Yale University, June 6, 2012

New Wineskins

The handwriting is on the wall. The wall is the north wall of the Farmer's Market in Santa Fe, NM, the handwriting is a sentence from Wendell Berry: "To cherish the remains of the Earth and to foster its renewal is our only legitimate hope of survival."[1]

Let that epigraph join two others, one from Marilynne Robinson: "I think we all know that the earth might be reaching the end of its tolerance of our presumptions;"[i] the other from Charles Darwin: "It is not the strongest of the species that survives, nor the most intelligent…, but the one that is most adaptable to change."

This is the triad that frames our discussion: Earth reaching the end of its tolerance of our presumptions, our need to cherish Earth's remains for the sake of our survival, survival that asks deep change on our part.

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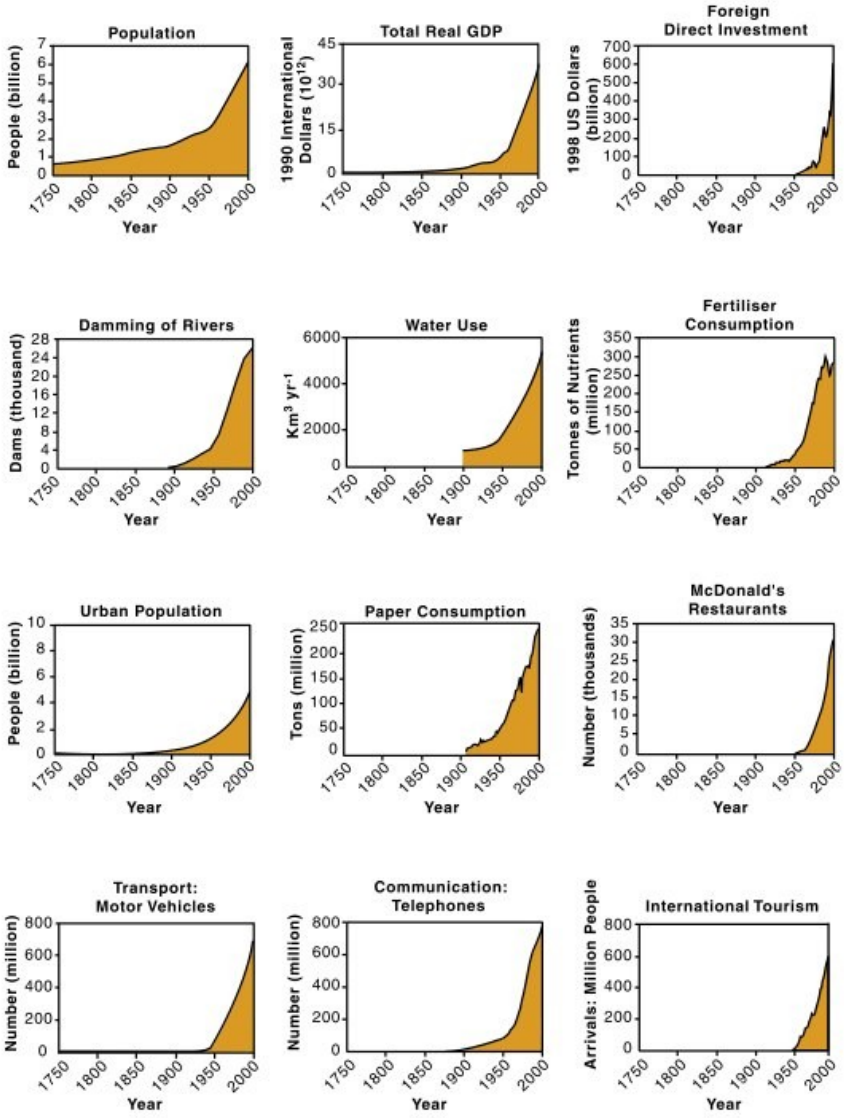
Our present condition is new wine without new wineskins. This does not bode well.

