdom, Sophia, has too long been obscured in the West; it is time to find effective ways to manifest all aspects of this mysterious figure in our world.” So begins Caitlin Matthews in her essay on Sophia. Matthews observes that for the first time in 2000 years, the Goddess as the central pivot of creation is beginning to break the stronghold of the masculine image of God. According to Matthews, however, the Goddess has not been inactive all these years. She has been working away like yeast within the chewy dough of daily bread. Lady Wisdom is the bridge between everyday life and the world of the eternal, combining both the practical and transcendent form of the Divine Feminine and transcending dualism.

Wisdom is close at hand, but we are too busy to notice her. Frequently appearing as the Black Goddess because she is primal and keeps her glory veiled, she is concerned with the survival and maturation of all creation. Primarily, she is the keeper of Earthly and Heavenly wisdom and the guardian of its laws. The Goddess of Wisdom is seeded within us all. She is the “prima materia” that will change to gold if we exercise the alchemy of the soul.

Wisdom is busy about her work once more, and it is in the West that Sophia is most needed and least appreciated. What are the potentialities of Sophia for those who give central place to her? Matthews asserts that we must be alert to the signs of the times, which certainly begin to speak of Sophia’s leavening of the world. The “second coming” of the Goddess will prove to be of inestimable value to people everywhere, as a new mythic pattern emerges. The leaven of Sophia still works in the most intractable of circumstances. Sophia’s passion is a daily,

ongoing affair for many people who find the skillful means to cope with despair, poverty, abuse, racism, and all of humanity’s self-imposed problems.

The track of Sophia is found now in the new Gnosticism that arises from the work of C.G. Jung and his followers. According to the Gnostic tradition, we are all part of Sophia’s family. She is the silent companion who stands at our elbows as we toil to attain the Great Work, whether that is mystical union with the Divine or the daily grappling with humanity’s problems. Sophia is a liberator from outworn modes of thought that keep us captive. To be adopted consciously within her family, we need to acknowledge and clarify our spiritual condition, which is the true Gnosis. Matthews ends her essay on Sophia with a quote from Rudolf Steiner: “We must give form to this legend, for it sets forth the truth of our times.” And then a quote from Sophia herself: “I love those who love me, and those who seek me diligently find me.”

### ***The Apocalyptic Steiner*** **by Anastasy Tousomou**

Tousomou writes on Rudolf Steiner’s teachings about the growth of humanity’s “spiritual organs” and the spiritualization of matter. He observes that for Steiner the Book of Revelation contains the keys to our future destiny.

Earth is where a cosmic drama of utmost importance unfolds: the grappling of humanity with material substance. The Fall of Man, described in the Book of Genesis, and the resultant acquisition of human self consciousness and freedom are major themes in Steiner’s works. Evil brought forth temptation in order to further humankind’s spiritual growth. At the crux of history, the Being of Christ incarnated in order to seed the process of matter’s revivification and to give to humankind the power to consciously impart spirit to matter. In Steiner’s cosmology, humans strive upward from the depths of matter in an expansion of their faculties; the spirit world descends to humans to complete the divine-human nexus. Christ is the union of the ascending and descending processes. The reunification of matter and spirit, originally divided in the Fall, occurs in the incarnate, embodied deity, Jesus Christ. In the Book of Revelation, we see Christ in His very Being—the Ancient of Days, with white hair, feet of brass, and a sword proceeding from his mouth—the archetypal figure for humanity in the spiritualization of matter.

Steiner's Anthroposophic School teaches basic exercises for the development of the "spiritual organs" of humans, and ways to prevent them from becoming malformed by self-will and greed. The three spiritual organs are spiritual sight, or imagination; spiritual hearing, or inspiration; and spiritual union, or intuition. The meditations given by Steiner link both the spiritual world and the world of nature within the human being. In Steiner's terms, the righteous are those who receive and transform the life-giving etheric<sup>1</sup> forces coming to them from nature. The wicked are those who reject this path of transformation and exploit nature in order to perpetuate the status quo of material existence devoid of spirit. It is only the development of the inner faculties, the "spiritual sense organs," that will allow humanity to pass from its present condition to Christ-like being.

The Second Coming of Christ is an etheric return of Christ, which will appear first in the realm of nature. The return will initially be noticed by nature mystics, but the experience will spread gradually to the rest of humankind. The experience of the Etheric Christ will give new life to those who recognize Him. Humanity's spiritual organs will be enlivened with the Christ substance, and humanity's blood will be etherized. Humanity will give birth to a new form whose generative functions will no longer center in the reproductive organs, but instead in a transformed larynx. The solar plexus, the heart, and the larynx will be transformed by the Creative Word and mystical participation in Christ's etheric body. The Second Coming is then an alchemical experience, a regenerative process for both humankind and Earth. Thus, as in the first days when Adam and Eve tilled the garden, we will return transformed to Earth stewardship.

### *G.I. Gurdjieff: Meetings with a Remarkable Paradox*

by Richard Smoley.

Gurdjieff is chiefly remembered for designing the Enneagram and for imparting the fundamentals of an esoteric system known as the Fourth Way—also called "the Work." According to Gurdjieff, the Fourth Way is "the way of the sly man." It does not require withdrawal from the world, as do the first three ways, i.e., that of the fakir, the monk, and the yogi. Instead, the Fourth Way can be pursued in the midst of ordinary life, and it works with the mind, the emotions, and the body. The "sly man" knows the secret and with its help outstrips the fakir, the monk, and the yogi.

Gurdjieff believed that humankind is mechanical in behavior, but by intense work upon himself, a human can become a unified, conscious being and able to "do" in the real sense of the word. After years of work, in 1922, in France, Gurdjieff was able to establish his school, the "Institute for the Harmonious Development

of Man." One of his most famous pupils, A.R. Orage, brought the Work to New York. It was Orage's interpretation of Gurdjieff's teachings that would dominate the Work in America in its early years.

Gurdjieff taught that man in his undeveloped state was subject to the law of accident. Unless we are able to take our lives in hand with consciousness and will, we cannot effectively do anything because we are bounced around by circumstance. It was precisely to exempt oneself from this law of accident that one undertook the Work. After Gurdjieff himself had a serious accident, he began the enormous project of setting down his teachings in written form. He took on the project of bringing certain ancient esoteric doctrines to overly intellectualized Western man, for whom God is a nullity or an abstraction, who could appreciate such teachings only if presented in a psychological or scientific cloak.

Smoley comments that the difficulty of the Work lies in its inaccessibility to all but a tiny fraction of humankind. Yet we find the teachings of Gurdjieff cropping up in books on pop psychology, in corporate management classes, and even on key chains. They point to a goal Gurdjieff would have found ridiculous: the collective awakening of humankind. Gurdjieff, who believed humans were on a low rung of an enormous cosmic food chain, did not think awakening was possible for more than a few isolated individuals. On the other hand, Smoley asserted, we have reached the point in human history when we have no choice: individual awakenings are not enough. We may be on the threshold of the Era of the Holy Spirit, which will open up enormous possibilities for human evolution. If we don't come to our senses, we will destroy ourselves. Gurdjieff believed that awakening requires a school that teaches us, if we are to be sly men and women, how to make use of darkness as well as of light.

