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THE ECOZOIC READER

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



How Did We Get Here?

"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 Cenozoic¹
to an emerging Ecozoic Era² in the story of the planet Earth . . .
which is the Great Work.

—Thomas Berry

¹Our 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.

²That 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.

Center for Ecozoic Studies

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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.

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To submit an item for publication, e-mail it to ecozoicstudies@mindspring.com, or mail a printed copy and the electronic file(s) on diskette (formatted for PC) to Center for Ecozoic Studies, 2516 Winingham Road, Chapel Hill, NC 27516, USA. Please send your contact information and a brief biography. Publication and copyright guidelines are available at www.ecozoicstudies.org.

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.

Meditations on True Religion

*From John Cock**

True Religion

Man is the religious animal. He is the only religious animal. He is the only animal that has the True Religion—several of them. He is the only animal that loves his neighbor as himself and cuts his throat, if his theology isn't straight. He has made a graveyard of the globe in trying his honest best to smooth his brother's path to happiness and heaven.

—Mark Twain

Denying the Divinity of the Divine

When we try to explain [the vertical dimension] to people today, let us not start with the “question of God.” For people of our objectified world take “God” as an object whose existence or nonexistence is debated like that of another galaxy. This denies the divinity of the divine.

—Paul Tillich

Epiphany

In all great religious experiences, the divine appears and disappears. . . . For this we have the word “epiphany,” which means the appearing of an ungraspable divine power—being there and not being there. This “yes and no” is the foundation of all speaking about the divine. Thus may the vertical line of the divine enter the horizontal dynamics of human history . . . [and may] the vertical depth [be] in everything encountered.

—Paul Tillich

Everything Is Sacramental

If we had a different feeling toward nature, we would have different feelings for the wholeness and holiness of life. Not having this contributes to our loss of everything sacramental—because if the whole universe is not seen sacramentally, the partial sacraments die off. And in all cultural creations too we must show the presence of the holy.

—Paul Tillich



When I Fight Change

When I fight unwanted and unsought changes and when I seek to keep things just as they are, place me on the wings of birds flying south for another season. Gather their spirit of freedom into my heart. Let me be willing to leave my well-satisfied place of comfort. . . . Thank you, God of transformation, for all these lessons that the autumned earth teaches me.

—Joyce Rupp

* For these and other “Journey Reflections” by John Cock, see <http://www.rejourney.blogspot.com>. To receive a daily meditation by email, contact John Cock at jpc2025@triad.rr.com.

Don't Know Much About History . . . Don't Know Much About Biology

By Herman F. Greene

In 1973, Thomas Berry wrote his first essay on ecological concerns (after writing for many years on cultural history and Eastern religions). His essay was called "The New Story: Comments on the Origin, Identification and Transmission of Values." He wrote, "It's all a question of story. We are in trouble just now because we do not have a good story. We are in-between stories."

This edition of *The Ecozoic Reader* asks: If we are moving into an ecological age, "How did we get here?" This follows the question of the previous edition, "Where are we?" and leads into the questions of the next two editions "Where are we going?" and "How do we get there?"

To answer how we got here, is a question of history and history is all about story.

One Must Claim His or Her Place in History

One must claim his or her place in history. For me this means claiming that Earth is in an ecological crisis and that this is the most important issue facing humans. It also means the ecological crisis provides a basis for a seismic shift in human civilization, culture and consciousness.

There is no proof of this. When I write or speak, I recount how

[p]eople who are held in high esteem in the scientific community believe that the activity of humans is now resulting in the sixth great mass extinction in this history of the planet earth.¹ The last occurred at the end of the Mesozoic Era, with the death of the dinosaurs and other species, 65,000,000 years ago. Biologists tell us that the natural rate of extinction is one every four years,² and that the current rate of extinction is 27,000 species each year, three each hour.³ Given the continuation of present trends, within this 21st century perhaps half of the species on Earth will vanish.⁴ The current causes of these extinctions—habitat loss or fragmentation, invasive species, toxic waste, resource depletion, human population growth and over consumption, interruption of natural systems, and climate change—may potentially have a longer lasting and more severe effect on the functioning of Earth's systems than the catastrophic natural events that resulted in the mass extinction at the end of the Mesozoic Era.⁵

Yet, Bjorn Lomborg in *The Skeptical Environmentalist*, published by Cambridge University Press in 2001, purports to debunk this extinction myth and concludes that in this century not half of the species will become extinct, but no more than 1.4%. This he agrees is not trivial, "It is a rate 1,500 times higher than the natural background extinction," yet, it is "not a catastrophe but a problem."⁶

The prestigious *Economist* magazine has welcomed Lomborg's approach:

The Skeptical Environmentalist delivers a salutary warning to conventional thinking. Dr Lomborg reminds militant greens, and the media that hang on their every exaggerated word about environmental calamity, that environmental policy should be judged against the same criteria as other kinds of policy. Is there a problem? How bad is it? What will it cost to fix? Is that the best way to spend those resources?⁷

Who are we to believe?

In the past issue of this *Reader* we presented our view of where we are. As Ellen LaConte put it:

We are in the Age of Critical Mass, at a point at which, though it has been coming on for a while, everything may change as if all at once, and nothing will be again as it was. . . . The reality is, we are face to face with the limit to the *whole Earth's carrying capacity*, but most of us, especially in the West, are disinclined to accept that final, potentially fatal reality, and even less inclined to do anything about it until forced to do so.⁸

It is from this vantage point that in this edition of the *Reader* we ask, "How did we get here?"

History Is a Story About the Past to Make Sense of the Present

One way of looking at history is that it is a story about the past to make sense of the present. This can be illustrated if we think of the collapse of the Soviet Union in 1991. Until this unexpected event happened, post-World War II history was written to account for the Cold War, a bipolar struggle between the first world of capitalism led by the United States and the second world of Communism led by the Soviet Union. Yet, an account of this type was out of date in 1992. History had to be re-written to make sense of the new unipolar world.

It seems likely, however, that someone writing history in 1988 foresaw the imminent collapse of the Soviet

Union. Such person, we would say, was “ahead of his or her time.” We feel like we, meaning those of us who foresee the coming collapse of industrial civilization as a result of the current ecological crisis and write history from that perspective, are also ahead of our time. We see things that others do not see. We are claiming a certain perspective to understand what is going on. Necessarily when we write our story of “How did we get here?” we tell a different story than those who do not claim this perspective.

The writing of history assumes there is a causal relation between events of the past and events of the present and the future. This causal relation does not necessarily mean that past events predetermine present and future events. Rather, the causal relation may be that events of the past establish conditions where some outcomes in the present and future are more likely than others. If we begin with an ecological crisis perspective, certain events of the past will have greater significance to us than to those who do not share this perspective, and the meaning of those events will also differ.

Eventually history will show we were right, or that we were wrong.

What We Think We Know About the Future Is Our Understanding of the Past

As for the future, we cannot know the future. What we think we know about the future is really our understanding of the past projected into the future. We are all familiar with sales charts where increases in sales over past years steadily rise into the future. The part of the curve beyond the present, is not the future, rather it is a statement of what the future will be like if it is like the past. In other words, it is a projection of the past into the future, and the future seldom conforms to the projection.

This is easy for us to accept when we think of sales projections. It is not so easy to accept that all of our understandings of the future are like that. They are an understanding of what the future will be like based on our understanding of what has happened in the past. Our “understandings” of the future are, at least in significant part, our projections of the past into the future.

History Makes Sense of the Present and, in So Doing, Shapes the Future

That conception of the past is shaped by our perception of the present, and that our understanding of the future is our projection of this changeable conception of the past into the future, doesn't make history unimportant. Indeed it is this very process of examining the present, drawing on the past to understand the present, and projecting our understanding of the past into the future that drives human action.

For example, the United States is now engaged in a war in Iraq. Some look at past colonial enterprises in Iraq and say that the United States will be no more successful in Iraq than past colonialists. They project the colonial experience of, for example the British, on the current war:

They came as liberators but were met by fierce resistance outside Baghdad. Humiliating treatment of prisoners and heavy-handed action in Najaf and Fallujah further alienated the local population. A planned handover of power proved unworkable. Britain's 1917 occupation of Iraq holds uncanny parallels with today—and if we want to know what will happen there next, we need only turn to our history books⁹

Acting on such an understanding of the past, these people would see the current U.S. war in Iraq as doomed to failure and urge speedy withdrawal.

Needless to say, the members of the Bush administration who urge continuance of the war hold to a different story of the past, one without such parallels to past colonial failure. This 2003 article from *The Washington Post* shows how the failure to find weapons of mass destruction in Iraq (on which the initial justification of the war was based) caused the Bush administration to re-tell its story of the past and project its new understanding of the past into the future:

As the search for illegal weapons in Iraq continues without success, the Bush administration has moved to emphasize a different rationale for the war against Saddam Hussein: using Iraq as the “linchpin” to transform the Middle East and thereby reduce the terrorist threat to the United States.

President Bush, who has mostly stopped talking about Iraq's weapons, said at a news conference Wednesday that “the rise of a free and peaceful Iraq is critical to the stability of the Middle East, and a stable Middle East is critical to the security of the American people.”

. . . .

In an interview yesterday, a senior administration official expanded on that theme, saying the United States has embarked on a “generational commitment” to Iraq similar to its efforts to transform Germany in the decades after World War II.

The Bush aide, who spoke on condition of anonymity, outlined a long-term strategy in which the United States would spread its values

through Iraq and the Middle East much as it transformed Europe in the second half of the 20th century.¹⁰

The history the Bush administration claimed to explain the present in Iraq was that of the Marshall Plan in Europe following World War II. And it was this story that the administration officials projected into the future.

At the time of the writing of this article, the war in Iraq continues. Which “past” will prove to be a truer guide to the future—the past colonial failure of Britain in Iraq, or the triumphant post-World War II Marshall Plan?

So, look out for your story of the past. George Santayana warns, “Those who cannot remember the past are condemned to repeat it.” His warning seems to assume that remembering the past is optional. In fact, we all remember the past as we plan our future. Perhaps Santayana’s warning should have been, “Be careful of what past you apply in interpreting the present, for you will base your decisions regarding the future upon it.”

Don’t Know Much About History . . . Don’t Know Much About Biology

Sam Cooke in his well-known song, “Don’t know much about history,” crooned he knew little of what he was learning in books, but he knew he loved his girlfriend, and if he knew she loved him too, “what a wonderful world this would be.” There is something to this beguilingly simple view of life. Its truth is that what matters in the end is the love we have for each other. This is what makes life wonderful.

Yet, as others have rightly noted, love is not such a simple thing. Persisting in ignorance is not love. Love is acting in the best interests of those we love to bring about the most desirable future for them we are able. If we are not informed about the world, about both its present and its past, we cannot act in such a loving way. Further persisting in isolation, as though the lover and his or her mate exist alone in the world, is not love. In an ecological age, love means universal compassion, compassion for all beings. Knowledge enriches love, breadth of compassion enriches love and it is this love that brings about a wonderful world.

As shown above, our actions for the future are based, at least in significant part, on our story of the past. Thus, our search for a better future involves a search for a better understanding of the past. And for this, we must know a lot about history and, in an ecological age, also of biology.

As Thomas Berry wrote, “It’s all a question of story.” And so we ask, “How did we get here?”

¹ The last great extinction occurred 65,000,000 years ago at the end of the Mesozoic Era. Richard Leakey and Roger Lewin, *The Sixth Extinction* (New York: Anchor Press, 1995), 233-254.

² *Ibid.*, 241. John Harte in *The Green Fuse* (Berkeley: University of California Press, 1993), 85, gives the background extinction rate as one each year.

³ Edmund O. Wilson, *The Diversity of Life* (New York: W.W. Norton, 1992), 280. Wilson explains how he made this calculation in pages 274-80.

⁴ Leakey and Lewin, 240-41; Harte, 85. *See also*, Wilson, 278, and Paul Harrison and Fred Pearce, *American Association for the Advancement of Science Atlas of Population and Environment* (Berkeley: University of California Press, 2000), 162. This is greater in scale than the extinctions at the close of the Mesozoic Era where it is estimated that a quarter of the species disappeared, and the time period of little more than a century is much shorter than that of the last great mass extinction. Harte, 85 (stating that a quarter of the species became extinct at the end of the Mesozoic Era in a period of a few thousand years).

⁵ For example, it is now thought that an important cause of the extinctions at the end of the Cenozoic Era was caused by a meteor impact. Leakey and Levin, 55. While such an impact vastly changed the atmosphere, these effects dissipated over time. The toxins that humans are introducing into the biosphere, however, may have an even longer-lasting effect.

⁶ Bjorn Lomborg, *The Skeptical Environmentalist* (Cambridge, UK: Cambridge University Press, 2001), 257 and 255.

⁷ “The Litany and the Heretic” [on-line article] *Economist*, January 31, 2002, available at http://www.economist.com/science/displayStory.cfm?Story_ID=965520, accessed November 20, 2004.

⁸ Ellen Laconte, “Critical Mass,” *The Ecozoic Reader*, Vol. 4, No. 1 (2004), 6 and 11.

⁹ Robert Fiske, “Iraq 1917” [online article] *Independent*, 17 June 2004, available on Global Policy Forum website at <http://www.globalpolicy.org/security/issues/iraq/history/2004/0617iraq1917.htm>; Internet; accessed November 27, 2004.

¹⁰ Dana Milbank and Mike Allen, “U.S. Shifts Rhetoric on Its Goals in Iraq,” *The Washington Post*, 1 August 2003, available at www.truthout.org/docs_03/080203A.shtml; Internet; accessed November 27, 2004.



The Pendulum Swings

(recounting five great endeavors of the human species)

By *F. Nelson Stover*

In the land between forest and savannah, the Pendulum of Decision swung.
Whether to keep walking on four paws or to start walking on two legs,
Became a challenge confronting individuals and species across Africa.

A vertical body stayed cooler, having no heated backside facing the blistering sun,
And nimble hands could carry food home to growing families
Once tricky balancing skills were mastered across the rolling landscape.

Upright backs allowed female's pelvic opening to gradually expand
Permitting delivery of off-spring with larger brain capacities
While everyone's vocal chords loosened to enhance tonal variations.

After three million years of experimentation and effort by unnamable ancestors
The lands of the ocean-bound continent in the tropical sun
Became filled with humans committed to upright travel in community.

At the edge of the northeastern land bridge, the Pendulum of Decision again swung.
To stay in familiar forests or to venture into unknown landscapes
Prompted deliberations among the complacent and the concerned alike.

Daring ventures and periodic painful tragedies
Allowed the capture, care and control of fire for cooking meat
And providing dependable heat on cold winter nights.

New found animal friends like horse, dog and cow
Had social patterns compatible with the two-legged species
Permitting easier travel, additional energy and a protein-enhanced food supply.

After nearly a million years of exploration and discovery
Virtually all of the life-sustaining niches of Planet Earth's land
Had been visited by the roving vanguard of the human species.

Population density increased in each bioregion, the Pendulum of Decision again swung.
Whether to learn the cycles of their present place or keep exploring
Challenged clans and tribes across the Blue Marble.

Settled sages marked the solar cycles and named the stellar bodies.
Stories of seasonal patterns enchanted children
And reminded citizens when plants and animals would become available.

Using their particular languages, symbolic representations and cultural patterns
Tribes developed sophisticated social systems and appropriate technologies
Allowing reflection on their situations and an understanding of their environs.

For more than thirty thousand years, the Indigenous Ones enlivened their locales.
Their spirits pulsed to the rhythms of the surrounding flora and fauna
And they knew themselves ingrained in the four elements and directions.

For the fourth time, the Pendulum of Decision once again began to swing.
Along the rivers of the temperate climates in Mesopotamia and China
Individuals and societies debated the merits of tending crops rather than foraging.

Secure and sufficient food supplies allowed social stratification and political protection.
Manufacturing classes produced tools, arts and comforts
As societies tapped into energies stored in wood, sun and fossil fuels.

New explanations emerged to help citizens comprehend the world in which they lived.
The gods cared for priests who cared for people who cared for plants
As social hierarchy and historical progress became foundations of wisdom.

Fueled by carbohydrates and proteins from farms, pastures and plantations,
The Human Species seemed to manage the progress of the planet
While growing in numbers and consumptive capacity for ten thousand years.

Now again, across the Planet, in villages and cities, the Pendulum of Decision swings.
Each one choosing whether to continue rampant extraction of non-renewable resources
Or to invent lifestyles promoting the mutual enhancement of all species.

Those electing to participate in creating the Ecozoic Era draw on past wisdom
Yet learn the Universe's ways of communion, differentiation and autopoiesis
And build sustainable systems of social and environmental interaction.

Scientists utilize schema of incommensurate numbers to refine quantum calculations,
Sociologists understand that each individual actively participates in creating tomorrow
And sages find the Holy in every moment and action.

The unborn creatures and unmanifested potentialities of countless future eons
Await their turn on the time-space stage of reality
And the celestial clock ticks as the interminable future
Passes through the embodied present
To join the by-gone actors in the annals of history.



Goodbye Eternal Frontier*

By Connie Barlow

Native or alien? The distinction is crucial for conservation. An understanding of deep time, however, can scramble the categories. For example, most of us are aware that the Old West's image of a Lakota warrior riding bareback on a horse is a blend of native and alien. The Lakota traveled afoot until horses sailed across the Atlantic with the Spanish and went feral in the New World. The deep time twist is that it is the *horse* that is native, the man a recent immigrant to the Americas.