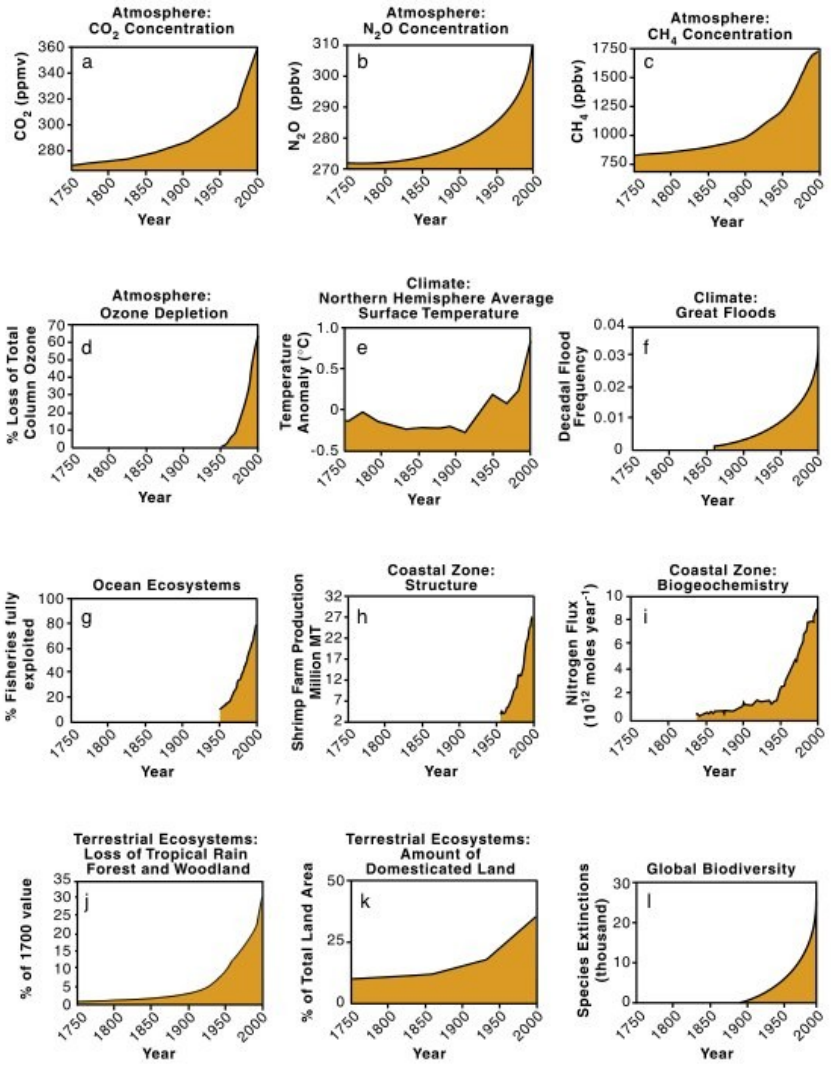
[Jesus] "told them a parable: No one tears a piece from a new garment and sews it on an old garment; otherwise the new will be torn, and the piece from the new will not match the old. And no one puts new wine into old wineskins; otherwise the new wine will burst the skins and will be spilled, and the skins will be destroyed. But new wine must be put into fresh wineskins. And no one after drinking old wine desires new wine, but says, 'The old is good.'" (Luke 5:36-39)

[1] See if I can find original source (it's not at the Farmer's Market).

The new wine is not the vintage we expected. It is a planet undergoing sufficient change in its core surface processes that it tallies as *geophysical*, and not only economic, political, cultural, or religious, change; change of such and order of magnitude that some scientists have named it a new geological age, the Anthropocene, successor to a staggered late Holocene.

The International Geosphere-Biosphere Programme—scientists from around the world tracking global trends—have graphed the chief causes and some of the consequences of this "new wine" change. Here are the graphs (many of you know them from Gus Speth's use of them in *The Bridge to the Edge of the World*).


Population
People (billion)
Year
Total Real GDP
1990 International Dollars (10^{12})
Year
Foreign Direct Investment
1998 US Dollars (billion)
Year
Damming of Rivers
Dams (thousand)
Year
Water Use
$Km^3\ yr^{-1}$
Year
Fertiliser Consumption
Tonnes of Nutrients (million)
Year
Urban Population
People (billion)
Year
Paper Consumption
Tons (million)
Year
McDonald's Restaurants
Number (thousands)
Year
Transport: Motor Vehicles
Number (million)
Year
Communication: Telephones
Number (million)
Year
International Tourism
Arrivals: Million People
Year



This conference, by this point, probably doesn't need further evidence that we live on a diminished planet that has arrived in that condition as a consequence of modernity as industrialized nature, modernity as unprecedented human numbers matched to unprecedented global economic activity (the drivers of these graphs) as powered by compact, stored energy in the form of fossil fuels. So let me simply list, rather than detail, the evidence of the diminished planet—a planet of melting permafrost, polar caps,

and glacier fields; a continuing increase, despite the Recession, in carbon, nitrous oxide, and methane emissions (the greenhouse gases); record drought and record deluge and the heaviest ocean acidification in hundreds of thousands of years. (The oceans are losing ecosystems faster than the tropical rainforests.) The chemistry of that other great commons, the atmosphere, is likewise altering rapidly at levels not seen in millions of years. Yes, this reflects climate change, but quite apart from climate change, this kind of economy has generated the worldwide degrading of soils and unsustainable levels of freshwater use, just as it has resulted in a loss of biodiversity so severe that adaptability itself is compromised. The planet's biological loss includes the death of birth itself in the form of species extinction, the loss of rainforests and woodlands, the widespread disruption of ecosystems, dead zones off many river deltas, and the precipitous fall-off in biodiversity. The planet's community of life is markedly diminished, with most of the trend lines moving in the wrong direction.