*The Inner West* is a book about the West's shadow side, which has been hidden or concealed for centuries because it may not always coincide with formal dogma and theology. The teachings require inner work and are revealed only to determined seekers. But as Jung taught, the shadow side is 90% gold. These three essays from *The Inner West* may help reveal the gold that is hidden in the shadow as well as shed light on Thomas Berry's assertion that we must reinvent the human at the species level. To paraphrase Pogo, "We have met the Great Work, and it is us."

The task is arduous, but we must persist.

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<sup>1</sup> "Etheric," according to the *American Heritage Dictionary*, means (1) The regions of space beyond the earth's atmosphere; the heavens. (2) The element believed in ancient and medieval civilizations to fill all space above the sphere of the moon and to compose the stars and planets.

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## Wangari Maathai: Nobel Peace Prize Winner, 2004

By Daniel Martin

What a victory for peace in a form that is seldom seen: Peace on Earth through peace with Earth. You cannot have peace among people until you have peace between people and the planet that supports them. In fact, the reason that we have conflict between people is because we have conflict with Earth. When asked why an environmentalist like herself would be given the prize for peace, Wangari replied that peace comes from sustainability, which is the term used to describe an integral environmentalism.

Sustainability has been defined as relating to Earth in a way that does not compromise the future: our future, the future of our children, the future of other species, the future of Earth itself—future relationships, in other words. Wars are fought over these relationships. Tacitus, an historian writing in the midst of the Roman Empire's destructive relationships, captured the connection in a way that reflects our own situation today:

*“They make a desert and  
they call it peace.”*

Peace is the process of sustaining the abundance of life in all its forms—“the peace of wild things,” is how the poet, Wendell Berry, describes it. This is what Wangari has been about, and this is why it is the Peace Prize that she has won.

But, what a victory also for the women of Africa: these are the people Wangari represents; these are the winners of this prize that she holds up for them. It is the 100,000 women throughout Kenya and other parts of Africa—members of the Green Belt Movement that she founded in 1977—who have done the spade work, who have tilled the ground, planted the seeds, cultivated the

young plants, and fought to protect them from the fearful, wasteland-making forces that are the real enemies of peace. Day after day in villages like Murishu, in the Central Province of Kenya, women have created nurseries and cultivated seedling trees—millions of them—that have become green belts around the schools and churches of the countryside. Year after year, these women, under the guidance of Wangari, have translated this fundamental process into new understanding of their rights and responsibilities as citizens, and new relationships with each other. After years of resistance, arrest, and abuse by the previous political administration, Wangari has become Assistant Minister for the Environment in a new administration that she and her village women helped bring to birth.

It is this combination of peace and the environment, of international prizes and ordinary people, that makes Wangari's achievement unique but also extremely relevant: unique because a basic connection that we can all understand has been made; relevant because it points up how true peace is won—not by political struggles between armies, but by earthy struggles between people and Earth. It is only when we people of Earth truly see ourselves as children of this same mother, who need both her and each other for the abundant living we imply in the word “peace,” that we will begin to experience what Wendell Berry, in the same poem calls, “the grace of the world.”

Let our celebration of Wangari be a celebration of this essential truth, so that historians of our times can write:

*“They make a garden and  
harvest peace.”*

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## “Globe, We Have a Culture Program” — Need for New Wisdom, Styles and Symbols

By F. Nelson Stover

A stute observers of Planet Earth in the early 21st Century might well summarize their observations by paraphrasing the commander of the ill-fated Apollo 13 spaceship and announcing: “Globe, we have a culture problem.” The culture we have inherited is inadequate to the realities we face in this pivotal 21st Century. The scope of change we humans are now facing is more dramatic than any time since our human predecessors first walked the planet 4 million years ago. Cultural historian and ecologist Thomas Berry has captured the magnitude of this change by stating that for the first time we are involved in a transition to a new geo-biological era, one which he calls the “Ecozoic Era.” In his understanding, the Cenozoic Era, which began when the flowers and mammals took over from the ferns and dinosaurs 65 million years ago, is in its terminal phase and all elements of the planet are now participating in the beginning of an era marked by a new role for the human, one of self-conscious interrelationship with all species, or as he would say, an era of “mutually enhancing relationship between humans and the larger community of life systems.” If the transition to the Ecozoic Era is to succeed, it will require a cultural transformation, a global change in humans at the species level. The dominant culture that carried us through the 20th Century no longer serves individuals, nations or our planet well.

This essay offers proposals for such a cultural transformation, ways to address our culture problem. To unravel the problem, we need categories for understanding “culture.” The research of the Institute of Cultural Affairs (ICA), an international organization devoted to the human factor in global development, analyzes culture under the headings *wisdom*, *styles*, and *symbols*. The *wisdom* of the 20th Century was dominated by science, and it was a particular kind of science that came into being in the modern period, one that was mechanistic—based on a linear form of arithmetical logic. The *styles* of social interaction in the 20th Century, even when characterized as “democratic,” were typified by the procedures outlined in Robert’s Rules of Order. Finally, the religious *symbols* which empowered individuals and groups emerged from the great traditions that were founded two thousand and more years ago. Though amended through various reformations as societies grew in size and sophistication, most of the foundational symbols remained in tact over multiple millennia. Within the Judeo-Christian tradition, Moses’ Ten

Commandments have been used in churches and court houses to remind people of the essence of a rich tradition. While each of these cultural keystones continues to provide valuable guidance and insight to society, in each case a richer and more inclusive approach is required for the transition to the Ecozoic Era.

School children around the globe learn to count – 1, 2, 3 ... – at an early age and so begin their introduction into a rational-number arithmetic which typifies the scientific understandings of the second millennium. Indian philosophers of the first millennium popularized the concept of zero which found its way into the mathematics of the Muslim world with the development of the decimal number system. In the second millennium and continuing through today, as the capacity to perform calculations grew, scientists, accountants, businesses and government have used the number line and decimal arithmetic to run their growing economic enterprises and to comprehend the workings of the natural world. This approach made considerable progress in expanding the body of knowledge and improving the general standard of living of the human species using two assumptions: that (1) the number line, and by implication social progress, grows and changes in a discreet sequences, and (2) nature, both living and non-living, can be quantified by a consistent counting system. Today, however, an enriched *wisdom* is needed to engage the complex discontinuities and spontaneities of the natural world and of human society. For example, in the realm of math, physicist and geometer Robert L. Powell, Sr. has pointed out in his work on “The Rest of Euclid” that a richer set of numbers becomes available to science when the plane, rather than the line, is taken as the primary framework for mathematics. This allows precise meaning to be given to  $\Phi$  (the diagonal of a pentagon),  $\pi$  (the circumference of a circle),  $\sqrt{3}$  and  $\sqrt{2}$  (the diagonals of a cube) and a host of other numbers that are incommensurate with the integers and their fractional parts. And in the world of physics, quantum theory understands change as occurring through discontinuous leaps to differing levels of energy. In psychology, attempts to behaviorally predict human conduct has given way to the far deeper sciences of mind and consciousness.