Tim Flannery, in his book *The Eternal Frontier*, explains that horse ancestors originated in North America 45 or 50 million years ago; humans have been here a mere 13,000 years. Horses spent their first 30 million years evolving on this continent and nowhere else. Only during the Miocene, when North America sprouted a dozen kinds of three-toed horses (some grazers, some browsers), did equids begin to colonize the eastern hemisphere. Those early emigrants did not persist in the East, however. The Asian and African horses alive today (including the zebras) all came from ancestors who were confined to North America until just three million years ago. Were it not for those persistent descendants of vagrant North American stock, horses would have gone globally extinct when they vanished from North America 13,000 years ago—at the same moment that the Lakota warrior's ancestors arrived from Asia.

This is deep time history, deep ecology history. This kind of education not only alters one's outlook, but invites a new relationship to the land. The EuroAmerican culture that dominates North America today still treats the continent as a frontier—a collection of resources to be exploited by an ever-expanding population. Can Americans learn a key lesson from the roll-call of lost life forms over the long span of ecological time and begin to understand that people cannot persist on a landscape viewed as a limitless frontier—only on one they come to know and love as *home*?

Taking the Long View

Tim Flannery, director of the South Australia Museum, is officially a vertebrate paleontologist. Yet *Eternal Frontier* is a cross-disciplinary opus that draws from botany, geology, ecology, geography, archeology, anthropology, and American history as well as paleon-

tology and zoology in constructing the first deeply ecological story of this continent grounded in deep time.

Flannery begins his tale with the asteroid impact off the coast of Mexico that ended the Mesozoic Era 65 million years ago by extinguishing the ammonites, the great marine reptiles, and the dinosaurs, while severely diminishing the diversity of animal taxa from foraminifera to mammals. Plants took a hit, too, but mostly here in



North America and eastern Asia, where the shock and firestorms of the impact were most intense. (Plants can wait out horrific conditions as root, seed, or spore.) The end-Cretaceous impact event is described by Flannery in gruesome detail, leaving the reader aghast at how truly empty of life this charred continent had become in the aftermath, and how open it was, therefore, to the extravagances of “ecological release” and “evolutionary radiation” for those lucky lineages who first wafted in by spore or seed, or poked their heads out of the mud after a long, impact-winter sleep. In short, North America was an ecological vacuum, a frontier available for easy colonization.

Flannery thus introduces the North American Story with the violent birth of the Cenozoic and, coincidentally, the birth of the North American continent itself. During the Mesozoic, the eastern and western halves of what would become North America had been separated by shallow water, the Bearpaw Sea, which flooded the continental midsection all the way from the Arctic

* Note: This is a text-only version of the illustrated article that appeared in the “Deep Time” issue of *Wild Earth* magazine, Summer 2002.

Ocean to the Gulf of Mexico. Within five million years following the asteroid impact, tectonic uplift associated with the rise of the Laramide Mountains in the West had displaced the sea. One grand continent was born.

Toward a Mythic Story of North America

Zoologist David Burney, ecologist Stuart Pimm, conservation biologist John Terborgh, and Pleistocene ecologist Paul Martin have all written laudatory reviews of *The Eternal Frontier*, published in major journals.¹ The science is top-notch, they agree, and the style of delivery is engaging.

Here I'd like to suggest that this book gives us far more than excellent and readable science. It gave me the idea that, by golly, there *is* a unified story of the North American continent. There are mythic themes that connect the abundant bare facts, and there are lessons to be learned from 65 million years of continental experience.

Oh, what a mythic story it is! Before reading Flannery's book, I assumed that a common Native American name for this continent—Turtle Island—had no basis in fact. Now I know that soon after it was born (upon the retreat of the Bearpaw Sea), this continent hosted the Golden Age of Turtles. Never before and never since, and never anywhere else, has the turtle been such a prominent and speciose member of animal guilds. Pond turtles, soft-shelled turtles, river turtles, and snapping turtles all survived the meteor impact. When the firestorm had passed, and the turtles could safely poke their heads out of the mud, the landscape and pondscape they looked out on was nearly barren of vertebrate life. Crocodylians and (now extinct) champsosaurs also survived in the sediments, and offered the turtles just enough predatory challenge to keep them from reproducing their way to oblivion.

Turtles are more the exception than the rule. This continent has, for sixty-five million years, mostly been a land of immigrants. "No other continent," writes Flannery, "exhibits such different origins for the constituent parts of its fauna." North America has been a magnet for newcomers, who may overeat or out-compete the natives when they first arrive. If they are to persist, however, they do eventually settle into adaptive harmony as natives themselves—with whatever life community remains. A deep time perspective teaches that, on the one hand, North America will surely be rich in naturalized and endemic diversity within five or ten million years after humans are gone. On the other hand, deep time teaches that the scale of ecological disruption caused by human hegemony over habitat, our unloosing of myriad exotics, our tampering with the very chemistry of the biosphere, as well as our long-standing role in overkill, is unmatched in 65 million years. Is that the legacy we wish to leave in the geological record?

It seems that whenever climate and sea level conspired to give four-leggeds the opportunity to move around, the vast continent of Eurasia sent us proficient beasts, via Greenland and the Canadian Archipelago or by way of Beringia, the now-submerged continental shelf that, when sea level is lower, connects Alaska with Siberia. Elephants (mastodons) found their way into the New World perhaps 17 million years ago, beavers less than ten million. Much earlier, rhinolike brontotheres arrived, radiated into multiple species, and vanished. True rhinos, too, ventured into North America early in the Eocene, and they thrived here until just three million years ago.

Global trade has been much less successful in the opposite direction. There are, however, four big success stories among the mammals. North America gave birth to the dog family (*Canidae*), the camel family (*Camelidae*), the horse family (*Equidae*), and the squirrel family (*Sciuridae*), all of whom now have a presence in much of the world. The squirrel story begins in the Oligocene some 30 million years ago, when angiosperm plants in North America had to cope with extreme seasonality for the first time: hot summers, frigid winters. North American nut trees appeared at this time too, suggesting a co-evolutionary dance of seed and seed disperser.

The only truly and completely American large mammal alive today is the pronghorn. Not a deer, not an antelope, not a goat, the pronghorn family *Antilocapridae* originated right here and stayed put for 19 million years. All sorts of pronghorns, some sprouting four, even six antler-like horns, thrived during the Miocene, Pliocene, and Pleistocene. The only one that survived the end-Pleistocene extinctions 13,000 years ago still retains a vestige of a by-gone era. *Antilocapra americana* is ready should a long-legged hyena, a swift *Arctodus* bear, or a cheetah be lurking over the grassy horizon: pronghorns can sprint five miles per hour faster than cars are supposed to travel on the Pennsylvania turnpike. The animal is thus way overbuilt for its current predators, coyote and the all-too-rare gray wolf. Pronghorns are running from the ghosts of predators past. Their speed is an ecological anachronism.

To keep the pronghorn fit and facile, perhaps cheetah restoration efforts should be considered. Flannery's research suggests that the cheetah (*Acinomyx*) is possibly the only genus of living cat that originated in North America. The particular species that chased pronghorn until 13,000 years ago was the spitting image of the one that is now having such troubles with humans, lions, and hyenas in Africa. Bring back the cheetah!

Unaware that Paul Martin and David Burney had published a "bring back" manifesto in *Wild Earth* a year before his own book was published,² Tim Flannery

independently and forcefully argues that Americans should repatriate not only the cheetah but also the lion. America's Pleistocene lion was nearly identical to the living African lion, although it was probably maneless and certainly bigger, with footprints the size of dinner plates. Flannery also joins Martin and Burney in proposing repatriation of the biggest land mammal alive today: the elephant. This convergence of ideas suggests that perhaps the time has come to seriously consider repatriation of extirpated megafauna as part of rewilding North America.³

Convergence (or "parallel evolution") is indeed another theme that stands out in the Cenozoic story of 65 million years. It seems that there are forms and life-ways that time and time again are called forth by ecological opportunities, and in more than one place. Descended from rails, the six-foot tall terror bird (*Diatryma*) stalked North America like a miniature *Tyrannosaurus rex* in the early Cenozoic. In South America, independently evolved bird lineages held onto the niche of top carnivore for 50 million years. The last of the breed was the ten-foot-tall *Titanis*, who survived until late in the Pliocene, after it had ventured into North America.



Similarly, true cats (family *Felidae*) originated in the eastern hemisphere and then spread to Turtle Island, but not until an older and unrelated form of "cat"—the nimravids—went extinct 23 million years ago. Even canids have periodically generated catlike forms (our living gray fox, a nimble tree climber, is arguably as much catlike as doglike). And, of course, there were the remarkable saber-toothed "cats" of South America. These were pouched marsupials, yet their body and teeth look uncannily like the placental *Smilodon* (a true cat) of the north. The closest common ancestor of *Smilodon* and its South American equivalent was far more like a

shrew than a cat, and that ancestor coexisted with the dinosaurs.

An important chapter in the Story of the North American Continent recounts the amazing exchange of life forms between North and South America. For tens of millions of years, the only terrestrial vertebrates that came into or left South America were those that could fly (bats and birds), float (turtles and tortoises), or hunker down on storm-launched plant debris for a long sea voyage (frogs, lizards, snakes, and toads).

For example, Turtle Island welcomed tree frogs (*Hyla*) into its life community some 35 million years ago. These frogs all came from South America. Toads journeyed north a few million years later. Since then, both kinds of amphibians have speciated grandly, becoming North American natives. Whiptail and race runner lizards (family *Teiidae*) lived in both of the Americas during the Cretaceous. The asteroid extirpated all of those native to the north. Teiids of Turtle Island today thus all hail from South American ancestors who rafted north during the Cenozoic. But South American mammals other than bats came north only when the continents drifted close enough to one another for an extended swim (about five million years ago for the smaller ground sloths) or a dryland odyssey after the Isthmus of Panama emerged about three million years ago. South American ground sloths, glyptodonts, and toxodons did well in the north until humans arrived 13,000 years ago. Only the small ambassadors from the south—possums, porcupines, and armadillos—remain.

Meanwhile, Turtle Island sent southward its vertebrates in droves. There is no canid, cat, deer, mouse, rat, coati, skunk, squirrel, rabbit, tapir, peccary, camel (llama), cat, bear, or weasel native to South America whose ancestors have been there for more than five million years—and most scampered or slunk across the isthmus only two or three million years ago.

A Golden Age Ends

Following this "Great American Interchange," the story of the North American continent shifts from deep time to deep history. And this is where the bad news begins. The overkill theory for why the horses, camels, elephants, sloths, glyptodonts, tapirs, peccaries, long-horned bison, and giant tortoises disappeared at the end of the Pleistocene is now widely accepted. The ripple effects of overkill—extinction by starvation, exacerbated by hunting—is the majority explanation for the simultaneous or somewhat later extinctions of the continent's great native carnivores: dire wolf, sabertooth cats, American lion, cheetah, and the biggest mammalian land carnivore of all time, *Arctodus*, the short-faced bear. Overkill theory is bad news because overkill is us. We did it. Thirteen thousand years ago is the time we may

come to look upon as the beginning of the end of the Cenozoic Era⁴—when spear-wielding humans entered North America and over-hunted to extinction most of the continent’s large mammals, which had evolved without predation from intelligent, socially organized hominids.

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Within the past five years, discoveries in New Zealand, Australia, Madagascar, Hawaii, and Polynesian islands all validate overkill theory. Everywhere, it seems, the last appearances of Pleistocene mammals, reptiles, and flightless birds correlate astonishingly well with first appearances of artifacts and charcoal attributable to *Homo sapiens*.

Correlation is not, of course, proof of cause, but correlation en masse is persuasive. Proponents of climate change have struggled to explain why continental ice waxed and waned sixteen times in the past two million years, yet only on the seventeenth melt-back did the change force North America into an “extinction of the massive.” Now, with fine-tuned dating of extinction events in hand, a dwindling team of climate proponents is pressed to explain the non-simultaneity of extinctions around the world. How was climate shifting 50,000 years ago in Australia—and only in Australia? Why did that shift take place before the putative change in North America 13,000 years ago? And how did Cuba manage to avoid the zoological effects of North American climate change until 6,000 years ago, when its six species of ground sloth suddenly vanished? Even more astonishing, one island a dozen miles off the coast of Siberia held onto its mammoths for 8,000 years longer than mammoths survived anywhere else in the world.

And then there are the more recent extinctions on islands distant from any mainland (and more difficult to colonize by raft or canoe). Hawaii began to lose its flightless and other vulnerable birds around 1,500 years ago. Madagascar lost its gorilla-size lemurs, its elephant birds, and its giant tortoises just 1,200 years ago. Even more isolated, New Zealand lost its moa birds just 600 years ago.

It seems that westernized industrial peoples are not the only ones to wreak havoc on lands newly colonized.

Perhaps no human culture can be expected to walk lightly upon an unfamiliar landscape, not because we are inherently evil, but because our technology, even at the level of chipped stone, turns us into formidable predators of wildlife that did not co-evolve with us. Animals too big to hide, too naïve to run, and unable to give birth to replacements as quickly as we can slaughter them are the most vulnerable. In the lean times of winter or extended droughts, even bio-regionally attuned humans may be driven to kill and kill again, harvesting fatty tongues, while leaving behind the kidney-straining excesses of bare protein, starved flesh. Only after the plundering by the pioneers is complete do the peoples begin a new dance with the landscape. Limits of the land may then shape humans into indigenes who live more or less sustainably with the community of life that remains.

It is surprising to realize, too, that, within the context of the 65 million year Cenozoic Era, our symbol of the western wilderness, the grizzly bear, is a recent arrival. The bear who crossed Beringia after the first humans led the way was a human-savvy species that could find a niche in the New World only when a far heftier, faster, and indigenous “short-faced” bear (*Arctodus*) lost its prey base to overkill, and perhaps made the mistake of assuming that it need not run from anything. Our griz, *Ursus arctos*, is so recent an arrival



that it has not yet had time to speciate from the ancestral Eurasian populations of brown bear. The same is true of the animal we call elk and that Europeans call red deer (*Cervus elephas*). Ditto the moose: *Alces alces*. The gray wolf, too, is a recent arrival. Although the dog family, *Canidae*, originated right here, the gray wolf took form in Eurasia, returning home maybe 100,000 years ago, but only becoming prolific on this continent after our native dire wolf disappeared.

Deep time awareness compels us to accept, as well, that the symbol of the Great Plains is a newcomer to North America. Bison entered this continent 400,000 years ago. The long-horned behemoths then evolved several distinctive species native to place. But those first American bison all vanished with the mammoths and sloths—presumably because they were not only naive of projectiles but hadn't evolved a strong herding instinct. Into the empty niche came the smaller, short-horned bison that still survives in Europe. *Bison bison*, commonly known as buffalo here, goes by the name wisent in its land of origin. These bison didn't need horns to convince would-be predators to stay away from their young. They ran. And the females and young kept to open grasslands, where predators were easily detected at a distance, running was unimpeded, and many muzzles could work together to detect the approach of danger. Alas, even these bison nearly succumbed in North America to guns and railroads.

Frontier or Home?

Tim Flannery makes clear that humans per se are not lethal to megafauna (witness pre-colonial Africa). Rather, the problem is with humans who find themselves in an Edenic frontier of populous and easily killed large animals. It is the way our species invades exploitable habitat—the purple loosestrife phenomenon—that makes a continent quake.

Even after humans adapt to place as indigenes, the danger to wildlife is not over. Native cultures may effectively revert to an alien relationship with their habitat if the technology available to them suddenly changes—notably, if a new technology enters the landscape from abroad and the local peoples indiscriminately make it their own. The sign of an alien is that it is too successful. The body carrying the gun may be native, but the human-gun amalgam is a novelty in the land community.

In the case of North America, the newest waves of human colonists haven't given themselves a fair chance to become indigenous. Technological ingenuity keeps breaching natural limits. For example, Flannery recounts how EuroAmericans passed right by the deserts of the Great Basin on their first westward drive. The limits of the land bested the available technology. But once deep drilling and pumping became possible, the frontier re-opened; lands that had been “wastes” became wheat fields.

Each time that technological innovation gets us out of a resource-limit pickle, there are populations, species, and even whole biomes who suffer. Cornucopians are dangerous not because they are wrong. The real danger

for the community of life is that the cornucopians may be right for some time to come. Perhaps technological advances will continue to save us from materials shortages, energy shortages, maybe even water shortages for some time, especially now that globalization has effectively made a frontier of the entire globe. At some point, of course, one limit or another will prove unbreachable (perhaps the limit of human sanity in an increasingly crowded and artificial world), but by then we may have wiped out more forms of life than a Manhattan-size meteor was able to accomplish 65 million years ago.

Coming Home

The good news is that we can wake up. *The Eternal Frontier* offers, in breathtakingly beautiful prose, a bracing dose of deep time perspective. Now it is up to us to *choose* a new relationship to North America, to Earth. The landscape cannot be counted on to force the choice

upon us, at least not anytime soon. So how will we, of all humans—this prideful, frontier-addicted culture—be motivated to go native, and with all the skill and grace that our sciences and technologies (appropriate technologies) might afford us? What will make us willing to say goodbye to the convenience of a frontier relationship with the land and re-inhabit North America as *home*?

One tool in the necessary transformation of spirit will surely be the teaching and preaching of the mythic story of the North American continent. Tim Flannery has given us the storyline, the themes, and a wealth of stunning examples. It is now up to the educators and dramatists and firebrands within the conservation movement to communicate the rich and engaging history of this place: its geological and ecological diversity, its beauty and integrity. Knowing this story, telling and retelling it, is one step on the ethical journey to becoming truly, fully indigenous.