While these graphs are a project of the International Geosphere-Biosphere Programme, the Programme's work goes well beyond the period of industrialized nature, 1750 to the present. Here is the Programme's conclusion: "Evidence from several millennia shows that the magnitude and rates of human-driving changes to the global environment are in many cases unprecedented. There is no previous analogue for the current operation of the Earth system."[ii] These are the scientists who announced a new geological age, "the Anthropocene," meaning that the planet's core surface processes are "dominated by human activities."[iii] Bill McKibben calls it "a tough, new planet."

For us, the yield of modernity is new wine. Yet our response is the one Jesus laid out: "And no one after drinking old wine desires new wine, but says, 'The old is good.'"

We don't want the new wine, even though it is our own harvest. We prefer the old.

What is the old? It is life lived as the industrial-technological age, life lived inside the industrial paradigm. Everything is industry—"the power industry, the defense industry, the communications industry, the transportation industry, the agriculture industry, the food industry, the health industry, the entertainment industry, the mining industry, the education industry, the law industry, the government industry, and the religion industry," to use Wendell Berry's list.[iv]

You might also say everything is modernity, including what Aiden Davison's calls "eco-modernity." Let me illustrate modernity as eco-modernity and then draw the pertinent conclusions for new wine and new wineskins.

Consider a full-page advertisement in the June 2, 1998, *New York Times*, the day the American Museum of Natural History inaugurated its Hall of Biodiversity. The ad displays an eye-catching selection of flora and fauna from around the world and across the top in large letters is the sentence: "We believe in equal opportunity regardless of race, creed, gender, kingdom, phylum, class, order, family, genus, or species." The creatures then tumble down the page, followed by smaller-lettered text:

> All life is interconnected. So without a supporting cast of millions of species, human survival is far from guaranteed. This variety and interdependence of species is what's called biodiversity. And it matters to Monsanto in particular. Our business depends on making discoveries in the world of genetic information. Information that is lost forever when a species becomes extinct. Information that offers solutions in agriculture, nutrition, and medicine never before thought possible. For a population that's growing. On a planet that's not.

The logo—a growing plant—then appears next to the name and trademark—"Monsanto: Food Health Hope." The last line is: "Monsanto is honored to be a sponsor of the Hall of Biodiversity at the American Museum of Natural History. www.monsanto.com."

This ad is unthinkable apart from contemporary sciences and their impact: genetics, molecular biology, ecology, and computer science especially. Its thought-world appears to be holistic thinking based in good science. The awareness of complex, living interdependence seems central. At the outset the ad even strikes a note of egalitarian bio-democracy worthy of St. Francis. But as the text trails off we are keeping company with the soft utopianism and secular promise-and-fulfillment theology of so much industrial science and technology, and not least the new biotechnologies: "Monsanto: Food Health Hope" and "solutions in agriculture, nutrition, and medicine never before thought possible." We are also keeping company with human subjectivism in ethics. This moral universe not only assumes that human beings are *the* sole moral arbiters, it assumes that in the end the only actions that truly matter are those affecting human beings. No court of appeal beyond the human subject exists. And by the very bottom, right-hand corner of the page, we have placed good science and a viable way of life ("Food, Health, Hope") firmly in the hands of global agribusiness.

This sounds like new wine and new cloth but in fact it is "eco-modernity."[v] Modernity worked with a set of famous dualisms, those longstanding boundaries of mind and matter, human culture and resistant nature, and the sharp distinction of humans from other creatures. These have now been erased in favor of "equal opportunity regardless of race…phylum…class…genus, or species" in a world where "[a]ll life is interconnected." Modernity also mirrored a largely mechanistic understanding of how things worked. Now

ecological language has replaced the mechanistic. In short, this is new knowledge, new perception, and new vocabulary—apparently new cloth and new wine.

Yet eco-modernity's fundamental biases remain modernity's. The day-to-day practice of science, technology, and industry features human mind and culture as the creators, controllers, and high-tech bio-cowboys who work ecosystems and genomes as they would their ranchlands. Furthermore, the creatures on the page are generic, not particular. They are not even truly creatures, as biological individuals. They don't dart, bloom, suckle, or turn golden in autumn.[vi] They are, categorically and simply, "information" and "resources." Humans are thereby re-centered as masters without qualification, despite the web of interdependence, and ecology, molecular biology, genetics, and evolution itself find themselves in the employ of a morality that views "all things bright and beautiful, all creatures great and small," even "all things wise and wonderful,"[vii] as information, resources, and property; in short, as pure capital. So in only one striking page, what begins as a confession of bio-democracy ends as user-friendly exploitation that promises, yet one more time, to do good by doing well, for profit and without (human) sacrifice.