Robert’s Rules of Order, as a manual for conducting the business of a group of people, definitely marks an improvement over numerous previous alternatives founded on the use of brute force or overt coercion. For several centuries, this approach has provided ordering

principles on which to grow and expand the capacities of human community. In a time, however, when sizeable portions of the planet's population possess high levels of literacy and ever increasing numbers of residents of all nations have access to one another and to knowledge bases of gigantic proportions through the Internet, the process of counting yes/no votes on one proposal or its amended version fails to tap the immense creativity available within any group or the human community as a whole. The *Technologies of Participation*<sup>®</sup> which the Institute of Cultural Affairs has formulated from its 35 years experience in community and organizational development provide an example of an inclusive participatory approach to decision-making that taps the broadest wisdom of groups of diverse perspectives. The *styles* of the new cultural understanding need to reflect genuine participatory decision-making.

The religious traditions which gave meaning to the various sectors of the human community into the 21st Century continue to provide both insight and wisdom. Yet these, too, require extensions to take into account the wisdom of science while still acknowledging the insights of previous generations from each area of the globe. In a conversation over dinner, Thomas Berry once said to me that “the problem with contemporary religion is that doing good, isn't.” He went on to note that one can follow all of the scriptural texts normally taught in Sunday school, do all the good things that your teacher taught, and still foster global warming, consume stores of non-renewable resources and wantonly destroy habitats of endangered species thereby putting the health of future generations at risk. As the gap between science (what we know about the material world) and religion (what we know about the spiritual world) widened in the modern period, important interconnections and perspectives disappeared from both dimensions. Each of the major religious traditions codified its insights in Holy Scriptures—mostly written one to two millennia earlier. These canons definitely assisted in spreading the truths they contained. However, as the texts were taken as the final source of eternal truth in opposition to all other, rather than leading to harmony, too often fights arose between faith communities over texts which seemed to be contradictory. Now we have access to awesome experience that transcends these divisions. When the astro-

nauts sent back their photo of Earth rising over the moon, the human community received an unmistakable image of the oneness of the people and the planet on which they lived and humans acquired a new cosmological orientation. As we have come to know the Universe through explorations of space as well as through the knowledge of how our planet functions, we find in this guidance for understanding the significance of our daily lives as well as the practical means by which the human species interacts with the living and non-living world. The Universe, this most comprehensive of all possible contexts—the text without a context—provides the framework for inter-religious cooperation and for deepening the spiritual capacity of each individual and of global society as a whole. Through sensitivity to the beauty, awe and wonder of every place and moment, the realms of spirit and matter unite in an experience of ever-present meaning and give birth to new *symbols* at the base of culture.

When the Apollo 13 astronauts realized they had a problem, they drew on their interior resources, revised their mission and began to work with their compatriots to devise the practical steps to safely complete their journey. Likewise, we who journey in space on this Planet Earth in the 21st Century can change various aspects of our cultural patterns to develop a human community that embodies Sustainable Environmental Practices, Participatory Social Processes and Inclusive Spiritual Practices. A mechanistic approach to the natural world which turns natural processes into potential resources will be replaced by *wisdom* about perpetually creative properties of the Universe in which we live such that people relate to the environment in ways that ensure that future generations, too, have the same or expanded creative potential. A confrontational style, in which the strongest elements gain dominance over the resources of the weaker minority, will be replaced by an inclusive participatory *style* which promotes the well-being of all species. Finally, instead of serving as some kind of final authority, the religious texts of all of the world's peoples enriched by a new cosmology will provide a pool of insight and guidance to foster spiritual practices within each element of the human family and offer *symbols* of the deep interrelatedness that permeates all.

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## Turtle—Living Simply on Mother Earth\*

By Roseanne Sands

*Most of the luxuries, and many of the so-called comforts of life, are not only not indispensable, but positive hindrances to the elevation of mankind. . . . [T]he wisest have even lived a more simple and meager life than the poor.”*  
—Henry David Thoreau

*“If we are to create an evolutionary bounce or leap forward, it will surely include a shift toward simpler, more sustainable and satisfying ways of living.”*

—Duane Elgin

The warm lazy day almost tricked us into believing that summer would last forever. But the cool gust of wind coming up suddenly and briefly reminded us that we were in the mountains now. Summer would not continue into November as it had in Texas. Fall was beckoning, and we already saw the first signs in a few golden leaves.

We had recently moved into our simple but pleasant house. It was more than half empty since we had sold most of our furniture before leaving Texas. I was reminded of the year I turned thirteen and we moved to a new city. We had no furniture at first. When I brought a friend home from school, I was profoundly humiliated when she ran upstairs to my bedroom. All five kids shared one large room sleeping on the bare wooden floor in sleeping bags. I told my new friend a story about the beds being ordered but not delivered yet. We never did get beds in that house, but it was actually fun, kind of like camping out. We’d listen to the radio together at night, and somehow we didn’t mind too much. But we sure didn’t want the kids at school to know.

I thought how different our voluntary simplicity was now as I looked around at my sparsely furnished rooms. Would the empty house help us to empty our minds? The house needed very little adornment. Large windows revealed blue mountains, a variety of trees, many kinds of birds, butterflies, bees, squirrels, blue skies, white puffy clouds, misty fog and purple-orange sunsets.

Worn out from unpacking boxes, we took a day off to drive to a lake for a picnic. We walked around the lake to find a good place to sit. Close to a large clump of cattails we saw a small florescent green heron waiting for a fish. A few ducks floated by. And then we came upon a whole community of turtles! There must have been at least thirty turtles sunbathing on some logs wedged close to shore. Some were quite large and some were small.

We ate our lunch sitting on a blanket, and then we fell asleep. Turtle came to me in a dream and said,

It’s time to simplify your life. Walk more gently and lightly on Mother Earth. See how I carry my house with me, like the Indian Sadhu who carries only a few possessions on his back. He is free to wander about renouncing pleasure, possessions, and worldly ambition; he wants nothing but spiritual knowledge and transcendent experience. Get free of the burdens that tie you down. Clear out the clutter of your life and your mind. Watch as your mind tries to fill up the emptiness with trivia, stuff, things—to keep the illusion alive. Watch as the ego desperately clings to ideas, thoughts, pride, self-importance—anything to keep itself alive. Can you watch with non-attachment and bear the ego’s pain while slowly but surely, clearing away the falseness you have accumulated and absorbed from societal conditioning? Take your time. We can’t push the river. Just simplify, simplify, simplify on every level and inevitably you will come to the ultimate simplicity—where there is Nothing, yet nothing is lacking. Then experience the Bliss of your true Self who is already right here, right now. Peace be with you.

I woke up with a feeling of deep joy and looked over to see the turtles. They had all disappeared into the water.

### Understanding Turtle

*“What matters here is to understand the time and not to try to cover up poverty with empty pretense. If a time of scanty resources brings out an inner truth, one must not feel ashamed of simplicity. For simplicity is then the very thing needed to provide inner strength for further undertakings. . . . [T]he power of the content makes up for the simplicity of form. There is no need of presenting false appearances to God. Even with slender means, the sentiment of the heart can be expressed.”*

—I Ching

The two fastest paths to spiritual growth are through meditation and service. Living a simple lifestyle

benefits our meditation practice; it is automatically a service just because we are voluntarily using less of the planet's resources. Living simply begins with our state of mind. It begins within and manifests outwardly. When we have a busy, cluttered mind, we may have a cluttered house and a cluttered life. And that kind of a life is exhausting and full of stress. It's not healthy for us or for our Mother Earth.