¹ The major reviews of *The Eternal Frontier* are: David A. Burney, “A Down-Under Look at North America,” *Natural History* 7(01):76-78 (2001); Paul Martin, “Paleobiogeographer from Down Under,” *Bioscience* 51:687-688 (2002); Stuart Pimm “Cenozoic Dramas,” *Science* 292: 1842-42 (2001). John Terborgh, “The Age of Giants,” *New York Review of Books*, September 20, 2001.

² Paul S. Martin and David A. Burney, “Bring Back the Elephants!” *Wild Earth* 9(1):57-64 (1999).

³ Connie Barlow, 1999, “Rewilding for Evolution” *Wild Earth* 9(1):53-56.

⁴ Christopher Manes, “Whatever Happened to the Cenozoic?” *Wild Earth* 1(2):73-74 (1991).

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I've Watched a Billion Years Pass

(The Memoirs of an Appalachian Mountain Rock)

By F. Nelson Stover

Tumultuous times pervaded a fracturing surface, releasing lava from Earth's molten core.
Sun's searing heat seemed cool to us as we congealed atop our ancestors
Hardening them as we, too, took on solid form.
Five miles above the Pre-Cambrian oceans I touched clouds,
Diverted windstorms and forced moisture to return home to the sea.
After the Grenville Orogeny, I watched 400 million years pass while
Seeing our majestic ranges weathering away into an unnamed sea.

During this time, a blazing summer sun scorched sharp mountain ridges.
Soon driving rainstorms and fierce lightening storms
Would return to pummel our barren hillsides.
Winter winds and frigid frozen ice came when the sun headed south
And these, too, abetted the fracturing of our rocky landscape.
No living creatures had invaded any lands rising above the Blue Marble's waters,
Not even the Grenville Mountains where I had originally resided.

A hundred million times the summer sun returned to its zenith.
I watched the sea turn ever more green
As life forms proliferated among the roiling waves.
Feeding on the nutrients washed down from surrounding hills
They grew larger, more complex and more wise and adventuresome.
We could see greenness coming our way, as creatures crept ashore
Overcoming the crush of gravity with cells both strong and yet flexible.

Another hundred million spring times nourished ferns and mosses.
I watched the eastern horizon change ever so slowly
As another land mass crept across Earth's molten mantle.
The stresses of geologic creativity opened gaping holes
Through which tons of molten lava flowed covering my mountain home.
The colliding land masses wrenched the weathered hillsides
And formed the Appalachian Mountains along a new ocean's coast.

Two hundred million winters passed on the still rising Appalachian peaks
Below which I had been buried in the tectonic transformation
Thriving ferns grew to astonishing heights
Turning sunlight into sugar and oxygen in their willow leaves.
Oxygen breathing reptiles, too, flourished on land and sea
Eating plants, and each other, to nourish their ever-larger forms.
Eventually dinosaur footsteps reverberated across the land
Whose grassy ground cover slowed the erosion of my mountain home

Something new came down beside me after another hundred million autumns.
Though deep below the surface, I was joined by a nutrient-seeking tree root.
Capitalizing on complex nutrients built by countless ferns and reptiles.
The tree could produce seeds and multi-hued flowers.
Adventuresome mammals learned to eat the nuts and berries
And the Cenozoic Era blossomed across the Planet Earth.
While the pace of geologic change slowed and the fiercest storms had subsided
But consciousness grew ever more rapidly as carefully choosy creatures proliferated.

Layers of rock above me slowly fell away until I once again
Could watch out over the green valleys and roaring springtime streams
The long narrow valleys below provided the human settlers with fertile lands
For hunting deer, growing crops and raising families.
The rapidly flowing waters provided energy for turning mills
To grind flour and drive gears for looms and lathes.
Periodically, armies marched through en route to distant objectives
And perched their scouts and sentinels near my lofty perch.

I'd watched and waited to see new levels of vitality and cooperation
Would emerge among the increasing diversity of Earth's life forms.
In times of economic hardship, scores of teams crossed our ridges
To build a scenic parkway for visitors from near and far.
One special sunny summer day brought a wandering Carolinian
Listening for narratives of geologic and sociological history.
So I shared my story with this passing poet who wrote it down
To encourage you, too, to participate in the Planet's on-going creative process.



Civilization & Agriculture: Mixed Blessings on Our Way Here

By Ellen LaConte

We are accustomed to touting the accomplishments of civilizations. Particularly are we in the West accustomed to touting, even revering, the accomplishments of our 2500 year-old civilization. We have good reason. Much that is good, brilliant, beautiful, noble, and true has been produced by descendants of the Greco-Roman/Judeo-Christian/European way of looking at how the world works. But much that is none of these things also has been produced by Western as well as non-Western civilizations. In general, civilization has been a mixed blessing, particularly for the majority who in any age were looking at an advancing civilization from the near end of a defensive weapon or underneath a boot heel. We civilized humans got to come indoors and improve ourselves, but we also got enslaved and plagued; we got Beethoven and sometimes our daily ration of bread, but we also got battleaxes and bombs; we became fabulously creative but also capable of destroying creation.

Among the most serious of the negative accomplishments of each civilization in its turn has been its tendency to live beyond Earth's means. To this we will give our attention because in our time this feature of civilization threatens to undo or cancel nearly all the good civilization has otherwise done.

The Cities on All the Hills

Civilization as we know it has been more often a bane than a blessing to Earth and most living things because, while the word for it is cognate with terms like "civil" and "civilized," it is also cognate with "civilian," "citizen," and "city." It is this second set of meanings that help us understand why those of us who have lived in civilizations have often behaved *uncivilly* and as if we were *uncivilized*. In fact, where Earth is concerned, *civilization* may be a more accurate name for what we've been engaged in for the past 5,000 years. For the foundational feature of civilization, the characteristic that all civilizations have had in common, is cities.¹ More precisely, all civilizations have had in common Earth-averse, often people-averse, increasingly large, densely populated, uneconomical—and entirely *un-eco-logical*—cities. Cities are not an inevitable social development, but from Earth's and even our perspective, they are a peculiarly self-punishing, even pathological, one.

But before we explore why this is so and since we have not yet arrived at what might lie beyond civilization, let's look at how we got from the Earth-honoring, almost-Edenic Neolithic societies (the loosely settled, relatively sustainable groups of hunter-gatherer-gardeners and the small villages of southeastern Europe and the Mid-East) to civilization in the first place.² Let's also, parenthetically, consider the similarities between the end of Eden in that far-away time and the pending end of ours. We'll begin with the most famous transition.

The Flood

Some of the earliest and best-known Neolithic subsistence societies set up housekeeping and took up gardening 11,000 or 12,000 years ago when a cold snap—a mini-ice age named the "Younger Dryas" after a species of alpine flower that flourished while other plants froze—had lowered sea level and caused widespread drought but simultaneously had opened up lots of new territory, particularly around the Black Sea, the eastern Mediterranean, Nile River, Red Sea, and on the floodplains of the Tigris and Euphrates and the Persian Gulf. A couple of thousand years into what later writers would call the Golden and Silver Ages, the weather began to warm up again, but for a while the change was so gradual that it was imperceptible from generation to generation of dwellers in Paradise's gardens. Life was relatively easy, and increasing numbers of us got our livings by whatever means we chose: hunting, foraging, gardening, fishing, and nomading. We were not pressed to change how we lived, but got good at what we already knew how to do and went forth and multiplied.

For thousands of years, our numbers had stayed relatively stable, below four million, but by around 7,000 B.C.E., thanks to the good weather and the locations, we'd fallen into alongside life-rich rivers and sea shores,

our numbers began slowly but perceptibly to increase. By 5500 B.C.E., there were already five million of us with the largest concentrations in the Mid-East, southeastern Europe, and southwestern Asia where we'd arrived first on our journey out of Africa.

And then there was the Flood. Noah's flood, the very one that preoccupied the minds of nearly every early civilization, took up the first pages in their sacred texts, and shaped their

And then there was the Flood. Noah's flood, the very one that preoccupied the minds of nearly every early civilization, took up the first pages in their sacred texts, and shaped their thinking about divine interventions and the laws of supply and demand.

thinking about divine interventions and the laws of supply and demand. Its official name is the “Flandrian Transgression,” and it did transgress in both senses of the word: the waters came back over the land, trespassing on it and everything that lived on it; and it did feel like a sin to those who had lived on that land. And on account of it, overwhelmed by critical mass, they began to trespass to an unprecedented degree on each other.

In fact, in a period of only a few years, the Persian Gulf, Red Sea, and Nile began to fill with water and continued to fill steadily for a thousand years, drowning suddenly, and then relentlessly, landscapes and settlements and everything that didn’t move inland before it. The Gulf transgressed the length of the lower Tigris and Euphrates, north and west, into present-day Iran, Iraq, Qatar, Kuwait, and Saudi Arabia, driving both village folk and hunter-gatherers hundred of miles inland, into nomads’ land. Over the next several thousand years, it retreated to its present location, deserting the villages and small cities that had by then grown up at the edges of its furthest encroachments.

Meanwhile, the Mediterranean Sea crept up over all its low-lying coasts and burst through the narrow Straights of Bosphorus dumping a wall of water into the swampy Black Sea, raising its level 500 feet, inundating river valleys deep into the interior, and pushing all those who had populated its game-, fish-, and bird-rich basin back up against the mountains that surround it. Sixty thousand square miles were covered in a matter of days and submerged in a matter of weeks!

Simultaneously, everyone and every creature that had walked over dry land from the European mainland to Britain, from Australia to New Guinea, from China to Japan, or Malaysia to Indonesia, from Turkey to Greece and Italy, from Spain to northern Africa, and from Asia to Alaska were stranded and, in the case of island peoples and animals, isolated. A land mass the size of Africa that had been exposed when the waters fell was under water again.

We need a visual here. Picture in your mind’s eye a familiar coastal city, many of which, because they are port cities, lie by a major river: New York, New Orleans, Miami, Galveston, Los Angeles, London, Copenhagen, Lisbon, Amsterdam, Venice, Athens, Tel Aviv, Calcutta, Singapore, Shanghai, Manila, Lagos, Dubai, Kuwait City. Now raise sea level, and along with it the rivers’ level, ten feet. Not all at once. Not a tsunami that would quickly retreat. Just a creeping rise over, say, twenty years. Though one or two feet of water, which is more likely in this century, would be sufficient to change everything, in honor of the Flandrian let’s imagine a rise in sea level of ten feet occurring over the next twenty years that *wouldn’t* retreat again: no more streets, no more walking or driving anywhere; no dry

first levels in any of the buildings; rotting, inaccessible pilings and infrastructure; drowned sewer and water mains and subways; floating sewage, no fresh water, all the circuits blown; fish in bedrooms and corporate lobbies as well as all the restaurants. Some low-lying nations would be almost entirely under water. Leave aside the closed ports and airports, the complete collapse of imports and exporting, forget the ensuing economic chaos—*where would everyone go?* Since there are already people living and consuming resources everywhere that the ground is high, *how would the ones who had to evacuate live? How would what was left get divvied up?*

This is exactly the point. Where *did* everyone go when the flood waters rose? Survivors headed inland, upland, and overland: as was customary, they tried to spread out. But how could they live their traditional big-territory hunter-gatherer, village-gardener, and nomadic lives when there was so much less suitable territory to get a living on and their ways of getting a living were utterly incompatible? They couldn’t, but we’ll get to that in a moment. And how *did* the land and resources get divvied up? Inequitably and often unpleasantly, survival of the fittest and fastest. It was a squeeze play of enormous proportions and what it squeezed us gradually into was? Exactly—cities: concentrations of people and verticality. When you can’t spread out, you build close and you build up and even on top of.

Eden’s Other Endings

But before we assess citifization and its consequences from an ecological point of view, we’ll take a quick look at the other contributors to Eden’s end. With the possible exception of the first, they have parallel movements in our time that signal the end of our Edenic dreams of perpetual material growth and progress.

(1) **Meteorology and molten lava:** Literally, in the two or three millennia after the Flood, the recently challenged occupants of a newly reduced Middle-Eastern landscape were challenged yet again and their landscapes reduced yet again, by a variety of geological and meteorological catastrophes: a series of violent volcanic eruptions alternately raised and sank whole islands, buried lush landscapes under lava, and scalded marine life; lingering, often toxic, clouds of volcanic dust caused crop and plant loss and dispiritingly long winters; post-traumatic tsunamis 700 feet high traveled at speeds up to 350 miles per hour over the Mediterranean and wiped out islands and towns along the Levantine coast; earthquakes, some of which resulted from the retreat of tons of glacial ice from European and northern Asian soils, raised mountains and rerouted rivers; and persistent seasons of meteor showers in the present-day Persian Gulf

region and Egypt flattened some of those first cities like Ur and left craters where villages had stood. Paradise ended with a bang, not a whimper, and early sacred texts adjudged that Earth, or their god, was not thrilled with the thought of more of us living beyond our means in concentrated numbers, thinking we were in charge. (Today, we have climate change resulting in melting sheets and glaciers, sea levels rising, and landscapes reforming and Earth-quaking as heavy ice masses retreat, permafrost melts and aquifers drain.)

(2) **Mass migrations:** As groups and communities of us took over the portions of land on which tradition or catastrophe had left us, there was ever less land in the Middle East that could produce enough food, water, and space for our incompatible lifeways: you can't farm, hunt and gather, and push sheep or goats over the same land. The tribe of Abraham, generally supposed to have been driven out of Ur by a combination of meteor showers and retreating seas full of fish, became nomads again in their quest for a homeland without competitors.

For their part farmers had in some cases become too successful and begun to overrun their territories. Population worldwide, but especially in the Middle East, doubled in the post-Edenic period in only a thousand years. This forced rising generations of farmers to look for land elsewhere. Prodded and led by the boldest among them, they pushed out of the cradle of civilization into India, northern Africa, and Europe, anywhere that the weather, waters, and land could sustain grazing animals and succession crops of grain, pulses (peas and beans), and fiber crops like flax.

Every wave of us out of the original homelands made strangers of us and also conquerors; every wave of us had to pass through or over every previous wave, creating a temporary local or regional critical mass; and every new wave of us had a leading edge that crept as surely over the land as the rising seas had done. (Every prosperous, northern hemisphere nation is facing, not very gracefully, the influx of waves of unemployed, hungry migrants; every so-called Third World nation where labor is cheap is facing, not very gracefully, the influx of waves of outsourced jobs and hungry money.)

(3) **Marauding hordes:** Those waves of farmers often met with an unpleasant fate when they intruded on the grazing lands of pastoral nomads. But bad weather and their own increasing numbers had already put pressure on nomad societies, too. In the two millennia after the flood, several waves of hungry, angry tribes descended on the lands where farmers had squatted and small cities arisen. The clashes between the two lifeways typically were violent. Occasionally, the marauders moved on elsewhere after they'd taken what they'd wanted;



often they stayed, took over the villages and peoples they'd conquered, intermarried with farmers and domesticators, and became farmers and domestic in their turn. And—this is important—often the head men among them and their sons, accustomed to taking over, leading and commanding their mobile tribes, took over and commanded the communities they settled into, becoming chiefs, petty kings, or overlords.

To be fair, ultimately most of those pastoral nomads were marauded in their turn by those relentless waves of migrating farmers.

(4) **Monocropping:** The secret to sustaining increasing numbers of sedentary humans through all four seasons on limited amounts of land with limited local stocks of meat, fish, and forage was to maximize the availability of those local wild, fat-seeded, prolific, relatively nutritious, easily harvested and stored carbohydrate-rich grains and protein-rich pulses. While the growing of one or two crops, and one or two strains of each in any location, did sustain us, it also contributed in a variety of ways to the end of the rather Edenic period we'd experienced.

Farmers worked much harder for more hours than hunter-gatherers, and the nature of the work, involving lots of high-impact, repetitive motion and stoop labor, was hard on farmers' bodies. More people were needed to farm on a scale sufficient to produce enough food for villages that were becoming cities, so children and women went into the fields along with the men. Because its cycles and types of activity were also repetitive, large-scale farming was a less mentally stimulating and culturally rewarding activity than hunting, gathering, and horticulture; it turned skilled, independent, adaptively graceful providers in possession of Earthly expertise into mere laborers and collaboration into drudgery. Since a single-crop diet is far less nutritious than a mixed one, farmers were less healthy and, over time, smaller and more prone than their predecessors to both degenerative

diseases and the contagious diseases that followed us out of Africa, loved to find us in crowds, and often were transmitted by the domestic animals with which we lived intimately.

Plant diversity gives way to plant dominance in a monoculture; whenever there are too many of any one plant in a place, as whenever there are too many of us, that plant is increasingly susceptible to disease, pests, and the ravages of poor or changing weather: famine dogged farmers from the start. Harvested monocrops need to be stored for both seed and lean periods: stored crops attract pests like rats and weevils and have to be distributed from storage *by* someone and guarded until they are distributed. Farmers were often less able to guarantee their subsistence than hunter-gatherer-gardeners because they got their food from a distributor who typically worked for the chief, petty king, or overlord, any or each of whom skimmed a portion, rather than producing directly for themselves and their community. Heavy producers like grains and beans are gluttons for space and water; without regular interventions like investments in soil health, they bankrupt soils and deplete fresh water accounts in a hurry.