Genetics as a science may render us kin to roundworms, to say nothing of giraffes and bonobos, all mirroring the "zoo in you."[viii] Ecology may map in gratifying detail the awesome webbing of life. And Evolution with a capital "E" may present a dynamic universe still on its pilgrim way, with us a stupendous expression of it, even if only a wink in its regime of time. Such is indeed the new cloth and new wine of recent discovery. Yet these sciences are captured by the present political economy for an ethic that retains modernity's hubris married to entrepreneurial courage and engineering

confidence. Life is chiefly a production, management and security problem, subject to technological remedies based in rigorous science and the wizardry of the market. Life is not a species problem, or a problem of the human soul or spirit, or a misshapen identity, or a matter of evil and injustice and things going wildly awry on a regular basis. The perceiving eye is still the arrogant eye.

The clincher is an irony we may miss, precisely because the inside of the box and the shape of the mold are so familiar. Monsanto's advertisement is a public endorsement of biodiversity, which is worthy of its own hall and every museumgoer's attention. Yet Monsanto's purpose is to capture as much of the market as possible for a very small number of crops whose seeds they control. The purpose is to simplify, not diversify, the stock for the sake of profit.[ix] A stable of lawyers is on hand to chase down farmers who try and save seed and live independently in Monsanto Territory. So rather than, as the company says, proudly supporting the new hall that is making the case for preserving local biodiversity, Monsanto's practices undercut it. The eco-modern vocabulary of the advertisement speaks ecology's language while the company's practices fail to learn from and support evolution's way of adapting successfully to changing conditions.

The point isn't to rag on Mansanto. It's to say that while eco-modernity can *sound* like new wine and wineskins, it belongs to the preferred "old," the continuation of the industrial-technological era. That means the massive role of global corporations in what has become corporate capitalism overstepping all local, regional and national boundaries, the Information Revolution and digital technologies and their transformation of the industrial paradigm so as to extend it, the decoding and recoding of nature itself in biotechnologies that amount to the industrialization of biological systems, the emergence

of nanotechnologies, the lure of planetary geo-engineering—all this and more. All this displays the same frame of mind and same anthropocentric universe we meet in the Mansanto. To put it in the language of ethics: this is the arrogant eye and cultural chauvinism of one-way domination ethics, human subject to useful object, conceiving all things, living things included, as capital, information and resources.[x] This is, in fact, the industrial era's continuation of the oldest ethic of all—the master-slave ethic—with *Homo sapiens* as master, the rest of nature as slave.

What about new wine and new wineskins? While we may prefer the old, and be working furiously to get the same economy "back on track" that generated the diminished and diminishing planet, what transitions take us to a durable future and what is the evidence that somebody here and there is making new wineskins?

Here are the transitions that chart the way. We know where we must go and we know how to get there. That entails:

> A *perspectival transition* in which we understand ourselves as a species among species no longer inhabiting the same planet *Homo sapiens* have known for a very long while. Altered perception includes a certain reenchantment that counters what Max Weber called the "disenchantment" of the world, by which nature was rendered little more than a repository of resources for human use. Reenchantment restores to human consciousness and feeling nature as a community of subjects, the bearer of mystery and spirit, the ethos of the cosmos, and the womb of all the life we will ever know.

An *economic transition* in which economics and ecology merge to become "eco-nomics." Eco-nomics embeds all economic activity within the ecological limits of nature's economy and pursues the three-part agenda of production, relatively equitable distribution, and ecological regenerativity. Growth as a good is not precluded, provided it is ecologically sustainable and regenerative for the long term, reduces rather than increases the eco-social instability that large wealth and income gaps generate, and bolsters rather than undermines the capacity of local and regional communities and cultures to nurture and draw wisely upon their cultural and biological diversity. In all events, "the first law of economics must be the preservation of the Earth economy," to cite Thomas Berry.[xi]

A *demographic* transition in which human population levels off or slowly declines and the negative per person impact on the rest of nature gives way to mutual enhancement with other life.

A *polity transition* in which the basic conception of democratic capitalism shifts, if indeed democratic capitalism is retained. It shifts from (a) a society that fosters virtually unrestricted liberty to acquire and enjoy wealth, in which the right to property and its uses is more basic than the role of government as an equalizing force, to **(**b**)** a society that fosters the common good through the process of democratizing social, political, and economic power in such a way that the primary goods of the commons—

earth, air, fire, water, light—are cared-for requisites of a shared good, a good for both present and future generations of humankind and otherkind.

A *policy transition* in which policies are as integrated as nature itself. Climate change, poverty, energy, food, water are all interlaced in the planetary economy. They, and the "wicked problems" they represent, cannot be siloed and targeted separately for either analysis or solution. Integrated policies need to mirror the systemic character of nature's own integral functioning, just as human technologies must cohere with the technologies of the natural world.[xii]

And a *religious and moral transition* in which, because planetary health is primary and human well-being derivative, the center of ethics shifts from the ego to the ecosphere as the relational matrix of our lives and responsibility. Human creatures, embedded *as* nature *in* nature, are inseparable from the rest of nature from which we have evolved, upon which we depend, and whose fate we share. Nature and its economy are the bottom line, with us and our welfare and power responsible to it. This makes planet-keeping the common calling of all religions in the same moment that the moral framework stretches beyond the modern fixation on the human species so as to include responsibility for the eco-societal, the biophysical, and, now, the geo-planetary.