When we are constantly filling our life up with stuff, it takes longer to quiet our mind when we sit for meditation. The simpler our life becomes, the easier it is to meditate. This is why so many of the Yogis and Sadhus in India live with no possessions and no entanglements. When I went to India, I was privileged to meet many Sadhus at an enormous spiritual festival—the Kumbha Mela. They lived so joyfully with so little. One man I met was from a wealthy family in Canada. He had gone to India in the 1970's, and he humorously said, "I ran out of money and I lost my passport." He had intentionally chosen the simple and spiritual life of the Indian Sadhu. Most of us are not ready for that level of non-attachment yet, nor do we plan to move to the mountains of India. Nonetheless, rather than creating complications, debt and other burdens, it makes sense to clear out the distractions that cause stress.

A regular meditation practice helps us to simplify our life. Calming and quieting the mind every morning helps to bring awareness of our thoughts, our desires, our habits and restlessness all through the day. We can more easily witness the restless urge of "having something more." What do I want? I'll have another cup of coffee, another cookie, another cigarette, some new curtains, a new couch, a new car, a different job . . . yadda, yadda, yadda. And the dance goes on.

Many people these days are experimenting with a conscious and simple lifestyle. Rather than buying into the "American Dream" mindset that our society urges, a new consciousness is emerging toward clearing the external demands on our time and energy. It means getting a new perspective. It means seeing the worn looking chairs or couch that are still perfectly functional as just fine. Rather than having to increase the income in order to buy, buy, buy and run up heavy credit card debt, we can relax. We can accept a simpler life that allows us to spend more of our time in purposeful, creative and spiritual pursuits.

My friend Christine Gust worked at a stressful job in a large corporation for many years. During those years she was growing inwardly, opening her mind and developing her life on many levels, becoming adventurous, creative and spiritual. Finally, she quit her job and moved to the mountains of Colorado to experiment with a new and simpler lifestyle. She acquired her Doctor of Naturopathy degree and created her own business training other business people in holistic, healthy living at work. We talked on the phone about the difference in

**A regular meditation practice helps us to simplify our life. Calming and quieting the mind every morning helps to bring awareness of our thoughts, our desires, our habits and restlessness all through the day.**

her life. She told me that when a friend suggested Christine buy a mountain bike so they could go biking together, she had to make a decision. She found it interesting to have to decide if she wanted to spend her savings that way, and she decided she'd rather hike by foot. In the past, Christine could buy whatever she wanted, whenever she wanted, without giving it a second thought. But she paid the price. Now each purchase is a conscious decision. It's deciding how to spend her time and energy. Does she want to have to do the work required to make the money in order to have that object? Or would she rather not have it, and be freer to use her time and energy in other, more rewarding ways? She told me,

I've noticed how easy it is for me to entertain myself now. Looking at the mountains, watching birds or deer and noticing the big snowflakes falling and making me feel like I'm in a "snow globe" are delightful. When I choose to go to a movie or a dance, I know it's something I really want to do and I so enjoy it! One of the things I notice is that what I do buy for my home or self is of a higher quality and beauty. I don't want to fill my place with cheap knick-knacks that don't mean anything. But I love a painting a friend made for me, or a beautiful vase. I just look for "deals" at resale shops or trade with friends. In fact for Christmas, my friend Jasmyne and I agreed that we would pick out something that we each had that we think the other person would want, and that was our gift exchange for Christmas. We loved it! Now, I'm happy when I see her wear this beautiful necklace I gave her.

Christine is living more consciously and closer to life now. She doesn't feel like she's given anything up. She's just changed her mind about what she wants, and she's much happier than she was before.

We need to have beauty in our life and we should make our home as beautiful as we want, but nature around us provides the very best beauty. Perhaps our sense of what beauty is may change as we gradually let go of attachment to old paradigm mental models. It has been said that simplicity doesn't mean giving up luxury. It means not being attached to the luxuries. And while

this is true, we must think of the cost, the cost both to our lifestyle and state of being, and also the cost to Mother Earth. We are stripping her of her beauty and resources so that we can live in luxury. We may not feel we live in luxury, but in comparison to most of the people living on the planet, we Americans are living in luxury and are using the most natural resources of any people in doing so. And the stress, irritation, and negativity we are daily experiencing is creating a dangerous energy band around Earth, which is combining with the physical band of toxins we are constantly emitting.

Everything we do to simplify our life frees us from preconceived conditioning of how we are supposed to live. We become freer from our own past way of thinking and from others' expectations. We can breathe easier and we feel much happier. We can live in the now, in the present moment and relax. We don't have to live constantly worrying about the future and all the things we want to buy for us and others—new house, new car, and the best college education for our kids. We can plan those things keeping our priorities straight by consciously looking at the big picture. If all our wants and worries are keeping us from living in the present, from quieting our mind and doing our spiritual journey, then what good are they? If all our desires for the future are eating up our time, energy, money and peace of mind and our consumerism is polluting Earth and using up all the resources, can Earth sustain a future for us and for our children and grandchildren? Will it really matter what college our kids go to if we run out of oil in less than forty years and have no alternatives? Fortunately, some people are working on alternatives, alternatives that require us to consume less and shift to a simpler lifestyle.

When we reduce the busyness of life and are able to relax and live more in the present moment, our life becomes more joyful and rich. And when our life is more joyful and rich, we have less desire for all the stuff. We are able to spend more of our time taking care of ourselves, being in nature, being creative, cooking healthy food rather than eating fast food, making a garden, spending time with friends, exercising and walking, having quality time with our kids and our family, traveling, learning, and simply being silent.

Much of my childhood was spent in poverty. I never had stylish clothes like the popular girls. I felt inadequate because we didn't have a nice house and car and I couldn't compete. Unfortunately, we kids based our sense of worth on the same things our parents and the greater society did—money and the things it buys. So I always dreamed of growing up and living an upper middle class lifestyle with a nice house and “normal” family. But about the time I graduated from high school, the “hippie era” had hit and I very easily moved into that consciousness. It was a consciousness that questioned

the whole economic value system our society has been based on. It was a consciousness of heart and spirit and global awareness.

After a few years, I joined an organization doing human development work around the world. We were assigned to villages and inner cities and supported ourselves. We lived at a level equivalent to the economic level of the people in the communities where we stayed. Our image was that we all lived out of two suitcases. We took the vow of poverty, but now I would say it meant the same as voluntary or conscious simplicity. I rarely felt deprived or wanting of anything material during that time. My life was rich, abundant, and purposeful.

Since we supported ourselves, I frequently was one of the people who went out to work to provide for our community. I turned every paycheck over and I received a small stipend. During those twelve years, whether I was working at a job in a city or in a village human development project, I never worried about money. There was never the stress of survival. All our needs were met by the community structures. We had other real issues and challenges, but not the individual or family financial stress.