(5) **Metallurgy:** Copper, tin, bronze, and iron, discovered in the last of the Edenic millennia, put an end to the Stone Age. They made better tools and weapons than stone did. Improvements in these enabled us to take more from the earth and each other than we had been able to do. Mining abused the land and waters in ways we had not been able to abuse them before and demanded the creation of a literal “underclass” of hard laborers: those who worked in and under the ground. Villages and communities rose on the wealth produced from their mines and fell when the mines were played out. Mining communities were not sustainable and could hit critical mass—too much demand, too little metal—within one or two generations, sending further waves of the dispossessed on the search for new places to live and mine. Metalworkers, mongers, and smiths became the first specialists, and the rest of us became dependent upon them for what they could make that we could not. Metals, things made of metal, gems and things set with gems joined or replaced shells, beads, ochre, and feathers as decorative items. Since they were in shorter supply, widely scattered, and harder to get and thus had to be traded for or bought, they were considered to have a higher value and were among the first status items. Things being used to distinguish those who had them from those who did not signaled the end of equitability of the ascendance of greed. (Today, having information, biological, extraction, and materials technologies divides rich from poor, strong from weak in a similar though with more rapid, far-reaching and long-lasting consequences.)

(6) **Male dominance:** About those chieftains, headmen, and overlords. A combination of at least three forces—the intense competition for living space and livelihood that followed regional critical mass in the Middle East and southeastern Europe; the need for someone or some collection of someones to organize and lead populations of us that had become too large, intermixed, and unfamiliar to each other to organize themselves; and the influx in the last millennia B.C.E. of nomadic peoples that were led and their assets held by men and their sons, the patriarchs—laid the ground for increased violence and, therefore, for the strongest, most aggressive and forceful to fare better than the less strong, aggressive, and forceful.

Typically men, whether village farmers or tribal nomads, were the strongest, most aggressive, and forceful. Consequently, equitable, co-operative, egalitarian communities rapidly yielded to or evolved into male-dominated aggregations of competitive communities. The strongest, ablest, most independently-minded men, some of those to whom the awareness of self and capacity to abuse the privilege came first, became headmen, occasionally by consensus, but more often by default, determination, or defeating the opposition. And so the first cities, and most of them thereafter, were run much the way primate bands had been run rather than the way our earliest human clans and communities had been. In cities as in jungles, the most determined, testosterone-driven, and dynamic chest-thumpers called the shots. (Today, the patriarchs sit in corporate board rooms, global economic councils and scientific laboratories, governmental laboratories and executive mansions “managing” the world.)

(7) **Mobility and markets:** The adaptation to and familiarity with a particular place and everything that lived there, and the relatively sustainable, local lifeway that had characterized the hunting, gathering, horticultural societies yielded of necessity to the forced mobility and dislocation of both humans and materials. Whole cities couldn’t pick up and go where the water, timber, marble, iron, and salt were when those became scarce. Rather the water, timber, marble, iron, and salt had to be brought to where the city was. Larger villages and the first cities became markets for what they had in excess and importers of what they hadn’t enough of. Goods and materials became as mobile as hunter-gatherers had been. The difference was that hunter-gatherer-gardeners who were up close and personal with their territories instinctively stewarded the things they moved amongst and depended on; they kept track of their accounts of natural capital and income. On the other hand, markets chock full of resources taken from distant territories are not inclined to steward anything, but only to move it rapidly for the best price: their capital may be natural,

but their income is cash. Market towns that rose at the crossroads of trade routes and ports rapidly became major cities.

Additionally, when the first cities hadn't enough people to do the work of sustaining themselves, they brought in more people, often against their will. Slavery was a means by which the dominant members of an urban society could get done the work that needed doing. And so, whether we're speaking of the mobility of farmers in floodtides of migration into new territories or the mobility of gangs of slaves moved to the site of construction projects, "by and large, farming" and the systems that supported it "spread by genocide,"³ as Richard Manning writes in *Against the Grain*. (Today, hyper-cities, export free-zones, preemptive wars for control of resources and trade routes, privatization of public resources, enclosure of abstract commons—like patents for common agricultural seeds, "free up" the global market and create the new "Global Economic Order.")

Why Citifization and What's Agriculture Got to Do With It?

The logic of cities and citifization, the reason they happened instead of something else, is that, while as hunters, gatherers, and horticulturalists we'd had to live in the landscape *with* the plants and creatures from which we drew our sustenance, as farmers we couldn't. We couldn't live on land that we were tilling and plowing, grazing, timbering, and mining on a large scale. We could only live, both literally and figuratively, *off* the land, on what we could wrest *from* it. Ever-increasing acreages were needed to supply the necessary resources to populations that were growing by both births and immigrations (whether by choice or capture) and to replace acreages that had been farmed or mined out, overgrazed, or clear-cut. Consequently, we had to keep the space in which we actually lived to a minimum. Huddled masses, along with their less huddled overlords and headmen, crowded into small quarters and stacked up to the extent architectural technologies would allow were the almost inevitable solution.

Those huddled masses, if they were fed even just barely enough, continued to reproduce like milkweed bugs. At the establishment of the first true cities in Mesopotamia around 4500 B.C.E., there were about five million of us worldwide; by 200 C.E., at the height of the Roman Empire, when there were also cities in Asia, India, and Mesoamerica, that number had expanded to 200 million, most of whom were influenced by or lived



in agricultural citifizations. The amount of space we needed to actually *live* in expanded accordingly. Cities, along with their dependent satellite villages, sprawled over the land, knocking down forests and pushing their agricultural and grazing lands before them, the way a bulldozer does, until they hit an obstacle like an ocean or mountain or desert, an insufficiency of a necessary resource like water, fertile soil, wood, or another city or citifization. From a God's-eye view, cities reaching critical mass look the way foaming yeast looks as it rises in a bowl and then expands furiously—until it runs up against the bowl's sides.

When an expanded city's ring of farm and rangeland, forests, water, and mines weren't sufficient to support the continuously growing population, or when the requirements of persisting in the face of perpetual growth and perpetually impending critical mass became too complicated, beyond the scope of the finest minds, the city and its accreted citifization declined. Its population died back or emigrated, and it fell into ruin, lost power, got taken over by uncitified "barbarians" or another citifization. Or it learned to rely on new kinds of imported phantom carrying capacity: it got what it needed from someone or someplace else, by taking it in trade, simply taking it as barbarians might have done, or amalgamating—conquering and colonizing—the place that had it and adding that place's resources and peoples to its own, also as barbarians might have done and been condemned for it. Or it devised or was gifted with new techniques and technologies that allowed it to get at and appropriate what it needed. And sometimes, in a slowly unfolding, unpredictable, often overlapping

We couldn't live on land that we were tilling and plowing, grazing, timbering, and mining on a large scale. We could only live, both literally and figuratively, off the land, on what we could wrest from it.

sequence, as was the case for Athens and Rome, it did all or most of these things.

By this means, nearly everyone within reach of a city's grasp eventually became, whether they liked it or not, to one degree or another citified. By this expansive means, nearly the whole earth has become citified, either living in or supplying cities. Did agriculture or citification come first? It's a chicken and egg question: they evolved together. The spread of fields full of grain were necessary to support growing concentrations of us, and those growing concentrations of us, whether willingly or not, were necessary to keep the fields as full of grain as possible.

The Way It Is

This is the only way cities as we know them can work: they rely utterly on the possibility of ceaseless growth and consumption, both requiring greater numbers of humans to facilitate them. And that is why they cannot help but live beyond Earth's means. Sooner or later a city—and its various exploded versions: city-states, empires, nations, citifications—will always need something it finally cannot get enough of using the techniques and technologies available to it.

Throughout history, when one city or citification has declined, another has risen to prominence on its ruins or somewhere else in the world. Each citification has been unique, each has demanded new capabilities from us as a species, and in each we—some of us—have risen to the occasion. We have ridden the crest of this remarkable wave pattern of rising and falling citifications, the simultaneously thrilling and terrible evolution of methods of survival against the odds that are built into the citified lifeway.

This is the only way cities as we know them can work: they rely utterly on the possibility of ceaseless growth and consumption, both requiring greater numbers of humans to facilitate them. And that is why they cannot help but live beyond Earth's means.

All the way up until now—now there's no place left *on* which, and insufficient fresh water, fertile soils, rangelands, fisheries, and cheap-easy energy left *with* which, to establish another citification when this one fails, as it must since it's still growing like yeast in a bowl. Citification fed by agri-culture is *by its very nature* neither eco-nomical nor eco-logical.

Citification is Uncivilized

Citification as we have known it is uncivilized. Its people-unfriendliness has contributed to rather than mitigated critical mass. I offer nine reasons here why this is so.

(1) **Complication.** Both large-scale agriculture and cities *elaborate and complicate* the efficient, direct, simple methods by which hunter-gatherer-gardeners had provided handily for themselves. They do it on our backs: Untold masses of broken-spirited, stupefied, stoop laborers were needed to farm on a grand scale and build irrigation systems, roads, housing, walls, and fortresses. Huge enslaved numbers of us were needed to grow cotton. Today, millions of us, underpaid, are needed to make what fills Wal-Mart's shelves.

(2) **Systemization.** The tendency of agri-cultures* to complicate matters requires that elaborate but routinized, teachable, universal systems be put in place so that each of the steps in a construction or production process meets up with each of the other steps in the right sequence, at the right time and place, over and over again. You can't build a road or irrigation system, a palace, apartment building, economy, food distribution system, or fleet of ships without being organized. Though we humans are not naturally systematic, such complicated processes had to be, and so we learned to be. Systems of measurement; numerical and accounting systems; mutually agreed upon ways of telling time and annual, linear-time calendars; grammars, languages, writing, flow charts, blueprints, diagrams; and legal and contractual systems are examples of the ingenious methods by which agri-cultures were organized and *systematized*. Unlike natural systems, however, the organizational systems we've invented have often had big appetites and have not typically been self-limiting.

**Editor's Note:* The author uses "agri-culture" in much the same way that we often talk of industrial culture or industrialization in this *Reader*. The author's point is that it was agriculture that began civilization. It did this by creating the surpluses that allowed people to leave the daily work of gathering food to produce more, better and greater surpluses of goods of all kinds. This led to people gathering in larger and larger groups, that is cities, and becoming more and more specialized with control being more and more centralized and systematized. This process seemed forgivable from an Earth perspective until the industrial revolution of the late eighteenth century and beyond discussed elsewhere in this issue. Another of the author's points is that industrial culture is a logical outgrowth of larger and larger agriculture-fed city growth.

(3) **Pyramidization.** But neither have they been self-starters or self-organizing, as living systems like forests are. Synonyms for “systematize”—“organize, arrange, regulate, regularize, methodize, coordinate, and standardize”—assume that a human agent is involved. Someone had to conceive the order, do the arranging, standardizing, and coordinating, and *initiate* the systems that sustained agri-cultures. Someone had to create them. The need for creator-initiators, and for supervisors, managers, and bosses, caused agricultural citifizations to take a very different shape than prehistoric societies had taken, and caused the rest of us to form very different relationships with each other.

If prehistoric societies could be envisioned as having been organized, in the case of hunter-gatherer-gardeners, as circles of us bound together by instinctive and intuitive commitment to place and to collaboration, or, in the case of pastoral nomads, as lines of us following the sun and seasons and our flocks and tribal chiefs across grasslands and steppes, then history’s citifizations can be envisioned as *pyramids*. This analogy is not new, of course. The structures of both ancient societies and modern bureaucracies and transnational corporations have been compared to pyramids for a long time. So long a time, in fact, that we tend to forget how ponderous and bottom heavy, how consumptive of materials, energy, and lives, how firmly planted in place and immovable, how thoroughly inequitable in their distribution of powers, rights, resources, and rewards—how profoundly undemocratic and people-unfriendly—pyramidal social organizations are.

They cannot be otherwise. If you look at a pyramid from the side, it’s not only tall in the middle and spread wide at the base like the profiles of cities; it’s also *stratified*. It is made in layers. The breadth and strength of it are in the two lower strata: the bottom layer—comprised of the slaving, laboring, and underemployed poor—and, for the last 400 years, a middle layer, comprised of the alternately expanding and shrinking middle classes. Ninety-five percent of us in any given age have occupied those two sturdy, stalwart strata. Whereas in the past our task and tendency had been to work together to support ourselves, in pyramidal societies the sole purpose (sometimes the soul purpose) of that ninety-five percent of us at the bottom of the pyramid has been to *support the system*—agricultural citifization—as it has been organized over the past 5,000 years by the fortunate five percent at the top.

If citifization *had* been intentional, this would have represented a “pyramid plot” because what it means practically is that nearly all the labor, earthy resources, assets, and wealth that have been generated at the bottom of history’s pyramid have supported that tiny percentage of us in any citifization who have been at the

top and who have had the power to decide what got done with them and who got the benefit from them. Proportionally, very little has ever trickled down from the top once it arrived there; very little of the grain that was stored in the granaries was ever delivered into the hands that grew it. The famine, disease, and violence that have dogged every citifization resulted from this disparity: the flow of power from the top down, of resources, goods, and services from the bottom up. It does not speak well of an ostensibly civilized social system that it has perpetually denied to the majority of us precisely the necessities we might have thought it had evolved to supply us. It speaks volumes that this state of affairs has not been permanently adjusted even by ostensibly democratic citifizations.

(4) **Centralization.** Looked at from the top, that small pyramid of the powerful few, which from the side is seen to stand atop the larger pyramid of us like a penthouse on an apartment building, represents the seats of power at the center of every citifization. For that is another common characteristic of urban agri-cultures: authority and power, command and control are *centralized*. Decisions, directions, and demands flow from both the top down and the center out. This tends to leave a lot of us in any such culture out of the loops of power and decision-making, which means many of the decisions have not been and are not now made with a real understanding of the natures and needs of those of us at the periphery, or for our benefit.

(5) **Colonization.** As we’ve seen, in order to get what they’ve needed when they’ve used up what’s local, citifizations have had to take over and *colonize* other territories, peoples, resources, and species. Colonies are those peoples and territories that supply the dominant city with what it needs, usually at their own expense. Colonialism has never been very good for the colonials.

(6) **Militarization.** Before new methods were devised by the Global Economic Order, take over and colonization was accomplished *militarily*. Along with artisans, smiths, and other craftsmen, soldiers comprised the first middle layer of citifizations’ pyramids. Armies, police, and over-bosses guaranteed that the will of those at the top was done and that the necessary phantom carrying capacities were routinely expropriated.

(7) **Subjugation.** Because citifizations have no choice but to grow and expand, whether they have accomplished colonization economically or militarily, they have accomplished it by subduing, suppressing, and *subjugating* those who were needed as laborers and those who resisted a new or victorious citifization’s methods, or rejected its advances.

(8) **Homogenization.** Captive and oppressed peoples—pressed into work gangs, packed into cities—have also suffered the resulting compulsory integration. The tendency of citifizations is to forcibly *homogenize* diverse ethnic and linguistic populations. That’s not a bad thing when its purpose is to lead or when it actually does lead to mutual understanding, cooperation, and reciprocity. Citifization’s integrative processes, however, have most often been coercive rather than cohesive. Their ad hoc, indifferent rearrangements of people and peoples have led most often to fear, suspicion, misunderstanding, chauvinism, mutual loathing, conflict, and violence. Ghettos, barrios, and slums are consequences of citifization’s predispositions to both stratify and homogenize.

(9) **Commodification.** Wrenched away from our wild worlds and relatively Edenic communities and villages, we lost touch with Earthy places, Earth spirits, and Earth’s life. Entities and living systems that we had alternately feared and revered but that we always had recognized as vital, throbbing with life and significance and in league with us, now were converted into “things” we used or needed, things the fortunate few wanted, things that came from *outside the city*. They became *commodities* in regard to which their *quantity* meant more than their quality, as corn does when it is not eaten out of the garden but is processed, put in a box and sold as cereal, or converted into a pork chop or steak; as steak does when it does not come from the family’s beef critter but from Sam’s Club or Costco.

Given these characteristics of citifization, it is not difficult to see what happened to the possibility of realizing civil-ization. It’s also not difficult to see how dense,

growing populations of restive strangers, left to their own devices in de-natured and unfamiliar surroundings, separated from the earthy sources of their survival, following orders from a distant “command central,” and competing for whatever might trickle down from the tales of the fortunate few at the top, would contribute unwittingly to citifization’s consumption of more resources than any place could permanently provide.

Famine, disease, pestilence, vicious competition, slavery and oppression, crowding, forced integrations, poverty, ghettoization, patriarchy, aggression, conflict, conquest, exile, forced (or woefully underpaid) labor, genocide, and repeated migrations: it is a harsh view of civilization. But keep in mind that we could retain its good and honorable qualities without retaining the package they currently come in. In the next issue of *The Ecozoic Reader*, we will contemplate how we might actually try out the kind of civilization in which “civil” would mean not “citified” but “well-mannered” and “Earth-friendly.”

¹ The word “city” comes from the Latin, *civis*. From the beginning, those were civilized who lived in cities, or, more specifically, who were *citizens* of cities. As well, “polite” derives from the Greek, *polis*, which means “city.” Like being civil or civilized, being polite originally meant nothing more than that you were an accepted resident of a city. Everyone else occupied a lower station in society.

² I expand on these causes and their counterparts in our time in two works-in-progress: *Critical Mass: Living Beyond Earth’s Means*, *Finding New Ways of Living Within Them*; and *The End of Eden: Paradises Lost, Now and Then*.

³ *Against the Grain: How Agriculture Has Hijacked Civilization* (New York: North Point Press/Farrar, Straus and Giroux, 2004), 45.