Let me underscore this religious and moral transition, since it's a different cognitive universe from that of modernity and eco-modernity. It is a universe with a different infrastructure and additional sources of moral knowledge and wisdom. The ecosphere as a whole, both biotic and abiotic, is the center, boundary and subject of religious and moral reflection and responsibility; justice moves from intra-human justice to creation justice; and my bounded human community breaks open to the unbounded community of all life."[xiii] There is a stringent criterion by which to measure all the new wine moral and religious impulses and practices: Are they Earth-honoring? Do they contribute to Earth's preservation and restoration? Is life and what it requires the better because of them? Are the generative parental elements of life—earth, air, fire, water—accorded their place? Has the shift from ego to ecosphere as the center of moral work been made? Does it re-form itself around the human vocation of tilling and keeping in such a way as to move into what James Baldwin calls "new first works"?

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We are a species that is capable of adapting to a changed planet even when that entails changing ourselves as well as our world. Moral and religious imagination is essential here, and already at work. Let's turn to new wine and new wineskins even as we're keenly aware that most folks will say "the old is good" and do all in their power to extend modernity and eco-modernity.

I will only mention one of the new wineskins. It's vital but we're giving it attention throughout the conference. Namely the new cosmology and the common creation story as represented by *The Journey of the Universe.* No one in this room underestimates the power of the grand narratives of our lives, the stories of origin,

destiny, meaning and purpose that shape and guide the journeys we live. Only because that is so well presented in the work of Mary Evelyn Tucker, John Grim, Brian Swimme, and the Religion and Ecology Forum, do I name it only to move on.

A second undertaking they are also deeply invested in as new wine and wineskins is the Earth Charter. Here I wish to say more, in order to highlight its promise for the transitions I outlined.

The dream of a common earth ethic and the unity of humankind is at least as old as the Hebrew prophets, Confucius, the Buddha, and Plato. That should surprise no one since religions, together with ancient philosophies and the primordial visions of First Peoples, have consistently staked out the audacious claim that "community" not only includes Earth as a whole but the cosmos. Creation as a community has been the enduring dream and a basic religious, moral, and metaphysical claim.

The Earth Charter belongs to the dream of Earth as a comprehensive community guided by a shared ethic. There are new twists, however. The most remarkable one, at least for the children of modernity, is this one; namely, to derive the ethics of *Homo sapiens* from Earth's requirements and to consider the whole community of life the bearer of compelling moral claims. "Respect Earth and life in all its diversity"[24] is the fundamental principle of the Charter. It parallels human dignity, or respect for every human life, as the baseline of the Universal Declaration of Human Rights.

But the parallel hides a moral revolution. The Charter rejects modernity's turn to the human subject for modern Western ethics—a turn underlying modern psychology, philosophy, economics, politics, and the science and technology of the industrial paradigm itself. Although its language is careful and consensual, and never truly

confrontational, the Earth Charter is an assault on the institutionalized anthropocentrism of reigning practices, especially patterns of production and consumption. To say "humanity is part of a vast evolving universe"[25] and to view Earth as a remarkable niche in that universe, alive because it is the bearer and sustainer of a unique community of life, is already to dislodge the autonomous, transcendent human subject and invert the orientation of prevailing ethics. Like so much ancient wisdom, the Charter locates the ecology of human action within the economy of Earth itself and tempers the sovereign swagger of idolatrous human power parading mastery on a grand scale. At the same time, the Charter affirms the dignity of all human beings, their freedom, equality, and right to respect. The Charter's assumption is that human economies can be attuned to Earth's and to mutual benefit with the rest of life, if humans assume their proper place in the "vast evolving universe."

Another theme puts the Earth ethic of the Charter far from the reigning moral universe of present institutions and habits. Cosmologies such as that reflected in *Journey of the Universe*, in which the web of life spreads to embrace distant galaxies and all 13 to 15 billion years of cosmic and planetary evolution, have little place in most modern moral conventions. They still regard us as an ecologically segregated species, morally speaking, even in eco-modern mode. The Earth Charter does not.

The Earth Charter tries to outline what Earth as community means for human life and human moral agency. It does so by decentering the sovereign human self and calling for common efforts that mean, in the words of a penultimate draft, no less than "reinvent[ing] industrial-technological civilization." This primacy of Earth community

for ethics is a communitarian understanding of nature and society together, with creation's economy basic to all and instructive for all.