Our organization was certainly not the only experiment in spiritual, service-oriented community lifestyle. One of the most well known, Findhorn Foundation Community, is a group successfully experimenting with communal, ecological, simple living and service. The community started in 1962 with only six people living in a trailer in Findhorn, in the northern part Scotland. Now more than forty years later, five hundred people live at Findhorn. It has grown into a world-famous non-doctrinal spiritual, holistic center and eco-village.

Maybe the most wonderful thing about Findhorn is that the children are growing up in the heart of a small village where family and friends live, work and play together. They are mixing with kids and adults of different cultures from all over the world. They are very conscious, joyful kids surrounded by adults they can trust who have been working on personal transformation and have high self-esteem. The young adults who have grown up at Findhorn have a deep understanding of the wholeness of life. They are centered people, many with college degrees, doing well on all levels. They are people who care for the planet, for the environment and for each other.

Since we are at the beginning of the Age of Aquarius, which emphasizes humanitarian groups, we are seeing many, many more eco-villages and spiritual communities pop up around the planet. Many of us are yearning for simple, authentic, holistic living that nurtures us on all levels. We want to contribute to the good of the whole planet, evolving spiritually ourselves and helping others to evolve.

Whether we choose to live in a single-family unit or in an intentional community, in the country or in the city, we have the opportunity now to awaken to the new paradigm of voluntary simplicity. Henry David Thoreau used the term “voluntary poverty” in his book, *Walden*, published in 1854. He spent two years living alone on Walden Pond experimenting in essential living—living in a hut he built and recording his fascinating experience connecting with animals and nature. And Duane Elgin woke us up to simple, conscious living with his powerful and visionary book *Voluntary Simplicity*, published in 1981.

While Duane was working as a social scientist and “futurist” at SRI International in 1977, he co-authored an article on voluntary simplicity with Arnold Mitchell. The article was published in the *Co-Evolution Quarterly* and included a questionnaire asking people to describe their experiences. They received more than 600 responses, and Duane included in his book a representative sampling of comments from them concerning a broad range of topics. Here are a few of the responses.

- “Voluntary simplicity is not poverty, but searching for a new definition of quality and buying only what is productively used.”
- “I sincerely believe that voluntary simplicity is essential to the solution of global problems of environmental pollution, resource scarcity, socioeconomic inequities and existential/spiritual problems of alienation, anxiety, and lack of meaningful lifestyles.”
- “The main motivation for me is inner spiritual growth and to give my children an idea of the truly valuable and higher things in this world.”
- “As my spiritual growth expanded and developed, voluntary simplicity was a natural outgrowth. I came to realize the cost of material accumulation was too high and offered fewer and fewer real rewards, psychological and spiritual.”
- “It is scary to live with less because for so long our society has said that money, possessions, and a career lead to security and happiness.”
- “We are moving toward a life of greater simplicity from within, and the external changes are following—perhaps more slowly. We are seeking quality of life—and a path with heart.”

Duane summarizes his thinking,

[T]here is no single “right” way to outwardly live more simply, [and] there is no single “right” way to engage in the process of interior growth. . . . Simplicity fosters a more conscious and direct encounter with the world. And it is from the intimate encounter with life that there natu-

rally arises the perennial experience at the heart of all the world’s great spiritual traditions. . . . With conscious and direct involvement comes clarity. With clarity comes insight. With insight comes love. With love comes mutually helpful living. With mutually helpful living a flourishing world civilization is made possible. Rather than abandoning the world, those choosing a life of conscious simplicity are pioneering a new civilizing process.

Shifting to a lifestyle of conscious, voluntary simplicity can be very creative and fun. It isn’t about giving up everything. It isn’t about submitting to a lot of “shoulds” and feeling guilty whenever we buy something beautiful. It’s about getting our life back and becoming more empowered and free. How we work out living more simply in our modern world is an individual decision and a gradual process. It’s sort of like peeling away the layers of an onion or thinning the veil hiding the inner light.

### Turtle Beats the Hare

Turtle reminds me of the story about his cousin the tortoise. The hare challenged him to a race and because the tortoise walked so slowly and hare could run so fast, hare was sure he would win. But tortoise knew better. During the race, tortoise calmly, deliberately and mindfully walked toward the goal. Hare started off at a fast run and was soon far ahead of tortoise. But then hare became distracted and lost sight of the goal. He thought it wouldn’t matter anyway, since tortoise was so slow. Surely he would still win the race. We know he lost and tortoise won.

Tortoise had the quiet mind. He stayed focused and conscious while hare became “harried” and lost in illusion and distractions. Living more simply is to live like tortoise and turtle. Even when we have an intense job, we can practice mindfulness. We can breathe and relax. Most of us use up far more energy than is necessary, worrying and stressing when it doesn’t help anything or make it better. It takes practice and as my mother used to love to say, “It’s very simple, but it isn’t easy.”

So be very patient and non-judgmental with yourself. It isn’t a contest. Learning to live simply is learning to live consciously and compassionately, and it is staying present to the moment and finally to Ultimate Reality.

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\* This article constitutes a chapter in Ms. Sands’ forthcoming book, *Nature’s Spirit Messages for Vision, Self-Mastery and Spirituality*

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## A Deeper Shade of Green for Religious Congregations

By Alice Loyd

**M**y church is currently considering whether to undertake a capital campaign for an additional new building on our property, one that would be environmentally friendly to the degree that “we can afford,” to quote the words of one document. To come to my own position regarding this project has taken many months, and I’m beginning to understand the reasons. Becoming an Earth-friendly congregation involves more than adopting green design and using sustainable materials. To practice environmental justice means practicing the science of ecology. It means committing ourselves and our assets to the wellbeing of the whole world.

The circumstances that are likely to prevail in our world in the next 100 years—the period in which our new building would stand—call for a careful rethinking of customary programs and designs. These years will bring changes of such magnitude that not to anticipate them would be an error. These changes challenge conventional ideas of how green congregations should build.

The first change I’m thinking of is global climate change. While we can’t know the details of how this will affect a given region year by year, the current concentrations of greenhouse gases guarantee disruption in climate patterns. Earth’s average temperature will rise by as much as 3 degrees Centigrade (10 degrees Fahrenheit) during that 100-year period. Even if we stopped emitting carbon dioxide (CO<sub>2</sub>) today, its more than 100-year life in the atmosphere will bring about changes we’ve never before experienced. Along coastlines where one-fourth of the world’s people live, and in heavily populated regions where water scarcity and cropland degeneration is already serious, the suffering will be catastrophic, especially in Asia and Africa. People will starve in great numbers, and they will flee to higher or more fertile ground, creating population upheaval and conflict of unprecedented dimensions. I think a green congregation would be deeply involved now in efforts to halt the rate and extent of the warming, and it would prepare to support the kind of missions projects that will be needed in the future: cropland and water systems recovery, wetland and habitat restoration, reforestation, and refugee resettlement.