The Poetry of John Clare: Lessons for the "Ownership Society"

Introduction by Ellen LaConte

"Peasant poet," John Clare (1793-1864), had the great misfortune, by his own reckoning, of being born in Northamptonshire in a period when the last of the common lands of Britain were being "enclosed"—privatized—by acts of Parliament. Crushing poor as he was despite brief periods of fame, the commons were his only wealth. But between the early 18th and mid-19th centuries, four thousand Parliamentary acts removed some seven million acres of such common wealth into private hands. The New Domesday Book of 1876 reported that by then, when the final General Enclosure Act of 1845 had commoditized nearly all of England's remaining commons, less than six percent of the population owned 98.5 % of the land. Enclosed commons, redefined as "property," garnered higher rental fees for their landed lords and increasingly high purchase prices for their eventual developers. As well, the rural poor, who had sustained themselves collectively since the Middle Ages on communally stewarded meadows, heaths, moorlands, forests and unfenced open fields needed to be forced, if they couldn't be encouraged, to relocate to the Dickensian cities whose textile mills required huge numbers of cheap, desperate hands. Better than any history, John Clare's lyrical, bereft, indignant response to the experience of enclosure captures the trespass it was. Having suffered the lunacy of industrialization, he died in a "lunatic asylum." The act to enclose his home village and neighboring parishes, passed when he was sixteen, inspired his earliest dated poem and steeled his determination to honor every precious bit of "his" world.

— Ellen LaConte

The Moors*

Far spread the moory ground, a level scene
Bespread with rush and one eternal green
That never felt the rage of blundering plough
Though centuries wreathed spring's blossoms on its brow,
Still meeting plains that stretched them far away
In unchecked shadows of green, brown and grey.
Unbounded freedom ruled the wandering scene
Nor fence of ownership crept in between
To hide the prospect of the following eye—
Its only bondage was the circling sky.
One mighty flat undwarfed by bush and tree
Spread its faint shadow of immensity
And lost itself, which seemed to eke its bounds,
In the blue mist the horizon's edge surrounds.
Now this sweet vision of my boyish hours,
Free as spring clouds and wild as summer flowers,
Is faded all—A hope that blossomed free,
And hath been once, no more shall ever be.

Enclosure came and trampled on the grave
Of labour's rights and left the poor a slave,
And memory's pride, ere want to wealth did bow,
Is both the shadow and the substance now.
The sheep and cows were free to range as then
Where change might prompt, nor felt the bonds of men:
Cows went and came with evening, morn and night
To the wild pasture as their common right,
And sheep unfolded with the rising sun
Heard the swains shout and felt their freedom won,
Tracked the red fallow field and heath and plain,



* From "I Am": *The Selected Poetry of John Clare* (Farrar, Straus & Giroux, 2003), edited by Jonathan Bate, whose biography of the poet, *John Clare*, has just been released by the same publisher.

Then met the brook and drank and roamed again—
The brook that dribbled on as clear as glass
Beneath the roots they hid among the grass—
While the glad shepherd traced their tracks along,
Free as the lark and happy as her song.

But now all's fled and flats of many a dye
That seemed to lengthen with the following eye,
Moors losing from the sight, far, smooth and blea,
Where swopt the plover in its pleasure free,
Are vanished now with commons wild and gay
As poets' visions of life's early day.
Mulberry bushes where the boy would run
To fill his hands with fruit are grubbed and done,
And hedgerow briars—flower-lovers overjoyed
Came and got flower pots—these are all destroyed,
And sky-bound moors in mangled garbs are left
Like mighty giants of their limbs bereft.

Fence now meets fence in owners' little bounds
Of field and meadow, large as garden grounds,
In little parcels little minds to please
With men and flocks imprisoned, ill at ease.
Each little path that led its pleasant way
As sweet as morning leading night astray,
Where little flowers bloomed round, a varied host,
That Traveler felt delighted to be lost
Nor grudged the steps that he had ta'en in vain
When right roads traced his journey's end again;
Nay on a broken tree he'd sit awhile
To see the moors and fields and meadows smile,
Sometimes with cowslips smothered—then all white
With daisies—then the summer's splendid sight
Of corn fields crimson o'er, the "headache" bloomed
Like splendid armies for the battle plumed;
He gazed upon them with wild fancy's eye
As fallen landscapes from an evening sky.

These paths are stopped—the rude philistine's thrall
Is laid upon them and destroyed them all.
Each little tyrant with his little sign
Shows where man claims, earth glows no more divine.
On paths to freedom and to childhood dear
A board sticks up to notice "no road here"
And on the tree with ivy overhung
The hated sign by vulgar taste is hung
As though the very birds should learn to know
When they go there they must no further go.

Thus, with the poor, scared freedom bade good-bye
And much they feel it in the smothered sigh,
And birds and trees and flowers without a name
All sighed when lawless law's enclosure came,
And dreams of plunder in such rebel schemes
Have found too truly that they were but dreams.

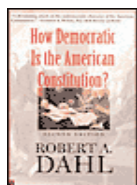


Ecozoic Book Reviews

By Herman F. Greene and Ellen LaConte

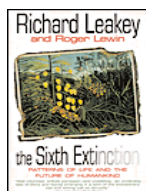
These book reviews are organized around the questions, if we are moving into an ecological age “Where are we?” and “How did we get here?” The reviews under “Where are we?” belong with Vol. 4, No. 1 (2004) of this *Reader*. These reviews will be inserted into that issue in the web version of the *Reader*, which may be viewed at www.ecozoicstudies.org. Similar reviews will appear in the next two issues of the *Reader* on “Where are we going?” and “How do we get there?” We hope readers of this publication will recommend additional works that have informed and influenced them. Bibliographical information (authors, editors, edition, publisher, city of publication, and date of publication) may be sent to ecozoic@mindspring.com. Please also send a short annotation or a longer review.

Where Are We?



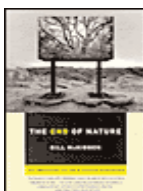
Dahl, Robert A. *How Democratic Is the American Constitution?* New Haven, CT: Yale University Press, 2001.

Succinct—under 200 pages—and very accessible. A legendary constitutional scholar reconsiders our Constitution, held by many Americans to be the world’s highest expression of democratic vision and governance. Shattering the myth that the U.S. Constitution has been the best or should be the preferred model for other democracies, he offers proofs that a goodly number of other democracies are in fact more democratic, as permitted and guided by their constitutions, than ours is. He looks at the electoral college, bicameralism, judicial review, majoritarianism, and unequal access and representation among other categories in which our Constitution lays a less than level political playing field and then proposes that to “preserve and improve” conditions that would be favorable to democracy (such as, rights, liberties and opportunities for effective participation) would accomplish far more in achieving a more democratic order than any changes in the constitution.” In a concluding chapter, “Prospects for a More Democratic Constitution,” Dahl suggests we need a strategy “designed to achieve greater political equality within the limits of the present American Constitution. A major objective of such a strategy would be to reduce the vast inequalities of the existing distribution of political resources. The characteristics of the Constitution that I have described in this book will, of course, stand as obstacles to the success of such a strategy, for they arm those who possess the greatest resources with strong defenses—opportunities to veto changes—against all efforts to reduce their privileged positions.” (Reviewed by Ellen LaConte)



Leakey, Richard and Roger Lewin. *The Sixth Extinction: Patterns of Life and the Future of Humankind.* New York: Anchor Press, 1995.

Richard Leakey is one of the world’s leading paleoanthropologists and formerly was head of Kenya’s wildlife preservation program. Roger Lewin is a leading scientific writer. Together they explored the mysteries of the evolutionary history of life on Earth, which is not the gradual evolutionary advance that Darwin understood. Rather this is a history of punctuated equilibrium and five great periods of mass extinctions. They discuss how life continued for six-sevenths of Earth’s history in numbing single-cellular sameness. Complexity eventually arose 530 million years ago and within a period of only a few million years—during the “Cambrian explosion”—“all the major body plans, or phyla, that represent life on the planet today were invented in a frenzy of evolutionary innovation.” Equally as important as the periods of evolutionary innovation were the five mass extinctions, the greatest of these being the extinction at the end of the Paleozoic era, 225 million years ago, when 95% of marine animal species, and almost as many on land, vanished. The authors discuss with keen insight the way ecosystems operate, species evolve, and species die. After setting the stage, the final task for the authors is to discuss their belief that human intervention in ecosystems is resulting in the sixth extinction, with the prospect that in the twenty-first century half of extant species will disappear. (Herman Greene)



McKibben, Bill. *The End of Nature*, 2nd ed. New York: Anchor Books, 1999.

Nature without the presence of humans has its own way. In general, changes occur over long periods of time. McKibben observes that humans are bringing about an end to natural processes as they occurred

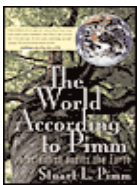
before humans. Acid rain falls, streams are diverted, greenhouse gases are released, vast stretches of natural field and fauna know “nature” is ending. One reaction to this is defiance: we proceed with the human project of building a Utopia and controlling nature. The other is deep ecology: we understand that the rest of nature counts as much as we humans do. He asks, “Which of these paths will we choose?” (Herman Greene)



Paehlke, Robert C. *Democracy's Dilemma: Environment, Social Equity, and the Global Economy.* Cambridge, MA: MIT Press, 2003.

The author is Professor and Chair of the Environmental and Resource Studies Program, Trent University, Canada.

“Democratic societies face a dilemma. Global economic integration produces a need for global political integration. Without it, national, state, and local governments are under pressure to forgo environmental protection and social programs in order to be competitive. At the same time, global governance presents problems because of its scale and its inaccessibility to citizens. This book describes the consequences of this dilemma—such as political cynicism and lack of democratic participation—and proposes ways to deal with it.” (From the book jacket.) Without dismissing globalization entirely, the author suggests, instead of an entirely economic bottom line, a three-part accounting system that includes environmental and social as well as economic factors. He proposes changes in international trade agreements and ways to improve domestic democratic effectiveness. Paehlke analyzes the anti-democratic effects of electronic (digital) capitalism and the ascendant corporate media monopoly. See especially the chapter “Community, Work, and Meaning: Everyday Life as Politics.” An entirely thoughtful, inspiring, readable treatment of the issues hampered only by the limitations Robert A. Dahl confessed to: those in power aren’t apt to, and aren’t likely to be required to, take his advice. This book is for those who still believe in the possibility of gaining political leverage and making a difference. (Ellen LaConte)



Pimm, Stuart L. *The World According to Pimm: A Scientist Audits the Earth.* New York: McGraw-Hill, 2001.

Stuart Pimm, a preeminent conservation biologist now at Duke University undertakes to write a “global natural history” in order to assess the state of the globe’s biological accounts. Most of his data is taken, he says, from the pages of *Nature and Science* magazines, but his presenta-

tion takes the form of a global odyssey filled with his own personal stories and observations, with scientific data cleverly interspersed throughout. From the jacket cover we learn that humans use 50 percent of the world’s fresh water supply; consume 42 percent of the world’s plant growth, and that we are liquidating animals and plants 100 times faster than the natural rate of extinction. He makes no attempt to hector or preach, but he does not hesitate to conclude, “What is absolutely certain is that humanity’s future will be massively different from the past.” He intends the book to fill the gap between what scientists are learning about the condition of life on Earth and what is known to the public. He does not believe the future is hopeless, but rather that knowledge and understanding can lead to decisions that will bring healing to the planet. (Herman Greene)



Speth, James Gustave. *Red Sky at Morning: America and the Crisis of the Global Environment.* New Haven, CT: Yale University Press, 2004.

Speth provides an analysis of environmental governance from 1980 forward and suggests the causes of its failure. Speth is Dean of the School of Forestry and Environmental Studies at Yale University, and was founder of the World Resources Institute, co-founder of the Environmental Defense Fund and an environmental adviser for the Carter and Clinton administrations. The book begins with a summary of what has happened to the environment since the beginning of environmental regulation in the 1970s. Despite this regulation, according to Speth two “megatrends in environmental deterioration [stand out,] increasing pollution and biological impoverishment.” The causes of this, according to Speth, are land use conversion, land degradation, freshwater shortages, watercourse modifications, invasive species, climate change, ozone depletion, and pollution. The recognition of environmental problems over the last 50 years have led to the adoption of numerous global treaties, the establishment of environmental regulatory agencies in national governments and three UN-sponsored Earth Summits, the most well-known of these being the 1991 Earth Summit in Rio de Janeiro which led to the adoption of Agenda 21, a comprehensive and massive set of proposals for global environmental management. Speth analyzes why these regimes have not succeeded in stopping the rapidly increasing deterioration of the environment. He proposes an eight-fold way to a sustainable future: (1) stable or smaller world population, (2) massive reduction of poverty, (3) environmentally benign technologies, (4) environmentally honest prices,

(5) sustainable consumption, (6) transition in knowledge and learning for environmental literacy, (7) strong and effective government action, and (8) an aroused and motivated citizenry. (Herman Greene)



United Nations Development Programme, United Nations Environment Programme, World Bank, and World Resources Institute. *People and Ecosystems: The Fraying Web of Life*. Washington, D.C.: World Resources Institute, 2000.

In 1999 leading scientists undertook a Pilot Analysis of Global Ecosystems (PAGE). The Page study assessed five of the world's major ecosystem types: (i) agricultural ecosystems, (ii) coastal ecosystems, (iii) forest ecosystems, (iv) freshwater systems, and (v) grassland ecosystems. The results of the study are reported in this book. The overall intent of the book was to take stock of global ecosystems as a pilot for continuing assessment, increase awareness of the sub-systems within ecosystems, promote holistic approaches to ecosystems, and demonstrate that much can be done to improve ecosystems management by developing wiser policies and more effective institutions. This book presents a comprehensive overview of the health of Earth's ecosystems. It inspired the Bill Moyer's special, "Earth on Edge," a videotape of which is available from World Resources Institute. (Herman Greene)

How Did We Get Here?

Adams, E. Maynard. *Philosophy and the Modern Mind: A Philosophical Critique of Modern Western Civilization*. Lanham, MA: University Press of America, 1985.

Adams book can be read together with Whitehead's, *Science and the Modern World*, discussed below. Both take as their starting point the premise that scientific materialism has significantly impacted philosophy and culture. Whitehead reflected on how science brought about a new understanding of the nature of reality. Adams emphasis is on how scientific materialism has affected the understanding of what it means to be human. Prior to the modern period, Adams says, humans asked "What does life require of me?" based on some conception of values. Beginning in the modern period, however, the question became "How can I get what I want?" Science gave the means to control nature and at the same time removed all values that would prevent one from seeking maximum control and satisfaction. In a world thought to be determined by meaningless predictable events that are subject to control, questions of value become questions of power. What we understand as values are only subjective and relative; and, thus, to espouse one value system over another is to

assume an ideological position rather than one based on objective realistic values. The second part of the book is devoted to Adams' philosophy of value realism. This book is intended for academic philosophers. A more easily accessible version of Adams' history and critique of the modern period is presented in his book, *A Society Fit for Human Beings* (which will be reviewed in the edition of this *Reader* on "How Do We Get There?"). (Herman Greene)



Beard, Charles A. *An Economic Interpretation of the Constitution of the United States*. 1986 paperback ed. New Introduction by Forrest McDonald. New York: The Free Press, 1986. Original edition New York: Free Press 1913.

A leading-edge Columbia University history professor, Beard created a much bigger stir with the 1913 release of this book than he even hoped. It was the first such work to reconsider long-revered, unquestioned aspects of American history in the harsh light of mundane contemporary forces like inflation, deflation, debt, currency stability, trade imbalances, the distribution of private property (called 'personalty' in the jargon) and wealth and the access they provided their possessors to commercial and political power. Or the lack of it.

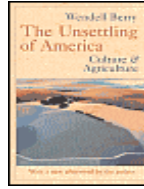
Much affected by the mounting backlash against the Progressive movement, pressures from powerful corporate and congressional figures to amend and use the Constitution to prop up Robber Baron perquisites, increased centralization of power in Washington, an imperial presidency, mounting talk of war, and the increasing distance money power put between the average American and his increasingly global-minded government (sound familiar?), Beard buried himself in mostly never-before-studied Treasury Department records hoping to learn from original sources rather than earlier interpreters whether economic self-interest might have influenced the framers as it seemed to influence every politico in his day. (His persistent concern that such invaluable records were falling into dust led to the establishment of the National Archive in the 1930s.)

To the extent it was possible, Beard assessed the economic circumstances of every one of the participants in the constitutional process in the period leading up to the convention through to the period of ratification, and also the chaotic, limping, massively deficated economy of the late colonial period itself. Key lines from the conclusion of what he termed his "long and arid survey" reveal why his book has been an often reprinted bestseller and school text and was considered scandalous, even heretical, by many historians and seminal by many others (all of whom, either way, benefited from the availability of the ever-expanding public archives).

“The movement for the Constitution of the United States was originated and carried through principally by four groups of personal interests which had been adversely affected under the Articles of Confederation: money, public securities, manufactures, and trade and shipping.” The first steps were taken “by a small and active group of men immediately interested through their personal possessions in the outcome of their labors. “A large propertyless mass was, under the prevailing suffrage qualifications, excluded at the outset from participation (through representatives) in the work of framing the Constitution. . . . The Constitution was essentially an economic document based upon the concept that the fundamental private rights of property are anterior to government and morally beyond the reach of popular majorities. . . . In the ratification of the Constitution, about three-fourths of the adult males failed to vote on the question . . . either on account of their indifference or their disfranchisement by property qualifications. . . . [Consequently] the Constitution was ratified by a vote of probably not more than one-sixth of the adult males. . . . [T]he line of cleavage for and against the Constitution was between substantial personal interests on the one hand and the small farming and debtor interests on the other. . . . [I]t was the work of a consolidated group whose interests knew no state boundaries and were truly national in their scope.”