This means the Charter is an Earth ethic and not an environmental ethic. Ecological integrity is certainly its theme but the Charter recognizes that the goals of ecological protection, the eradication of poverty, equitable economic development, respect for human rights, democracy, and peace, are interdependent and indivisible. The whole of Earthly life is the domain, not "the environment."

Still another remarkable quality of the Earth Charter is the drafting process itself. A global civil-society initiative, the drafting is the most inclusive process ever associated with an international declaration, with grassroots participation by communities and associations of all kinds across all sectors of society. What stands out about the Charter's genesis is its difference from previous efforts to device a pan-human Earth ethic. Few have been generated from the bottom up; or more precisely, from high levels of participation cutting across all sectors of society, with a determined effort to include historically underrepresented voices. Past efforts were far less representative, and none were carried out by way of a cross-cultural, democratic consultative process open to so much revision over a decade-long drafting and redrafting of common goals and shared values. The Charter, made possible by electronic globalization as well as face-to-face meetings everywhere, is a remarkable instance of what in fact may be an emerging global society tuned to local communities and bioregions as well as to expertise from every quarter—government, business, academe, and the varied expressions of civil society. Not least, the world's religions are sources of the Charter's accumulated wisdom.

These two qualities, then, command the attention of religious ethics in a new key: the Charter's high levels of representation and agency in the effort to realize the ancient dream of an Earth ethic; and its moral universe, with respect for the full community of life and its diversity as foundational. Steven Rockefeller's own lean summary of the Charter echoes this: "Interconnectedness and responsibility are the two main themes of the Earth Charter."[26]

If the Earth Charter is a response to what is happening to the planet and the inadequacy of modern ways to address it, where are the rubs? What does the Earth Charter assume, cherish, and pursue that will be difficult to achieve because of present forces? Only one obstacle is discussed here, albeit a far-reaching one: the conflict between the Charter's kind of democracy and global capitalism's.

The vernacular for the ways of global capitalism is the language of "globalization," the porous movement of information, money, goods, images, ideas, and people across countries and cultures, driven by the progressive integration of these elements into a single geopolitical economy. Players are many but most prominent are those Thomas Friedman tags "corporations on steroids."[27]

Most discussions of sustainable development assume the globalizing economy of corporate capitalism and seek to green that. Sustainable development is the effort to wrap the global environment around the global economy in such a way that both the economy and the environment can continue indefinitely.

The Earth Charter, too, uses the language of sustainable development. Yet its spirit and direction better accord with sustainable community. Sustainable community works on the principle of subsidiarity. Subsidiarity asks how economy and environment

are wrapped around local communities and bioregions. As a principle, subsidiarity is always in search of the most appropriate "whole" to address challenges and problems. But it begins in decentralized fashion with local communities and their assets. If they can address basic needs with those assets, no further course need be pursued. If they cannot, or, rather, when and where they cannot, then the effort is made to draw upon or create a more encompassing "whole." In a contracting world, that whole may easily require international cooperation. But subsidiarity's principle is always the same: begin with the local and solve problems at the so-called lowest appropriate level with the resources available there. This is to "consult the genius of the place," to recall Wes Jackson's work.

In contrast to sustainable development as global corporate capitalism, Big Economics and Big Politics greened, sustainable community is the effort to preserve or create all together or in part: greater economic self-sufficiency locally and regionally, with a view to the bioregions themselves as basic to human organization; agriculture appropriate to a region and in the hands of local owners and workers using local knowledge and crop varieties, with the ability to save their own seeds and treat their own plants and soils with their own products; the preservation of local and regional traditions, language, and cultures and a resistance to global homogenization of culture and values; a revival of religious life and a sense of the sacred, in place of a way of life that leaches the sacred from the everyday and reduces life to the utilitarian; the repair of the moral fiber of society on some terms other than sovereign consumerism; resistance to the full-scale commodification of things, including knowledge; the internalization of costs to the local, regional, and global environment in the price of goods; and the protection of ecosystems

and the cultivation of Earth, in the language of the Charter, as “a sacred trust held in common.”

All this is global democratic community, not nativist localism. It is not asking *whether* to “globalize,” but *how*. And the Charter’s answer—democratic community democratically arrived at—is *global* community by virtue of both its planetary consciousness and the impressive networking of citizens around the world made possible by electronic globalization. Adherents of sustainable community have this, rather than “development” in mind, because they are not trying to wrap the global environment around the integrating global economy of corporations. They are asking, “What makes for healthy community on successive levels—local, regional, sometimes national, and global—and how do we achieve a healthy economy and environment together, aware that Earth’s requirements are the bottom line below the bottom line?” They are attentive to questions that global capitalism, even as sustainable development, rarely asks: What are the essential bonds of human community and culture, as well as the bonds with the more-than-human world? What is the meaning of such primal bonds for a healthy, concrete way of life? What are cultural wealth and biological wealth and what wisdom do we need to sustain them in the places people live with the rest of life’s community?