If we allow our national leadership to remain timid regarding CO<sub>2</sub> reduction, the measures that eventually will have to be taken will be drastic and significantly

more costly than if undertaken now. The adjustments in the economy will cause extreme dislocation, especially for those at the bottom who are unorganized and lack political power. A green congregation would act now to moderate such shocks in the economy. It would try to strengthen city zoning practices to reduce sprawl and require affordable housing in the vicinity of jobs. It would ask city and county government for tighter codes for new building, weatherization assistance for low-income households, and incentives that encourage owners to retrofit existing rental properties for energy conservation. It would work with utilities to institute public benefit funds, net metering, and renewable energy standards.

At the same time, a green congregation would reduce its own dependence upon grid-generated power, preparing to become a solar power source for itself and others. Energy arrangements that do not seem cost effective today may become essential tomorrow for the justice-minded congregation.

**Becoming an Earth-friendly congregation involves more than adopting green design and using sustainable materials.**

The second change coming on neck and neck with global warming is the problem that is sometimes called “peak oil.” That we will soon reach peak production of oil and gas and will see the exhaustion of reserves over the next 50 years is widely accepted, and business-friendly interim solutions to attempt to increase supply will damage more than they remedy. Drilling where oil

is harder to extract will have diminishing returns while having the adverse effects of putting roads and pipelines through fragile wilderness, disrupting wildlife habitat, polluting streams, and creating temporary boom towns offering short-term, dangerous work.

Higher gas prices as a result of oil scarcity will be made higher by the gas taxes required to reduce CO<sub>2</sub> emissions. In the not-so-distant future, considering the scarcity of public transportation and the typical distance between housing and employment, those who can’t afford fuel-efficient cars may not be able to get to work. Within two decades, even the middle income population may not be willing to drive long distances to attend religious services. In those circumstances, a green church, temple, synagogue or mosque might be composed of satellite congregations meeting in homes. Its large physical plant might be used less for worship and educational activities than as dormitories for commuters or families without air conditioning.

Oil scarcity will put in jeopardy a food supply system dependent on it for fertilizers and herbicides as well as farm equipment and transportation to market. In the resulting economy, community gardens may be more useful than food pantries. A congregation might tear up its parking lot to plant food crops, or send members out to the fields to work in farm cooperatives.

The third change I anticipate is increased militarism. The Republican Party platform in 2000 vowed to “prepare the United States to win the wars of the 21st century.” The 1986 Project for a New American Century expressed in the U.S. National Defense Strategy and by President Bush declares pre-emptive war official policy. A Democratic administration might tone down the degree of belligerency, but the “war as solution” mentality prevails across party lines.

As climate change advances and the oil era comes to an end, for the United States to maintain order by force will require continuous military action. What is the religious community’s just response when America is always at war, either to obtain the assets of another country or to keep a nation from obtaining the assets we have secured, even those that people of another nation may need for survival? When climate change and fossil fuel depletion are the causes of world strife, and the U.S. is the largest abuser of climate and fuel resources, how can an American congregation call itself green without opposing military endeavors that in this likely historically brief period of economic globalization are the new form of imperialism?

To be a force for eco-justice in the world in the coming years, I think people of faith must become grounded in the principles of non-violence. In this future, to be green means forthrightly opposing military activity undertaken to achieve imperialistic ends. Green congregations must promote non-violent means of addressing the harsh realities accompanying global warming and oil depletion through all public venues, including the media, legislative bodies, libraries, commerce and schools. In my view, green congregations should entitle their youth facing the coming military draft to claim conscientious objector status by declaring themselves religious institutions opposed to war or, at least, to warring madness in vain attempts to solve problems that cannot be solved by force. Being a green congregation means operating as a center of peace education for the congregation’s community by teaching non-violent alternatives to conflict for individuals, families and nations.

Climate change, the end of the petroleum interval, and perpetual military action are events the world is

experiencing at this moment, even though my particular congregation sits within these events at the margins of these disturbances . . . for now. As my congregation thinks about its future, I want it to recognize that the worst problem it faces is not a shortage of classroom space on Sunday morning. In 1985 or even 2002, when these concerns were identified by planning committees, we rightly might have focused on our poorly shaped, small rooms that are costly to heat and cool. But in just the three years since 2002, our world has changed, and in this year of 2005 we can foresee instability and deterioration in every direction. If, while giving our own children sun-filled, comfortable rooms, we leave children in Cuba to rising sea levels and in Zimbabwe to desertification, our church space will not be environmentally friendly. Definitions of “green” that applied yesterday are becoming obsolete as I write this paper.

I think a congregation committed to justice would study these problems, identify solutions, and commit its resources to their application. Learning how we can help is a joyous undertaking in which people of many countries at all levels of power may be engaged. The process of non-violently resisting the elements of Western consumer culture that don’t support wellbeing will be similar, whether the resisting body is an indigenous tribe, a conservative Muslim group or a privileged, predominantly white Protestant Christian community in Bible Belt, USA. First the threads of the oppressive fabric are discovered, named and systematically weakened by non-

cooperation. At the same time, new strands are introduced, practiced and modified as needed. As more life-affirming behaviors are learned, they are reinforced by the benefits: a greater sense of belonging, enhanced physical security, and increased hopefulness. These local weavings strengthen the whole cloth of life.

Religious institutions must decide whether their proper fields of service include the economy, the

distribution of political power, or the physical conditions required to sustain life on Earth. If their role is merely to soothe the wounded, then we can continue conventional programs, for there will be wounded, more than ever before. But if the call is to steer a generation away from sin and disaster, then we must do that quickly with all the resources at our disposal.

I’m not saying that in our day it would be wrong to undertake a building program. What I’m saying is that constructing even a LEEDS-certified Platinum-rated building doesn’t come close to addressing the whole of our responsibilities. The project may be appropriate if we design it for the needs of the world in 2050 and

**Religious institutions must decide whether their proper fields of service include the economy, the distribution of political power, or the physical conditions required to sustain life on Earth.**

build on a cash basis—and if at the same time undertake effective action to lead society in a more positive direction. A war-saturated future and climate and energy chaos are not God-ordained inevitabilities, and not precursors of Armageddon and the Second Coming of Christ. Our present situation has come about because for 200 years religious people in the West have cooperated with a vision that ignores ecological reality.

I believe we can forthrightly withdraw from cooperation with that vision and claim a current version of the ancient prophetic vision of a realm of justice and peace and of living in harmony with God's good creation. As we plan our action, there is a role for everyone. Not everyone can be gifted as a public advocate for legal reform, but everyone can turn away from the distorted wonderworld of much of contemporary media and advertising to the true wonder world of nature and the wisdom of indigenous people, women, classical religious and humanistic traditions and science with their deep knowledge of life-sustaining processes. Each member of a faith congregation can participate in the creation of a new way of living, determining its content based on outside parameters and from inside experience. As religious people we are not without guidance, but we've ignored the inner realm from which it comes, indulging instead in fantasies handed to us by people who make money doing just that.

**A house is not a home.  
A green building is not a  
green church, and a  
green church is not a  
green world.**

Perhaps the question is not whether we should build, but "What do we need to build first?" I suggest that the first structure be the spiritual and ethical one, erected as we gain sound knowledge of our world's present imperilment. Will we accept the call to minister to the world's pain, or will we insulate ourselves from this pain even as we give showers to the homeless or write to our soldiers?