It was not quite as simple as this, of course, nor were the framers all or consistently so crass and self-serving as it suggests. Historian Forrest McDonald, author in the 1950s of one of the critiques but a decade later of a work in confirmation of the principles of Beard’s thesis, sets the record somewhat more straight in his masterful introduction. But, like him, many former anti-Beardsian’s, whom he names, have had to admit that while some of his specifics were in error, the drift of Beard’s conclusion was not far off the mark. Constitutional scholar Robert A. Dahl concurs to the point that he offered his own countermeasures in *A Preface to Economic Democracy* (University of California Press, 1985).

Beard’s book is important, as a model, for Ecozoans, Progressives, Populists, Greens, you name it. The kinds of resources scholars were only beginning to have available to them a century ago are now available to us at the touch of a keyboard—or at least should be. It’s time someone took his book as a pattern and wrote up, in a voice and format as persuasive as Beard’s was, the *Who Owns What?* and *What and Who Owns Who?* of legislators, cabinet members, advisors and others in positions of influence in current American politics. The American government is still, even more profoundly, the work of a consolidated group whose interests know neither state, nor ethical boundaries. (Ellen LaConte)



Berry, Wendell. *The Unsettling of America: Culture and Agriculture.* San Francisco: Sierra Club Books, 1977.

This book is a classic of the modern environmental movement. Published in 1977, it describes the disturbing factors of our dislocation from the land and our own bodies. Berry chronicles how the first European settlers never intended to be “here” in America. Columbus, for example, was looking for India. Berry observes that this “never intending to be here” has persisted throughout the white man’s occupation of America. He says that the ecological crisis is a crisis of character: there is a vast split between what we think is right and what we do. This ecological crisis is also a crisis of agriculture as conservationists seek to keep pristine areas pristine and leave others for human exploitation. The agricultural crisis is, in turn, a crisis of culture: the modernization of agriculture has led to the disintegration of farming cultures and communities. Modern agriculture is business driven by the use of fossil energy, petrochemicals and fertilizers. The connection between humans, land and life and the cycles of life with the necessity of returning life to the soil has been broken. Thomas Jefferson praised the agricultural way of life relative to that of the “artificers,” the industrialists. Berry calls Americans back to an integral, simpler, more basic life with humans working in harmony with animal and soil. (Herman Greene)



Brague, Rémi. *The Wisdom of the World: The Human Experience of the Universe in Western Thought.* Teresa Lavender Fagan, trans. Chicago: The University of Chicago Press, 2003.

Brague’s subject is the human experience of being “in the world.” As humans we are both aware that *we are*, and, also, that we are *in a world*. What we understand this world to be is what Brague calls cosmology. He distinguishes cosmology from cosmography, our physical map of the Earth/universe (whether the Earth is flat, sits on the back of a turtle, circles the sun, or is part of an expanding universe), and cosmogony, the story of how things came to be. Though related to these other terms, the meaning of cosmology to Brague, “as is implied by the word *logos*, is not that of a simple discourse, but an account of the world in which a reflection on the nature of the world as a world [(as some kind of existing reality with common features throughout)] must be expressed.” Cosmology is reflexive, which is not always the case with cosmography or cosmogony where unreflexive description or myth will do. Because it is reflexive, cosmology requires an experiencing subject—the human being—and “must therefore necessarily imply something like an anthropology.” This does not make cosmology merely subjective, nor reduce

it to the characteristics of humans. It “encompasses a reflection on the way in which man can fully realize what he is—an ethics.” Thus we might say that as humans construct their understanding of the physical aspects of nature, they also construct their understanding of what it means to exist in this physical reality—what it is possible for them and others to do in such a world, what the ethical character of the world is, and what ethical fulfillment in such a world is. Thus “world” is more than a description of physical reality, it is a reflection on what it means to be in the world. This understanding is cosmology.

With this as introduction, he begins with an account of the “experienced cosmology” of pre-modern humans (in this case, “pre-modern” meaning before the “Axial Age” of 600-200 B.C.E.). In the pre-modern experience there was no concept of “world,” no word designating all of reality in a unified way. There were descriptions of heaven and earth and myths of origins, and there were catalogues of things that constituted the physical-spiritual reality in which humans lived—stars, clouds, winds (e.g., the “Great North Wind”), etc.—but “no sense that the humanity of man [could be accounted for] out of considerations related to the structure of the universe.”

It was not until the Greeks that a sense of “cosmos” arose, one that encompassed humans and the universe, one where humans would grapple with who they are and what they should be from the nature of the “world.” The Greek word for world was “*kosmos*.” “Pythagoras was the first to call ‘*kosmos*’ the encompassing of all things . . . because of the order (*taxis*) that reigns in it.” The world had a moral order that governed both nature and humans. In Plato “Good is the supreme principle. Good exercises its sovereignty over physical reality, but it equally rules the conduct through which the human individual turns his soul into a coherent whole (ethics) and gives the polis where his humanity must come to its fulfillment the unity without which the polis must fall (politics).”

The other great model (though not the only other model) of the cosmos in antiquity was the Abrahamic model carried forward in the sacred texts of the Hebrews, Christians and Muslims. Brague summarizes this model as follows: “The world is created by a good God, who affirms at every stage of creation that which he has just freely brought into being is ‘good,’ indeed in his ordered edifice ‘very good’ (Genesis 1). But the phenomena that seem most sublime within the physical world are not those of the highest level. They are in fact of lesser value compared with man, whom they serve. Man, therefore, is not meant to govern himself according to the phenomena of the world but must seek elsewhere for a model of behavior. In the final analysis, that model is God himself and God manifests himself less

through his creation than through a more direct intervention. He can either give the world his law, as in Judaism and Islam, or he can indeed enter into that world through incarnation, as in Christianity.”

These two models, one seeing the cosmos as ordered goodness from which humans are derivative, the other seeing nature and humans as independently created with nature being subservient to humans and all of creation being of a lower order than the world of the divine, have intertwined with each other in Western thought and continue in importance today.

A third model entered Western thought in the wake of the scientific breakthroughs in the sixteenth century and afterwards. Brague calls this “the end of the world,” a return to the pre-Axial Age “absence of world” but in a different sense. “The image of the world that emerged from physics after Copernicus, Galileo, and Newton is of a confluence of blind forces, where there is no place for consideration of the Good.” The world was no longer a whole, but a result of disparate forces. Cosmology gave way to cosmography—the stars, for example, no longer reflected the order of heaven, an ethical model to which one was to adapt oneself, but lacked any significance until some new theory might account for the facticity of their existence. In the words of Nietzsche concerning the new astronomy, “‘Since the time of Copernicus man distances himself from the center, and moves toward X.’”

Cosmology also gave way to cosmogony, as a focus on theories to account for the origins of nature became more important than the truth expressed in it. To the extent that post-Copernican science revealed a truth about nature, it was of its moral indifference.

“[Consequently,] cosmology lost its relevance in two ways . . . : on the one hand, its ethical value was simply neutralized as the cosmology was considered amoral; and on the other hand it was more seriously discredited as being immoral.” Further, in this modern view (in this case “modern” meaning post-sixteenth century C.E.), humans appeared as no exception to the new laws of nature. Morality was reconceived, in the liberal movement, to emulate amoral nature’s pursuit of self-interest as the way to the good; in various strains of existentialism, as a protest against nature’s indifference; or, in reactionary circles, as an “un-worldly” adherence to traditional, ideological, or religious values, in the latter case, sometimes as a protest against modern science.

Thus, the “world” that came into being in antiquity and had endured through the medieval period gave way to “worldviews” each of which was, in principle, equivalent in the light of modern scientific understandings that would validate none of them. “The long use of *world* to mean an object so patterned and unified as [to constitute] the geocentric *kosmos*” gave way to the term “universe”

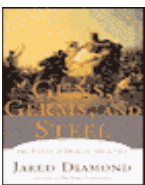
to mean the totality of things, whatever this may be, whether good or bad or ordered or chaotic. Further, from this acosmic vantage point, good was no longer understood to be in nature, it had to be introduced by humans “by force, by taking nature against the grain . . . inside the only realm that [was] within the scope of human action . . . the earth. Modern technology defines itself through the undertaking of domination, through a plan to become, according to the famous epigram of Descartes, the ‘master and possessor of nature.’”

In an interesting passage, which Brague never develops, he writes, “We again see the beginnings of a cosmology with [Sir Arthur] Eddington, starting with whom we have a unified, henceforth dynamic model of the unity of the cosmos.” Instead he ends his book with an account of the contemporary search for a “world” in subjectivity. He discusses, for example, Heidegger’s phenomenology where the primal experience of humans is that of being “thrown into an alien world.” From this perspective, the unity of the “world” does not come from the *kosmos*, but from within the human subject. This being the case, the world is a lonely place to be. In the next edition of this journal on “Where are we going?” we will follow up on Brague’s undeveloped idea that in Eddington’s thought we have the beginning of a new cosmology. In this idea is a great deal of what the ecozoic understanding is about. (Herman Greene)



Carson, Rachel. *The Silent Spring*. Greenwich, CT: A Fawcett Crescent Book, 1962.

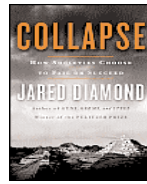
This is the book that gave birth to the modern environmental movement. Until Carson’s book few challenged the proposition of “better living through chemistry.” Consequently chemical use multiplied with little regard for its secondary effects. Carson wrote convincingly about how the indiscriminate use of pesticides could harm the environment and humans. She critiqued the quest for the “conquest of nature” and called attention to the ecological dimensions of nature: organisms and systems interacting with each other. The book describes how twentieth century technologies dramatically changed human impact on nature. It still reads well. When one views a crop duster spraying insecticides one can’t help but wonder whether the lessons of this book have yet been learned. (Herman Greene)



Diamond, Jared. *Guns, Germs and Steel: The Fates of Human Societies*. New York: W.W. Norton, 1999.

In this Pulitzer Prize winning book, Diamond attempts to answer the question, “Why did history unfold differently on dif-

ferent continents?” His book traces human development on all continents from 13,000 years ago with a particular emphasis on the first 10,000 years, before the widespread use of writing. Diamond’s answer is based on geography. A look at the index has no mention of the names of modern scientists or the scientific revolution. He finds that geographical differences exerted the largest influence on the development of societies. This book provides an unusual and insightful perspective on how we got here. His emphasis on geography also provides a starting point for envisioning the future against the globalization, which purports to eliminate geographic distinctions. (Herman Greene)



Diamond, Jared. *Collapse: How Societies Choose to Fail or Succeed*. New York: Viking, 2005.

Diamond was on a roll after the success of the aforementioned work and was given money, and time to travel the globe researching this 560-page counterpart that considers how the civilizations and societies that succeeded in rising came to fall. Loaded with anecdote, first-hand accounts, original research and old research revisited, Diamond’s second magnum opus suggests there are five interacting sets of factors that may contribute to the shape and timing of a society’s decline and recovery or collapse: environmental damage, climate change, hostile neighbors, friendly trade partners, and—often thorniest of all—its own responses to these forces. The failed societies he studied include, from the past, Easter Island, Pitcairn Island, the Anasazi and their neighbors in the Chaco Canyon region, the Maya, Vikings, and Christian European Greenlanders, and, from the present, Rwanda and Haiti. The causes of their failures are not surprising, but Diamond handles them in such a way as we really see them for the first time and, even before he tells us, can imagine what they have to teach us.

Just as interesting is his small selection of societies that have succeeded against the first four of the above odds because, for a variety of reasons, they responded soon enough and appropriately: the peoples of a tiny Pacific island called Tikopia, Tokugawa era Japan (1603-1867), Inuit Greenland, the Dominican Republic, and the New Guinea highlands. For those that succeeded the key was responsive, wise, situationally appropriate decision making, whether from the top down or the bottom up. When it was clear weather was changing, supplies were growing short, renewables were being over used, old enemies were too strong or old friends not strong enough, for example, these peoples didn’t put their heads in the sand, they changed.

For our purposes, Diamond’s most instructive chapter—given that nearly all the historic causes for collapse

are upon us now—may be the one that considers why some societies fail to grasp their changed realities and do something about them, why they, he says, *choose* to fail—or at least do not choose to succeed. He gives these markers: (1) For whatever reasons (he offers several), they fail to anticipate a problem before it arrives full blown. (2) They misperceive or fail to perceive a problem even after it has shown itself (for which he also offers explanations including “creeping normalcy” and “landscape amnesia”—the change is so gradual no one notices). (3) Frequently and insidiously, even when they perceive the problem, they fail to address it, often because of a clash of interests or the self-protection of special interests despite the long-term threat even to them (red flag this one). (4) Their value system or culture is not equipped to sponsor or permit the necessary changes (another red flag). (5) The messengers bearing the bad news of the crisis are underappreciated or disliked (or deemed unpatriotic?). (6) Simple psychological denial.

In his concluding chapter, Diamond second-guesses his potential naysayers and handily disputes their naysaying by suggesting the very interconnectedness that threatens to bring about collapse could prevent it, so there’s some reason for hope. There are plenty of things we could do to avoid our predecessors’ fate. Having already identified China and Australia as examples of nations that may find a way to do this, he reminds us that if China doesn’t, then, oh, dear for all of us. There’s not much precedent for social systems as big as our global economic one getting it right, but then since there’s no precedent for such a large socio-economic system, there’s no precedent for its getting it wrong either. An endnote for this chapter makes suggestions for actions groups and individuals may take. (Ellen LaConte)



Eisler, Riane. *The Chalice and the Blade*. New York: Harper Collins, 1987.

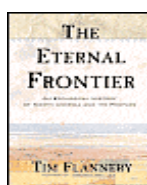
Eisler was known before the publication of this work as a futurist. Her efforts to understand where we are and ought to be going led her to investigate how we got where we are. A proudly feminist book, it has been a cult phenomenon. Eisler’s premises and interpretations of historical data have been sharply criticized by those who believe the data neither prove the existence of prehistoric matriarchal—what she calls “gylanic”—societies, nor indicate that invasions by patriarchal Kurgan nomads brought them to an end in the last few millennia B.C.E. My own study of recent research supports most of Eisler’s assessment, much of which was based on the controversial work of archaeologist Marija Gimbutas. Eisler asserts that members of prehistoric,

women-valuing societies—“symbolized by the life-sustaining and enhancing Chalice”—lived in instinctive “partnership” with each other, Earth, and other living things. In due course, masculine-styled, male-valuing patriarchies of both the nomadic/barbarian and the so-called civilized sort—symbolized by the “lethal blade”—triumphed over Earthly values along with the women who espoused them and substituted androgynous and dominance models of relationship to Earth and each other for the original partnership/gylanic models. Like Thomas Berry, Eisler holds that there has been a “breakdown of evolution” that has left us in charge and that “human evolution is now at a crossroads. Stripped to its essentials, the central human task is how to organize society to promote the survival of our species and the development of our potentials,” including our potential for partnership. Eisler left it to subsequent titles to suggest how this might be achieved. (Ellen LaConte)



Eldridge, Niles. *Dominion*. Berkeley: University of California Press, 1995.

Niles Eldridge, a paleontologist at the Museum of Natural History in New York, examines humans as a unique species in Earth’s history that have now come to dominate the planet. He tells the story of humans from their origins to the present. The uniqueness of humans, he writes, is in their culturally mediated approach to living in the natural world. Something happened 2.5 million years ago when humans began to fashion tools and later learned to control fire. Humans broke away from the rhythmic patterns of extinction and evolution common to other species. Even more importantly, with the beginning of agriculture 10,000 years ago, humans took control of their own food supply and became the first species to be able to live outside the confines of the local ecosystem. In the last two centuries, humans have become the only species to interact as a whole with the global natural system. It is this history and its implications that Eldridge ably presents in this short book intended for the lay reader. (Herman Greene)



Flannery, Tim. *The Eternal Frontier: An Ecological History of North America and Its Peoples*. New York, Grove Press, 2001.

We think we know what the North American continent is and has been and what its plants and fauna are and have been. Just look at a map, just look around and see. The continent, however, has a developmental, plastic history that Flannery presents wonderfully. He begins his account 65 million years ago with the meteor impact that resulted in the fifth extinction, ending the Mesozoic Era and beginning our present Cenozoic Era. Before that

event, North America existed as two isolated islands separated by the broad, shallow Bearpaw Sea, and it was in this sea that the meteor came down. In the last 65 million years, the continent has been warm from Alaska to Panama, frigid during more than one ice age, and the home of elephants, lions and tigers and other large beasts that are now only seen in museums. It was the last continent to have human impact with the arrival of the Clovis hunters 13,200 ago and with them the death of the megafauna. Beginning in 1492, the colonization of the continent by Europeans began and since that time people of many cultures have come to America to reshape the land. Flannery's final chapter is on re-inventing America as a necessary adaptation to the conditions of the continent now that the "eternal" frontier has come to an end. (Herman Greene)



Glacken, Clarence J. *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century.* Berkeley, CA: University of California Press, 1967.