In sum, the Earth Charter is an example of present wisdom-in-the-making and a call for that wisdom in the face of forces that diminish planetary life. The Charter is a new wineskin.

Other new wineskins, quite in keeping with the Earth Charter, are the Transition Towns movement and Joel Spalatin’s Polyface Farm.

The Transition Towns network emerged in United Kingdom (UK) under the tutelage of permaculture designer Rob Hopkins. His home town, Totnes, Northumberland, adapted his university-based work in 2005 and expanded it in 2006. It has caught on quickly. As of 2010 there are 300 communities recognized as Transition Town in the UK and over 400 more in 34 countries, among them Chile, Australia, New Zealand, the United States, and Italy. Begun as local initiatives in response to climate change, peak oil, and (lack of) sustainability, the essence of the Transition Town concept is building resilience at the community level. Issues and concerns range widely, from sustainable local food production ("food feet, not food miles") to fostering a local economy with more equality, to seeking an alternative to economic growth, to high energy efficiency from renewable sources, to the satisfactions of working together in community and tapping sources of hope and addressing fears of local, regional, and planetary loss. Since they initiatives are local, they vary widely. Different communities work on different fronts. All are oriented to practical solutions, however, and all are shared via social networking and Transition Towns websites or e-zines: e.g., "10 First Steps for A Transition Town Initiative", published January 1, 2007, by *Transition Cultures* and "Starting Out, Deepening, Connecting, Building, Daring to Dream" as free-of-charge resources for new efforts, available on www.transitionnetwork.org. "Bringing a New World to Life" is the 2011 theme for http://transitionus.org, the U. S. website.

In short, the Transition Towns movement is an example of socio-environmental and economic localization consciously exiting the industrial-technological paradigm in search for a viable grassroots alternative.

Joel Salatin's Polyface Farm is the final example of recreating grassroots moral community in light of the adaptive challenge of moving into an ecological age. Salatin, who calls himself an "alternative farmer" and a "Christian libertarian environmentalist" who manages a truly "postindustrial" farm,[xiv] watches—and opposes—the takeover of farming as the industrialization of biological systems, including the "industrial organic" of fossil-fueled corporate farms that mass-produce organic crops. One corporate enterprise, Earthbound Farm, grows 80 percent of the organic lettuce in the U. S.[xv] (Michael Pollen calls this "Supermarket Pastoral"[xvi] as chains like Wal-Mart and Whole Foods colorfully arrange fruits and vegetables to paint still lifes worthy of a Dutch canvas.) Yet petroleum fruits and vegetables Salatin cannot accept, anymore that he can FedEx meat from "organic feedlots" across the county. Nor can he bring himself to raise "free-range" chickens that, after five or six weeks of confinement, are offered a little door leading to a small enclosed yard where they enjoy with gay abandon the last two weeks of their lives.[xvii] All these industrial organic meals are part of an industry, "the food industry," that fails to exit a paradigm which has morphed from "nothing succeeds like success" to "nothing fails like success." Ecological values like diversity, complexity, symbiosis, and interdependent relationships are crowded out by their opposites, the industrial values of specialization, economies of scale, mechanization, and biological simplification. Nature's logic proves no match for capitalism's and the old wineskins prevail. Unchecked, "every paradigm exceeds its point of efficiency," Salatin offers as a general rule, as though he knew the Chinese proverb that 400 years of efficiency will bring down any civilization. "The industrial paradigm in agriculture has come to the end of its workability," he continues, and there is less topsoil, less fertility, fewer species and

less life at the same time that new lexicon entries appear—campylobacter, E-coli, mad cow, listeria, salmonella.[xviii] For Salatin, then, "the Fall" is the human hubris that reckons it can treat nature like a profit machine, and does, grinding everything under its wheels for the sake of the bottom line.

But if such is the Fall, redemption is the kind of Darwinian pragmatism Salatin practices—that which symbiotically adapts to survive indefinitely on the sometimes changing terms of its own habitat. Peasant agricultural systems that managed to bring forth food from the same ground year after year after year without depleting the soil is one example. Salatin's "Polyface Farm" is another, a science-informed postindustrial way to read local nature and mimic it. It is also an effort at creating a moral community in his rural Virginia neighborhood, a community that is an alternative to the industrial paradigm's and that of Big Economics and Big Politics.

We could continue with the examples of new wine and wineskins. Fletcher Harper and GreenFaith is another, as is the decade project at Ghost Ranch on Earth-honoring Faith. But I will close on another note, some comments as to why both science and religious leadership are key for the transition from an industrial-technological civilization to an ecological civilization.

Science is indispensable because it can tell us what is happening to our changing planet and to us. It provides sound data. It also provides big ideas about what makes the universe tick. The breakthroughs of science are often breakthroughs that come by viewing the same reality with a different lens or from a different angle. Thus has science been the source of perspectival revolutions. Presently the perspectival revolution needed is, as mentioned, to view ourselves as a humble species that, while wielding

unprecedented cumulative power, fits into the community of life on terms that belong to the integral functioning of *changing* planetary systems.