I don't want to live insulated from the world's pain. I don't want to build a "green" building to delude me into thinking I have done what I need to do about it. I am called to a ministry of eco-justice activism. Sometimes I shudder when I think of what this will require of me. I don't know all the answers or even many of them. I wonder what our church would decide if we moved together into greater awareness and commitment on these issues. One thing I do know is that to do the work to which I'm called, I need a community to be with me. I want my congregation to challenge and inspire me as we go as a body into the thick of the world's dilemma.

A house is not a home. A green building is not a green church, and a green church is not a green world. Let's build from the inside out, first in our own knowledge and commitment, next in our own community, and then together in ministry to a suffering world, human and non-human alike.

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## Just Some Thoughts....?

By Carla Weemhoff

This edition of *The Ecozoic Reader* is the third one in a series of four that deal with the state of our world. Much has been written about the many causes of the deplorable state of our present world by scientists, visionaries and other concerned and informed people. Most subscribers of *The Ecozoic Reader* will surely be familiar with many of these causes and I will not attempt to summarize these or even pick a few issues that stand out for me. Instead, I would like to share with you some of the issues that I personally have been struggling with. Hopefully it will give you some ideas and together we will build a stronger foundation for where we want to go and how to get there. As we all know, in our time this will depend on where humanity is going.

There are many overwhelming circumstances where we feel helpless and subject to forces beyond our control. I think, for instance, of the recent tsunami disaster and of Hurricane Katrina. Some people might say that such catastrophes have always been part of the evolution of the universe. It is easy to imagine that these large disasters could be part of the total well- or rather un-well being of Earth. This is how it has been for billions of years. Only humans judge these events as good or bad depending on how the results are affecting them. If we would not look at how these events affect the human race, the resulting label of good or bad might not be an issue.

From the little we know about the so called primitive societies who lived in close relationship to nature, we hear stories of incredible surrender, maybe we can call it "faith." Among the Eskimos, for example, when families including an old and sick grandparent were moving on their sleds to find a warmer area or maybe to find food, hungry wolves would chase them occasionally. In order to save the younger generation, the old and sick person would tell them to leave her/him behind. Clearly he or she would be prey to the wolves or other predators, but it would at the same time give the others a chance to escape and survive. These realities from the past are now totally unimaginable for us—however, we still see similar situations occur in the animal world. For example, when one duck or goose gets sick or shot while on migration, his or her mate will stay with the sick bird. It is risking its own life but the instinct of staying together is stronger. A duck alone will not survive. There is such a fierce fight for life. When captured, there is a quiet surrender as if "knowing" that being food, helps others survive. In spite of this, or maybe I should say because of it, species have not only survived and multi-

plied, but have diversified into a growing multitude of varieties with indescribable beauty and abundance.

Eventually humans came about. Yes, we too, as all other life on Earth, were "taken from the earth" as people long ago understood. They did not learn it in school, but they were born with an inner knowing about this, just as their parents did. But, evolution also continued, in us, in our brains. Gradually we became cleverer, although certainly not wiser. We started to control and outdo the other creatures, trying to subdue nature and become its master. We see this urge to compete also in the animal world. However, there seems to be a big difference. Humans do not stop killing when their bellies are full. We want more and more and more and often seem to thrive on greed and outdoing the other. If that does not work, after all not everybody can be a winner, we start to feel depressed, start to buy things we do not need, and so forth. Slowly but surely, we have created the world we are living in today: a world that cannot continue as such, a world where most people seem to have lost who they really are and therefore do not know anymore how to live Life. Some have become desperate, others are totally desensitized, unaware, living the daily humdrum as machines and filling up their lives with all sorts of addictions: food, gambling, shopping, drugs, cigarettes, stealing, killing and so on. The world will go on, but the majority of people seem to have lost their inner selves. The future does not look any better—is there still hope?

Could it be that there is what I would call a "safety net" built into the evolution of the universe? When I recall the horror of the concentration camps during World War II when I was just a child, it was in those death experiences that the ecumenical movement of the churches was born. It did not matter what church you belonged to, or what race you were from, what you were wearing or whether you had money or not. You were all stripped naked (literally.) of all your false securities because you were one among the many desperate people trying to stay alive in those death-camps.

Growing misery can bring us back to the basics, and we need surely to return to the basics in life. Don't get me wrong. I am not advocating returning to nomadic life. We need to return, or maybe discover for the first time, what it really means to be human and become the crown of evolution. It is my strong belief that knowing who we are and discovering along the way who we are becoming, will guide our actions and provide the answers we are now blind to. Start small, give yourself

time to reflect, read what others are discovering, try things out and, most of all, be patient with yourself and recall that the world did not come about in a few days. Connect with other people; be gentle to yourself, yet determined. If we live according to who we really are, the universal energy will freely flow through us into new life. We will not need the above-described addictions to fill us up and keep us numbed and violent. Recall from time to time that we came about as the crown of the evolution, not separate, but united with all that surrounds us. Nature spurred us on, so to speak, from the very beginning of time which we call the “Big Bang.” Let this awesome awareness sink in, open yourself to its energy which started billions of years ago and is still going on today. Join hands with others, celebrate, because when you become aware of who you really are, you can move mountains and be part of what seems at times impossible: a movement to change this world. Remember that we have changed it for the worse, so we could change it for the better as well. This might even be easier and take less time, because working upstream is much harder than going with the flow. And the flow of evolution will certainly be with us.

Could it be that the present growing disasters will spur us on? We are slowly but surely becoming aware that we can only survive here if we work with nature’s powers instead of against them.

Thanks to the scientists we are starting to understand that we are dependent on nature and not the other way around. We are the youngest species on Earth, so every other creature is our elder. Even life on Earth itself is dependent on her “mother,” the Sun. And as we all know, she came into existence eons and eons ago through the Big Bang when everything was set in motion.

This is the mind boggling reality of Life!

Does this all mean that we have no say in what happens in the future? Of course not. The evolution brought forth humans who can think and make choices. For a long time, I struggled with the wisdom of this new development. Humans have caused so many problems. Why were we created with brains and free will? Certainly not for the purpose of ruining it all. Personally, as a believer in God, I started to wonder why in all Her wisdom had She/He taken this terrible risk? It did not seem to make any sense to me. Yet, after some time, all the while believing in the overall goodness of God, Life and therefore evolution (including the human), I came to see that nothing could ever outdo what was set in motion—or as believers would say, what God has set into motion. It must be worth the risk, so to speak. Or, from a human

**We are slowly but surely becoming aware that we can only survive here if we work with nature’s powers instead of against them.**

point of view, even if we would perish, the universe and her evolution would go on. We are critically important right now, but let’s not think that we can stop or destroy what has been created over billions of years. To think otherwise is again having a too important notion of ourselves. If humans with the full ability of their free will start to see and turn around from their present destructive ways, what an incredible victory that will be—consciously choosing Life. It must be worth the struggle so to speak, otherwise it would not have occurred.