Glacken writes, "In the history of Western thought, men have persistently asked three questions concerning the habitable earth and their relationships to it. Is the earth, which is obviously a fit environment for man and other organic life, a purposefully made creation? Have its climates, its relief, the configuration of its continents influenced the moral and social nature of individuals, and have they had an influence in molding the character and nature of human culture? In his long tenure of the earth, in what manner has man changed it from its hypothetical pristine condition?" The answers to these questions have generated three ideas, (i) designed earth—[man lives] on a divinely created earth harmoniously devised for his needs; (ii) environmental influence—[the physical qualities of man] such as skin and hair, his physical activity and mental stimulation are determined by climate; and (iii) geographic agency—"[man] fulfills his God-given mission of finishing the creation, bringing order into nature, which God, in giving him mind, the eye, and the hand, had intended that he do." This encyclopedic work on Western thought about nature and culture ends at the close of the preindustrial period. "What follows [in the industrial period] is of an entirely different order, influenced by the theory of evolution, specialization in the attainment of knowledge, [and] acceleration in the transformations of nature." Yet Glacken concludes the ideas that dominated the preindustrial period continue. Man's growing dominance and transformation of nature is still seen through the ideas of a world designed for man and man as divine agent of change. (Herman Greene)



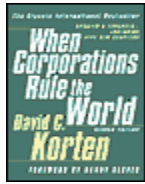
Griffin, Susan. *Woman and Nature: The Roaring Inside Her.* New York: Perennial Library/ Harper & Row, 1978.

This is an important early book that is both feminist and ecofeminist. The book describes in painful detail male attitudes toward living things— nature in general and women in particular. "He [man] says that woman speaks with nature. That she hears voices from under the earth. That wind blows in her ears and trees whisper to her. That the dead sing through her mouth and the cries of infants are clear to her. But for him this dialogue is over. He says he's not part of this world, that he was set on this world as a stranger. He sets himself apart from woman and nature." The first part of the book is devoted to exploitation and the second to the woman's dream of the separated being rejoined. It is a book of prose that is a book of poetry. One must read this to understand. (Herman Greene)



Horowitz, Morton J. *The Transformation of American Law: 1780-1860.* Cambridge, MA: Harvard University Press, 1977.

Horowitz states that pre-American Revolution law was based on English common law and was thought to be fixed and determinate. He shows how, largely through judicial decisions, law in America was placed at the service of commerce. For example, in the English common law a landowner had absolute rights to his land and no neighbor could interfere with his "enjoyment" of the land. In the nineteenth century, the understanding of property changed "from a static agrarian conception . . . to a dynamic, instrumental, and more abstract view of property that emphasized the newly paramount virtues of productive use and development." This period saw the rise of merchant and entrepreneurial groups to political power and the formation of "an alliance with the legal profession to advance their interests through a transformation of the legal system." In this period the legal system "shed its eighteenth century commitment to regulating the substantive fairness of economic exchange." "Legal rules providing for the subsidization of enterprise and permitting the legal destruction of old forms of property for the benefit of more recent entrants triumphed. The new rules gave the appearance of being "self-contained, apolitical and inexorable," like mathematics. The new doctrines "actively promoted a redistribution of wealth away from the weakest groups in the society." Though the effects of these laws and attitudes have been moderated by antitrust laws, public welfare, and regulation of commerce, they still powerfully influence the outcomes of the legal system. (Herman Greene)



Korten, David C. *When Corporations Rule the World*. San Francisco: Berrett-Koehler Publishers, Inc./West Hartford, CT: Kumarian Press, 1995

Korten focuses on the history of the last half of the twentieth century. This was a period in which rapid population and economic growth brought humans face-to-face with limits, the “end of the frontier” on spaceship Earth. Yet, he observes trans-national corporations remain the cowboys seeing a world where unlimited growth is possible under the untrammled global rule of free markets. Korten de-mystifies the institutions and tactics that support corporate rule. We are, he says, ruled by a “professional class” who are persuaded that corporations are the future of the world. He describes the obliviousness of this juggernaut to the fact that corporations and their related institutions serve less than half of the world’s people, and in the third world, only a relative few. Even worse, he observes, corporations are rushing the planet to its ecological limits. He sees no hope in a world ruled by corporations and calls for people to reclaim their power and choose life within an ecological understanding of life. (Herman Greene)



McNeill, J. R. *Something New Under the Sun: An Environmental History of the Twentieth-Century World*. New York: W.W. Norton & Company, 2000.

The book begins with the question from Ecclesiastes, “Is there anything new under the sun?” and proceeds to show how the changes in the environmental impact of humans that occurred in the twentieth century were unprecedented and indeed were something new. McNeill gives a comprehensive history of human impact over the course of the twentieth century on the atmosphere (in both cities and countryside), the hydrosphere (water use, water pollution, water diversions and water depletions), and the biosphere (land use, agriculture, fishing and invasive species). He concludes his survey by acknowledging that the twentieth century may be the first stage of an ecological catastrophe unless changes are made. The last major section of the book is on engines of change including population growth, urbanization, fuels, tools, economics, ideas and politics. (Herman Greene)

Polanyi, Karl. *The Great Transformation: The Political and Ecological Origins of Our Time*, 2nd ed. With a foreword by Joseph Stiglitz and a new introduction by Fred Bloch. Boston: Beacon Press, 2001. Original edition: New York: Farrar & Rinehard, 1944.

This book is about the industrial revolution and how it transformed society. The industrial revolution

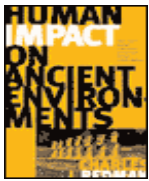
began in England in the late eighteenth century with changes in the production of textiles, including the spinning jenny and the water frame, and the growing use of steam engines. It continues through today. Will and Ariel Durant in their multi-volume survey of history, *The Story of Civilization* (written over the period 1935-1975), conclude that the industrial revolution was the only true revolution in modern history. Anyone who reviews human population, economics, environmental impact, urbanization and military capabilities is confronted with the startling reality that the industrial revolution has changed everything.

The story of this revolution is usually told as one of technological innovation. Polanyi, however, focuses on social transformation. According to Polanyi, industry’s new productive methods and capacity required the investment of large sums of capital which could only be recovered over long periods of time. Industry required markets to put up that capital. The increased productive capacity exceeded regional needs so markets had to both expand and demand had 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, however, were not only needed for goods, but also for the inputs to industry—land, labor and capital. “Every element of industry [needed to be for sale],” in other words, commoditized.

According to the liberal economic theories that supported the new industrial economy, if everything had a price and was freely tradable, the market would be self-regulating and the result 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 was the economy transformed under the sway of this myth, but also society itself. The market economy required by industry resulted in the creation of the market society, a society the role of which is to promote free markets. Polanyi provides an analysis to support this position that, historically, an economy was an outgrowth of the social structure. The inversion of this in the industrial economy resulted in society becoming an outgrowth of the economy—this was *The Great Transformation*.

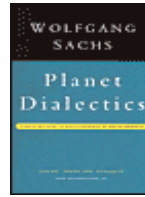
Polanyi first published this book in 1944, but it speaks with equal clarity today. In his foreword to the new edition of this classic, Joseph Stiglitz writes, “[Polanyi] exposes the myth of the free market: there never was a truly free, self-regulating market.” Yet it is this myth that still provides the underpinning for the

industrial economy. Stiglitz continues, “The [prevailing belief is that] the key to transformation is ‘getting prices right’ and getting the government out of the economy through privatization and liberalization [of trade]. In this view, development is little more than the accumulation of capital and improvements in the efficiency with which resources are allocated—purely technical matters. . . . Their perspective represents a misreading of history, as Polanyi effectively argues.” Polanyi’s historical analysis is brilliant and unmatched. To solve the problem of this social inversion, it must first be understood. (Herman Greene)



Redman, Charles L. *Human Impact on Ancient Environments*. Tucson, AZ: The University of Arizona Press, 1999.

Redman, an anthropologist, undertakes a study of human interactions with the environment over the last 40,000 years and comes to the conclusion that the environmental crisis is not new. He believes that an historical, cross-cultural study of human interactions with the environment provides a necessary perspective for addressing the current ecological situation. “The current problem,” he writes, “is not uniquely tied to contemporary politics, economics, or technology, but rather centers more on the nature of human decision-making and the forces that help shape those decisions. . . . [The contemporary situation is] the end product of thousands of years of a slowly changing, fundamentally similar set of human-environmental interactions.” In his view the problem is not limited to specific regions or cultures or time periods. These historical patterns have not been recognized because of the persistence of myths of an Edenic past where people lived in harmony with the land, a conviction that the forces of modernity, the West, technology and the global economy have fundamentally altered human-environmental relations, and the inability of ecologists to take into account that humans have been a part of the ecosystem for millennia. While ecologists have studied the interaction of organisms with their physical surroundings, they have purposely avoided studying human involvement. Redman’s broad topics concern animal exploitation, the impact of agrarian systems and the growth of cities, forces that grew in impact as human society grew. He concludes with a reflection on “the past as prologue.” This book greatly expands the historical and cultural context for understanding human-environmental interactions and why the Ecozoic Era involves re-inventing the human. (Herman Greene)



Sachs, Wolfgang. *Planet Dialectics: Explorations in Environment and Development*. Halifax; Nova Scotia: Fernwood Books, 1999.

Sachs critiques, on the one hand, the economic development model of the contemporary establishment and, on the other hand, important tenets of much of the environmental movement. The idea of “development” is to him “a ruin in the intellectual landscape.” In 1949 President Truman, in his inauguration speech, “defined the largest part of the world as ‘underdeveloped areas.’” From this point on, the South had a single name, underdeveloped. All the world’s peoples could be understood in terms of what their GNP per capita was and all were to move along a single trajectory—toward development. Greater production and economic growth were the key to peace and a better life for all. Sachs deconstructs the concept of development under such headings as “ambiguous claims for justice, Earth’s finiteness as a management problem, bargaining for the rest of nature, efficiency and sufficiency, and the hegemony of globalism.” The second part of the book focuses on the “dangerous liaison of environment and development” under the concept of “sustainable development.” In the face of the ecological predicament he says, “[T]he two founding assumptions of the development promise have lost their validity . . . , first that development could be universalized in space, and second, that it would be durable in time.” The third part of the book deconstructs the “Great Blue Planet” image loved by both environmentalists and industry. This image is one of a world without borders—one planet, one people, one market, and absence of local place. He explains how globalization accelerates the use of resources and fosters “a new colonization of nature.” The fourth section is devoted to the “post-development era.” Readers of this journal might think of this section as defining aspects of the Ecozoic Era. He raises such questions as, “[A]re the rich countries capable of living without the surplus of environmental space they appropriate today?” He writes of a world of selective slowness, one where resource sufficiency is more valued than 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. More pointedly, and much the more difficult, is his observation that “[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.” The exploration is one of “limits” and he asks “Can the appreciation of limits lead to a

more flourishing society? Can even self-limitation be part and parcel of self-liberation?" These are *the* ecozoic questions. Sachs continues in the last part of the book to offer some answers, but his greatest contribution is in framing the pertinent questions. Can we imagine a world in which well-being and economic sufficiency are understood as superior to a world of well-having? (Herman Greene)



Swimme, Brian and Thomas Berry. *The Universe Story: From the Primordial Flaring Forth to the Ecozoic Era, A Celebration of the Unfolding of the Cosmos.* San Francisco: HarperSanFrancisco, 1992.

The science of the twentieth century gave humanity a new understanding of its origins. This story was one of a big bang, or “primordial flaring forth,” which initiated space and time, and a continuous evolutionary and expansive development of the universe. Swimme and Berry call this time-developmental understanding *cosmogogenesis* as an alternative to *cosmos*, which reflected the older understanding of a static, spatial order of being, and they consider this new understanding the Copernican revolution of our time. Swimme and Berry are the first authors to present this story with many levels of meaning. They offer a scientific account of stages in the development of the universe, a geological and biological account of Earth’s history, and a cultural account of human history. They also offer a philosophical account of the dynamics of creativity in this evolutionary sequence and of the significance of this story for the human future. The universe story is presented as a unifying myth of origins and destiny for an ecological age. It is the book that presents, in the largest sense, how we got here. (Herman Greene)



Teilhard de Chardin, Pierre. *The Human Phenomenon*, Sarah Appleton-Weber, trans. Brighton, UK: Sussex Academic Press, 1999.

This is a new translation of the book that is more widely known as *The Phenomenon of Man*. Teilhard was a French paleontologist. He wrote, this, his masterpiece, in the period 1938-40. He was the first to understand evolution as story and to see in evolution dynamics that led to greater complexity and consciousness. This tendency was the human phenomenon that existed in the universe in the beginning and gave rise to the human in the course of its development. According to Thomas Berry, he was “one of the first scientists to realize that the human and the universe are inseparable.” Teilhard recognized in all

things an inner (perhaps we might say “spiritual,” though we could as well say human-like or humanistic) nature and an outer material nature. Appleton-Weber, the translator, describes the book as science and poetry. In doing so, perhaps she discloses the truth revealed by Teilhard about how we got here was through the universe, which is continuous and organic in its evolution and always moved by humanistic/spiritual forces reaching for fulfillment in greater complexity and consciousness and beauty and richness of experience. (Herman Greene)



Whitehead, Alfred North. *Science and the Modern World.* New York: The Macmillan Company, 1925.

Whitehead, a physicist, mathematician and philosopher wrote this book in 1925 just as the significance of relativity theory and quantum theory was becoming known. The modern period began with a revolution in science in the sixteenth and seventeenth centuries and this revolution was based on new capabilities in mathematics that allowed analysis and prediction of phenomena in the natural world, understood as matter in motion, where what was real was what was measurable. This scientific materialism caused a reaction in philosophy and culture as an attempt was made to understand humans through scientific materialism or to react against scientific materialism because of its inadequacy in explaining human experience. Whitehead shows how the progress of science itself, biological developments, the theory of evolution, the doctrine of energy and molecular theories, eroded the view that matter was primary and how the understandings of relativity and quantum mechanics were inconsistent with the scientific materialism that had dominated the modern period. He proposed that the idea of hard matter was an example of the “fallacy of misplaced concreteness” and the enduring entity is not the material part but the organism of which the part exists as pattern. An understanding of scientific materialism and its impact on philosophy and culture is critical to understanding how we got here. Though the new physics and non-reductionistic sciences, such as ecology, arguably support Whitehead's philosophy of organism, scientific materialism continues to powerfully and detrimentally influence philosophy and culture and with it our understanding of nature and the place of humans in nature. (Herman Greene)

Ecozoic Annotated Bibliography

Compiled and annotated by Ellen LaConte and Herman F. Greene

This is the beginning of an Ecozoic annotated bibliography organized around the questions, if we are moving into an ecological age “Where are we?” and “How did we get here?” The books under “Where are we?” belong with Vol. 4, No. 1 (2004) of this *Reader*. This part of the annotated bibliography will be inserted into that issue in the web version of the *Reader*, which may be viewed at www.ecozoicstudies.org. Similar annotated bibliographies will appear in the next two issues of the *Reader* on “Where are we going?” and “How do we get there?” We hope readers of this publication will recommend additional works that have informed and influenced them. Bibliographical information (authors, editors, edition, publisher, city of publication, and date of publication) may be sent to ecozoic@mindspring.com. Please add annotations or longer reviews. The editorial staff of the *Ecozoic Reader* generally follows *The Chicago Manual of Style* for citation forms.

“Where Are We?”

Ayres, Ed. *God's Last Offer: Negotiating for a Sustainable Future*. New York: Four Walls Eight Windows, 1999.

Ayres identifies four “megaphenomena”: (1) the carbon dioxide spike (leading to climate change), (2) the extinction spike (as a result of which we may be undergoing the sixth extinction in Earth's history), (3) the consumption spike (humans are consuming more and more of Earth's resources and produce), and (4) the population spike (human population has grown by 400% since 1900). He calls for massive realignment of our education, industry and life in response to “God's last offer.”

Brzezinski, Zbigniew. *The Grand Chessboard: American Primacy and Its Geostrategic Imperatives*. Philadelphia: Basic Books, 1997.

Carter's Secretary of State makes the neoconservative case for G.W. Bush's imperial strategy.

Carson, Rachel. *The Silent Spring*. Greenwich, CT: A Fawcett Crescent Book, 1962.

See Herman Greene's review in this issue.

Dahl, Robert A. *How Democratic Is the American Constitution?* Yale: Yale University Press, 2001.

See Ellen LaConte's review in this issue.

Darley, Julian. *High Noon for Natural Gas*. Vermont: Chelsea Green Publishers, 2004.

Darley compels us to consider that the theoretically most available fossil fuel is rapidly proving itself most available on the other side of the planet from where the biggest consumers want it. Consequences are suggested.

De Rivero, Oswaldo. *The Myth of Development: The Non-Viable Economies of the 21st Century*. Halifax, Nova Scotia: Fernwood, 2001.

Chilling. Clear. Imagine what it means to be living in a non-viable economy in a Global Economic Order that thinks it's the last word. A little like being an in-valid in a viable one. Economic globalization isn't good for the little guys. Here's why.

Ehrlich, Paul and Anne. *One With Nineveh: Politics, Consumption, and the Human Future*. Washington, DC: Island Press/Shearwater, 2004.

See Herman Greene's review in this issue.

Frank, Thomas. *One Market Under God: Extreme Capitalism, Market Populism and the End of Economic Democracy*. New York: Doubleday, 2000.

Accessible, quotable, compelling from the author who more recently wrote *What's the Matter with Kansas? How Conservatives Won the Heart of America*. Frank argues that Americans have confused extreme market capitalism with democracy. No longer is Wall Street the home of money grubbing oppressors, but rather of cool entrepreneurs with a mission to save the world.

Harrison, Paul and Fred Pearce. *AAAS Atlas of Population & Environment*. Berkeley: University of California Press, 2000.

This book shows how rates of human population growth, density, migration, resource consumption, habitat disruption and use of various technologies and chemicals affect the world's ecosystems. It is filled with data, maps, graphs and diagrams providing information both for experts in the field and lay people. It provides a starting point for understanding how much human population various regions of the world and the world as a whole can support.

Hartmann, Thom. *The Last Hours of Ancient Sunlight: The Fate of the World and What We Can Do Before It's Too Late.* New York: Three Rivers Press, 2004.

What it means when the culture at the top of the energy pyramid is about to use the energy up and also fatally abuse the planet with it, with a look at alternative models of living.

Heinberg, Richard. *The Party's Over: Oil, War, and the Fate of Industrial Societies.* British Columbia, Canada: New Society Publishers, 2003.

The most accessible of the spate of books about oil with the most supporting data and a realistic assessment of the utility of alternative energies in the current global market economy.

Hertz, Noreena. *The Silent Takeover: Global Capitalism and the Death of Democracy.* New York: Free Press, 2001.

A cogent, readable, prize-winning treatment of corporatism, WTO and trade agreements, consumerism, and the impact of market economics on socio-economic systems, people, and governance from the perspective of a young British prodigy.

Kaplan, Robert D. *The Coming Anarchy: Shattering the Dreams of the Post Cold War.* New York: Vintage Books, 2000.

Essays on scarcity, crime, overpopulation, tribalism and terrorism, genocide, the problematics of peace/war, and rough times in Africa, the Middle East, and Russia.

Klare, Michael T. *Resource Wars: The New Landscape of Global Conflict.* New York: Metropolitan Books/Henry Holt, 2001.

Note the date of the publication. He was and is right on the money. You can plot his predicted conflicts on a world map and see what is happening and what will happen.

Korten, David C. *When Corporations Rule the World.* San Francisco: Berrett-Koehler Publishers, Inc./West Hartford, CT: Kumarian Press, 1995

See Herman Greene's review in this issue.

Leakey, Richard and Roger Lewin. *The Sixth Extinction: Patterns of Life and the Future of Humankind.* New York: Anchor Press, 1995.

See Herman Greene's review in this issue.

Lechner, Frank J. and John Boli, eds. *The Globalization Reader.* Cambridge, MA: Blackwell Books, 2003.

Essays that debate, explain, and assess political, economic, and cultural globalization and its impacts on environments, societies, women, policy, cultures, and developing nations; with suggestions for resistance.

McKibben, Bill. *The End of Nature, 2d ed.* New York: Anchor Books, 1999.

See Herman Greene's review in this issue.

Mander, Jerry and Edward Goldsmith, eds. *The Case Against the Global Economy and for a Turn Toward the Local.* San Francisco: Sierra Club Books, 1996.

Comprehensive, point-by-point analysis of the global economy for the lay-reader/environmentalist including essays by Wendell Berry, David Korten, William Greider, Jeremy Rifkin, and Maude Barlow.

Meadows, Donella, Dennis Meadows, and Jorgen Randers. *Beyond the Limits: Confronting Global Collapse, Envisioning a Sustainable Future.* Vermont: Chelsea Green Publishers, 1992.

This sequel to *Limits to Growth*, is still the best in its class. Its Scenario 1 is in play and shows us hitting all the walls by 2020. Its suggestions for "how we can support all the world's people adequately and sustainably long into the future" are still apt, despite the fact that we are heading straight into the worst-case scenario.

Newbold, Heather, ed. *Life Stories: World Renowned Scientists Reflect On Their Lives and the Future of Life on Earth.* Berkeley: University of California Press, 2000.

Effecting because each Earth-perceptive account grows out of an episode in the scientist's life when he or she fell in love with Earth for the first time.

Paehlke, Robert C. *Democracy's Dilemma: Environment, Social Equity, and the Global Economy.* Cambridge, MA: MIT Press, 2003.

See Ellen LaConte's review in this issue.

Parenti, Michael. *Against Empire.* San Francisco: City Lights Books, 1995.

A brilliant expose of the brutal realities of U.S. global domination. Even more timely now that the empire has shown itself willing to continually strike back.

Peterson, Peter G. *Running on Empty: How the Democrats and Republicans are Bankrupting our Future and What We Can Do About It.* New York: Farrar, Straus & Giroux, 2004.

This genuinely “fair and balanced” book makes horribly clear the degree to which current policies and recent American administrations have been bankrupting our children’s future. Coherent, pragmatic suggestions for how to haul in the long leash given to leaders.

Pimm, Stuart L. *The World According to Pimm: A Scientist Audits the Earth.* New York: McGraw-Hill, 2001.

See Herman Greene’s review in this issue.

Rischar, Jean François. *High Noon: 20 Global Problems, 20 Years to Solve Them.* Philadelphia: Basic Books, 2002.

The World Bank’s European vice-president takes a thought-provoking look at problems and possibilities. His analysis goes beyond the obvious and conventional.

Roberts, Paul. *The End of Oil: On the Edge of a Perilous New World.* Boston, MA: Houghton Mifflin, 2004.

A good companion to *The Party’s Over* primarily because Roberts is not a died-in-the-wool critic of neo-conservative resource economics, yet he comes to the same conclusions as Heinberg. Fewer charts and less data, but a well-conceived interpretation of them.

Sachs, Wolfgang, ed. *The Development Dictionary: A Guide to Knowledge as Power.* London: Zed Books, 1992.

From an international perspective, a brilliant, alphabetical critique. Each author considers a term/topic like Equality, Market, Needs, Planning, Resource, Science, State, Technology. A precursor of and companion to Sach’s Planet Dialectics.

Sachs, Wolfgang, ed. *Planet Dialectics: Explorations in Environment and Development.* Halifax, Nova Scotia: Fernwood Books, 1999.

See Herman Greene’s review in this issue.

Shiva, Vandana. *Water Wars: Privatization, Pollution, and Profit.* Cambridge, MA: South End Press, 2002.

Though India is her home turf, it can and is happening in the United States, as well.

Speth, James Gustave. *Red Sky at Morning: America and the Crisis of the Global Environment.* New Haven, CT: Yale University Press, 2004.

See Herman Greene’s review in this issue.

Thompson, W.I. *At the Edge of History.* Aurora, CO: Lindisfarne Press, 1990.

Thompson isn’t an easy read but he’s, oh, so worth the trouble. Myth, history, the evolution of consciousness, poetry all meet in his mind and on the page as he imagines how we got to be who we are by looking at the things our minds produced to reveal who we are.

United Nations Development Programme, United Nations Environment Programme, World Bank, and World Resources Institute. *People and Ecosystems: The Fraying Web of Life.* Washington, D.C.: World Resources Institute, 2000.

See Herman Greene’s review in this issue.

United Nations Human Settlements Programme. *The Challenge of Slums: Global Report on Human Settlements, 2003.* London: Earthscan, 2003.

“The urbanization of poverty.” Shocking. Or maybe not. But it’s an issue Ecozoans cannot ignore. What are the dreams, stories, visions of the nearly 2 billion of us eke-sisting in conditions of diminishing returns, circumstances over which they have little or no control? Raises questions about redistribution and responsibility.

How Did We Get Here?

Adams, E. Maynard. *Philosophy and the Modern Mind: A Philosophical Critique of Modern Western Civilization.* Lanham, MA: University Press of America, 1985.

See Herman Greene’s review in this issue.

Beard, Charles A. *An Economic Interpretation of the Constitution of the United States.* New Introduction by Forrest McDonald. New York: The Free Press, 1986.

See Ellen LaConte’s review in this issue.

Berry, Wendell. *The Unsettling of America: Culture & Agriculture.* San Francisco: Sierra Club Books, 1977.

See Herman Greene’s review in this issue.

Bethell, Tom. *The Noblest Triumph: Property & Prosperity Through the Ages.* New York: St. Martin's Griffin, 1998.

A look at property and property rights as they have improved the lot of many humans and been key to the establishment of liberal, republican, quasi-democratic governments like that in the United States. After reading this, I retained my sense, however, that property ought not to call the shots: human and animal rights trump property rights; democracy ought to trump what used to be called "personalty" — personal property as a key to power.

Brague, Rémi. *The Wisdom of the World: The Human Experience of the Universe in Western Thought.* Teresa Lavender Fagan, trans. Chicago: The University of Chicago Press, 2003.

See Herman Greene's review in this issue.

Braudel, Fernand. *Civilization and Capitalism: 15th – 18th Century.* Siân Reynolds, trans. 3 vols. New York: Harper & Row, 1982-84.

Vividly and in fascinating detail encompasses the social, economic, cultural, and political transformation that swept Europe (Western civilization) from the pre-industrial late Middle Ages through the Renaissance and Enlightenment to the Industrial Revolution. Fascinating illustrations and anecdotal material. Makes it difficult to think we're special. (Vol. 1, *The Structures of Everyday Life*, gives an account of the lives of ordinary people; Vol. 2, *The Wheels of Commerce*, covers the growth of trade, commerce and markets; and Vol. 3, *The Perspective of the World*, looks at changes from the standpoint of global systems.)

Clark, Mary E. *In Search of Human Nature.* New York: Routledge, 2002.

A brilliant, monumental and unprecedented assessment and synthesis of cultural, emotional, consciousness, personal, community, and behavioral evolution. Turns over the "me, first" vision of human character.

Cronon, William. *Changes In the Land: Indians, Colonists, and the Ecology of New England.* New York: Hill & Wang, 1983.

A crystalline and eye-opening look at the essential differences between European colonists' and Native Americans' perception of and relationship to land, ownership, life, resources, and environment. Reveals the divide between two dramatically different ways of living and, without politicking, what we can learn from the earlier, older way.

Diamond, Jared. *Guns, Germs, and Steel: The Fate of Human Societies.* New York: W.W. Norton and Company, 1999.

See Herman Greene's review in this issue.

Diamond, Jared. *Collapse: How Societies Choose to Fail or Succeed.* New York: Viking, 2005.

See Ellen LaConte's review in this issue.

Donald, Merlin. *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition.* Cambridge, MA: Harvard University Press, 1991.

Alone or as a companion piece to Mithen's *The Prehistory of the Mind*, this is a more thematic, explanatory, academic treatment of the evolution of our current level of consciousness. His categories are useful.

Eisler, Riane. *The Chalice and the Blade.* New York: Harper Collins, 1987.

See Ellen LaConte's review in this issue.

Eldridge, Niles. *Dominion.* Berkeley, CA: University of California Press, 1995.

See Herman Greene's review in this issue.

Flannery, Tim. *The Eternal Frontier: An Ecological History of North American and Its Peoples.* New York: Grove Press, 2001.

See Connie Barlow's article in this issue and Herman Greene's review in this issue.

Glacken, Clarence J. *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century.* Berkeley, CA: University of California Press, 1967.

See Herman Greene's review in this issue.

Glendinning, Chellis. *My Name is Chellis and I'm Recovering from Western Civilization.* Boston: Shambhala Publications, 1994.

How we got disconnected from the natural world and addicted to the consumptive, unecological one we've created, and how we can recover from it. A moving case for the synchronicity of the environmental and recovery movements, with solid spiritual grounding.

Griffin, Susan. *Woman and Nature: The Roaring Inside Her*. New York: Perennial Library/ Harper & Row, Publishers, 1978.

See Herman Greene's review in this issue.

Hartmann, Thom. *Unequal Protection: The Rise of Corporate Dominance and the Theft of Human Rights*. Emmaus, PA: Rodale, 2002.

How the United States got to the point of letting corporate "persons" trump the rights of human persons, what the consequences have been and what can be done about it, state by state. Fascinating and empowering. There's so much we don't know or misunderstand about our history, at our peril.

Hesiod. *Works and Days*. M. L. West, trans. London: Oxford World Classics, 1999.

The stress-effects on the first civilizations look an awful lot like the stress-effects on ours.

Horwitz, Morton J. *The Transformation of American Law: 1780-1860*. Cambridge, MA: Harvard University Press, 1977.

See Herman Greene's review in this issue.

Jaynes, Julian. *The Origin of Consciousness in the Breakdown of the Bicameral Mind*. Boston, MA: Houghton Mifflin, 1976.

Something of a cult classic in consciousness studies, Harvard's Jaynes predicates consciousness as we know it on the evolution of the parts of the brain that synchronized the two hemispheres, he suggests around 3000 years ago. He makes a very compelling case. History got interesting again.

Lerner, Gerda. *The Creation of Patriarchy*. New York: Oxford University Press, 1987.

An analysis of the oppression of women from the Neolithic period forward. Lerner argues this oppression is historical not natural and can be overcome by historical processes.

McNeill, J. R. *Something New Under the Sun: An Environmental History of the Twentieth-Century World*. New York: W.W. Norton & Company, 2000.

See Herman Greene's review in this issue.

Mithen, Steven. *The Prehistory of the Mind: The Cognitive Origins of Art and Science*. New York: Thames & Hudson, 1999.

An increasingly accepted theory of how our brains have changed our minds, several times, and how—biologically—we've come to think as we do. Good charts and illustrations.

Polanyi, Karl. *The Great Transformation: The Political and Ecological Origins of Our Time, 2d ed.* With a foreword by Joseph Stiglitz and a new introduction by Fred Bloch. Boston: Beacon Press, 2001. Original edition: New York: Farrar & Rinehard, 1944.

See Herman Greene's review in this issue.

Ponting, Clive. *A Green History of the World: The Environment and the Collapse of Civilizations*. New York: St. Martin's Press, 1991.

One of the most useful and thorough of its kind. This book serves as a key resource for Pulitzer Prize-winner Jared Diamond's new book, *Collapse*.

Porter, Roy. *The Creation of the Modern World: The Untold Story of the British Enlightenment*. New York: W.W. Norton, 2000.

Called quite rightly a "sumptuous and spicy volume," Porter brings us the stories, personages, and underlying logics behind, for example, the "hedonic calculus" of radical individualism, untrammelled progress, education as a tool for character formation, the economic underpinnings of secularization, Protestant discipline, the disenchantment of nature, the culture of science and origins of political revolution. A delicious, foundational read.

Price, T. Douglas and Anne Birgitte Gebauer, eds. *Last Hunters, First Farmers: A New Perspective on the Prehistoric Transition to Farming*. Santa Fe, NM: School of American Research Press, 1995.

We didn't take up farming over night. It evolved, everywhere, a several-thousand-year learning curve and a lot of bad weather or swollen populations. Hunting and gathering was easier. Fascinating look at what our school books didn't tell us.

Redman, Charles L. *Human Impact on Ancient Environments*. Tucson, AZ: The University of Arizona Press, 1999.

See Herman Greene's review in this issue.

Rolston, Holmes, III. *Genes, Genesis, and God: Values and Their Origin in Natural and Human History.* Cambridge, UK: Cambridge University Press, 1999.

Are spiritual, religious, and moral values genetic—natural? Or are they nurtured? Yes. Science and spirit meet in thoughtful dialogue.

Said, Edward W. *Culture and Imperialism.* New York: Vintage/Random House, 1994.

A classic analysis by a towering (recently deceased) figure of our time on how imperialism is as much a product of literature as of politics and economics. He analyzes nineteenth and twentieth century fiction and contemporary mass media to show how the Western voice has dominated imaginations and become the imperial culture.

Sale, Kirkpatrick. *The Conquest of Paradise.* New York: Plume/Penguin Books, 1991.

When Europeans exceeded the carrying capacity of their home continent, they had to import it from somewhere else and export some of their numbers to somewhere else: the Americas—Paradise—suffered the consequences of both kinds of grab and get. Sale's is rightfully a classic on the Columbian legacy.

Schama, Simon. *Landscape and Memory.* New York: Borzoi/Knopf, 1995.

The equivalent of a Thanksgiving feast of history from the standpoint of scenery. Schama gives an account of sacred places and landscapes that have given Western culture its sense of geographic identity, a mind's-eye view of Western culture. Where many histories are meals taken on a run by the objective intellect, this is a treat for the sensate, sensible, and sensitive imagination. Arcady and its endings lead in beautifully to Roy Porter's work.

Shepard, Paul. *The Others: How Animals Made Us Human.* Washington, D.C.: Shearwater/Island Press, 1996.

Compelling. Explores the "lavish beauty and terrible dysfunction of our relationship with the animal worlds," and charts the cause of the latter.

Swimme, Brian and Thomas Berry. *The Universe Story: From the Primordial Flaring Forth to the Ecozoic Era, A Celebration of the Unfolding of the Cosmos.* San Francisco: HarperSanFrancisco, 1992.

See Herman Greene's review in this issue.

Tainter, Joseph A. *The Collapse of Complex Societies.* Cambridge, UK: Cambridge University Press, 1988.

Not one single society has failed to fail: here's why. Academic in style, but worth every brilliantly objective word. Tainter now writes as an ecological economist.

Teilhard de Chardin, Pierre. *The Human Phenomenon.* Sarah Appleton-Weber, trans. Brighton, UK: Sussex Academic Press, 1999.

See Herman Greene's review in this issue.

Toynbee, Arnold J. *A Study of History.* Oxford, UK: Oxford University Press, 1946.

Still good after all these years. And, oh, the old guys could turn a fine sentence.

Tudge, Colin. *The Time Before History: 5 Million Years of Human Impact.* New York: Touchstone/Simon and Schuster, 1996.

Fascinating journey through pre-history, hominids and humans, bad boys and good societies, the fate of Neanderthals and first conquest of the Americas, unwitting extinctions, and the pressure at the end of Eden toward agriculture.

Whitehead, Alfred North. *Science and the Modern World.* New York: The Macmillan Company, 1925.

See Herman Greene's review in this issue.

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

Contributors to this Issue

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