But this insight means we must start to make choices that support life versus killing it—choices that work with the evolutionary process, instead of against it. We are so clever in choosing what is profitable just for us, instead of looking beyond our immediate self at the overall development of life on Earth, or even the universe. Our choices will need to be based on the importance of all beings, including us. On a grand scale these choices cannot be contradictory, because what is fruitful for Earth is fruitful for us, because we are all one. And here we meet another pitfall: We see ourselves as the crown of creation or evolution. Yes, we are, I believe, but what does being the crown really mean? It certainly does not mean that we are “it” and all the rest exists just for us, so we can do with all the rest whatever we want. That concept is a far cry from what it means to be human(e), let alone

being the crown. Being the crown means that we, with our new understanding of the world, will start to support life versus killing it. After all, nature has been supporting us for thousands of years. So, it would not even be an act of generosity for us to care for nature. We need to actively and in full awareness, which includes decision making, continue the evolution process of 14 billion years that brought us forth.

Maybe that is why our brains became so large in the first place. We all received the gift of Life and it seems a logical responsibility to live our lives in congruence with the very process that brought us about—and not just for our selves or our children, but for all the children of this Earth. Only then will we become the crown of evolution. Not because we are the last species to come about, but because of how we live. Some people have done so through the ages and in our times. They are remembered, honored, often seen as heroes. They have given their lives for others. Unfortunately, they are still exceptions.

Yet, we are all called to do the same. We admire them and sometimes wish we could be like them. Our hearts are longing for that. When we give in to this longing and make even a small sacrifice (yes, it usually does include that), we feel so good. More energy comes loose

and we become alive and bypass our known selves. But it has to be brought about by our own free will, our own free choice. I think this is only possible when we act out of real Love. Without honest-to-goodness-Love which reaches far beyond ourselves, such a sacrifice would turn into an act of will that eventually will turn against ourselves or into anger towards others. I was born in a society that was shaped at least in part by Christianity whose founder, Jesus Christ, is a primary example of following his heart, loving at all cost, pointing out wrongdoings, at times getting angry, but never punishing or killing for that matter. Instead, he taught us through word and action how to live by giving his life and death for the life of the world. Still today, in spite of all the distortions and crimes of his followers, he is still the root of faith for so many, just as Buddha, Moses, and Mohammed are for others.

The universe will continue to develop toward horizons that are still a mystery for us now. At the present time we are in a tunnel and cannot see the end of it.

Neither can we see what will be beyond this tunnel. All we can do is to go in faith and trust it will lead to better times . . . some day.

This is where we are now. Where we are going is still unknown. Some of us see a direction, those become leaders so others may follow and become seers as well. In human history, it has always been that way. In the Old Testament the people were told to leave Egypt where they were enslaved and to trust that their God would lead them to the Promised Land. In our personal lives, we are called to do the same. Life never stands still. If it does, we are dead. I strongly believe that more than ever (and not just a certain population), we all are called to leave our "Egypt" and leave the affluence of Western life and go on a new journey, not seeing yet, but knowing that along the way we will start to discover where the next step will be. For the sake of our children, yes, but that alone is not enough. For the sake of ALL Life, the known and the unknown, which some of us call God's World.



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## **A Wolf in the Choir**

*By Richard Arnold (for Larry Gilman)*

Although essentially I hated school,  
I had one brilliant outlaw for a teacher.  
“When it comes to truth, I’m lazy,” he used to say.  
“I find it in close-by, ordinary things.”

The Literature he showed us was thunderclouds  
Swollen like dark cheeks with a prodigious message  
In the fearful moments of silence before they open  
With tongues of fire to teach the listening earth.

Religion we learned by standing in April rain,  
Hats off, in silence, seeing it soak the ground.

In Economics he taught us the constant debit  
Of forests and rivers, the credit of concrete and greenhouse.

Politics, he claimed, would quickly go extinct  
If we all simply heard the steady song  
Our reason sang, then tuned our living to it.

In Music, he’d praise the genius of Bach—  
But weep for joy when he heard the evening grosbeak.

Our Sociology was dropping to hands and knees  
On beaches to watch the yellow sand-verbena  
Fling its fragrance of sex to pollinators.

The years passed on. At last we graduated.  
We packed the hall, and our commencement speaker  
Talked stagnantly about how noble Science  
Was waiting for us to run its budgets of billions  
And ride in rockets to learn the universe.

Afterward, shaking his head, our teacher took us  
Aside and quietly gave us our last lesson.

“Rockets? The universe?  
Ride a fifty-cent bus to the creek and study the eyes  
Of a wolf-spider preparing to launch on a cricket.”

Then sidled away, hunch-shouldered, almost arachnoid,  
Leaving us (our first moult finished) with fledgling fangs  
To pierce and suck the truth in uncouth ways.

## Twelve Understandings Concerning the Ecozoic Era

### The Nature of the Universe

1. *The Unity of the Universe.* The universe as a whole is an interacting community of beings inseparably related in space and time. From its beginning the universe has had a psychic-spiritual dimension. The universe is a communion of subjects not a collection of objects.
2. *Modes of Expression.* The universe expresses itself at all levels through communion (intimacy, interrelatedness), differentiation (diversity), and subjectivity (interiority, self-organization).
3. *Cosmogogenesis.* The universe is a creative, emergent, evolutionary reality that has developed from the time of the primordial flaring forth, and is still developing, through a sequence of irreversible transformations.

### Earth and Its Current Dilemma

4. *Earth.* Earth is a one time endowment in the unfolding story of the universe.
5. *The Current Dilemma.* The effects of human activity on Earth have become so pervasive and invasive that the survival and health of the Earth community now rest on decisions being made, and actions being taken, by humans.
6. *Transition to the Ecozoic Era.* There is a need to move from the current technozoic period where Earth is seen as resource for the benefit of humans, to an Ecozoic Era where the well-being of the entire Earth community is the primary concern.

### Three Key Building Blocks

7. *The New Story.* The New Story, the narrative of the evolutionary development of the universe from the primordial flaring forth to the emergence of the Ecozoic Era, provides a unifying myth for all human cultures and a basis for common action in the realization of the Ecozoic Era.

8. *Bioregionalism.* Bioregionalism, care for Earth in its relatively self-sustaining geo-biological divisions, reorients human activity in developing sustainable modes of living, building inclusive human community, caring for the rights of other species, and preserving the health of the Earth on which all life depends.
9. *Ecological Spirituality.* Ecological spirituality, presence to the primal mystery and value of nature and to Earth as a single sacred community, provides a basis for revitalizing religious experience and healing the human psyche.

### Special Contributors to the Ecozoic Era

10. *Women, Indigenous People, Science, and Humanistic and Religious Traditions.* The wisdom of women, indigenous people, science and classical humanistic and religious traditions will have an important role to play in redefining concepts of value, meaning and fulfillment, and in setting norms of conduct for the Ecozoic Era.
11. *The Earth Charter.* The Earth Charter provides a comprehensive set of values and principles for the realization of the Ecozoic Era.\*

### The Great Work

12. *The Great Work.* The epic task, or “Great Work,” of our time is to bring into being the Ecozoic Era. It is a task in which everyone is involved and from which no one is exempt, and it will require change in every aspect of human society. On it the fate of the Earth depends, and in it lies the hope of the future.

\*The Earth Charter may be viewed at [www.earthcharter.org](http://www.earthcharter.org)

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