Science is also the source of prophetic warnings, the kind that says, "if you continue living in the manner you presently are, ruination will follow." Climatologists and oceanographers are presently taking up this task.

Religion is certainly no substitute for science. It is less exacting and trustworthy about things empirical, and less rigorous about testing its claims.

Yet few people will die for a pie chart. Data, even the good data of sound science, do not of themselves upend habitual and cherished ways, including dysfunctional ones. Nor do big ideas about how things work. Even warnings replete with mounds of data may fail to turn heads and hearts. Something with more tenacity, commitment and loyalty; something with a reach deep enough to summon sacrifice; something that lays claim to cosmic meaning and locates us in communities that transcend our egos and surpass our modest moment in time; something that speaks to our longings and the mystery of our lives; something that offers renewable moral-spiritual energy for hard transitions; something that has deep experience with the patterns of death and renewal, birth and rebirth, formation, reformation, and transformation; and something that keeps open the door of hope through it all—some such power as this needs to join all that good science brings.

That something is religion, though not only religion. There are other transforming agents, not least the liberal arts and healthy families. But religion bears remarkable powers that are ignored or dismissed to the peril of those riding the same small ark on the same rising seas. It is foolish not to tap millennia of fluency in the arts of life instruction

and renewal, just as it is foolish to overlook the loyalties of some ten thousand religions and 85 percent of the planet's peoples. The dismissal of religion by its cultured despisers is, in any event, an exercise in futility. It runs against the grain of a species that is incorrigibly religious.

It is also foolish to dismiss those who know what moves people. We are moved by fear and terror and by love and beauty. Religions know these powers. They also know the pain and ruin that follow *Homo sapiens* who sense terror and act in fear but have no experience of a beautiful world or love for it.

Too, religions know how to do grief work, and a diminished planet will generate plenty of grief. Without good grief work, people's essential *internal* resilience will not be sustained.

That said, the powers of the world's faiths are not up to the present task in most of their present forms. In part this is because their prescientific worldviews were formulated well before the onset of modernity. But there is another reason: Like the rest of the human family they, too, lack tried and tested experience with geophysical change and planetary tipping points. Most have not had their own ecological phase on this side of industrialized nature. While they have known death and rebirth as Phoenix rising, they were always greeted by nature's reliability. Not so now. Thus are religious traditions as needful of conversion to the realities of the tough new planet as other agents of change. Religious communities, too, must generate new capacities for new responsibilities on an altered planet. For this, science is their indispensable ally just as religion is the partner of any science that dares to recognize *the* basic question; namely how are we are to live now?

Finally, the challenge to science is to extricate itself from its captivity to industrial-technological civilization. The business models at the center of our economy are in the deepest conflict with physics and chemistry, just as the self-organizing capacities of global markets are in fundamental conflict with the self-organizing capacities of eco-systems. Yet the *uses* of most science have been captured by commerce and the military in ways that render science complicit in the degradation of the planet. How to aid the emergence of ecological civilization in the Anthropocene is the basic challenge to science as it is to religion.

Such is our task. We have new wine, the Anthropocene. The balm of good work before us is making new wineskins and joining those who are already busy with that.

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[i] Marilynne Robinson, from *When I Was a Child I Read Books* (new York: Farrar, Straus & Giroux, 2012), as cited by Andrew Delbanco in his review, "Her Calling," *The New York Times Book Review*, April 22, 2012:13.

[ii] With kind permission from Springer Science+Business Media: W. L. Steffen, et al., *Global Change and the Earth System* (Berlin and New York: Springer, 2004), v. The graphs are Figures 3.66 and 3.67.

[iii] Steffen, et al., *Global Change and the Earth System*, 81.

[iv] Berry, "Does Community Have a Value?" in *Home Economics*, 179.

[v] The term is Aiden Davison's in Aiden Davison, *Technology and the Contested Meanings of Sustainability* (Albany: State University of New York Press, 2001), passim.

[vi] A reference to the earlier discussion, p.

[vii] The phrases are from the Anglican hymn, All Things Bright and Beautiful.

[viii] See Chapter One, "The Creature We Are."

[ix] Norman Wirzba, who does not categorically oppose genetic modification and patenting of food needs, offers this comment: "Far from signaling an end to genetic research, appropriate research will respect the integrity of creatureliness and honor the divine logos (the principles of life and intelligibility) in things. Research that serves the narrow purposes of profitability and power (the glorification of a corporation) rather than the nurture and health of the world, is a desecration." Norman Wirzba, *Food and Faith: A Theology of Eating* (Cambridge: Cambridge University Press, 2011), n. 49, p. 204.

[x] The cover and feature story of *The Economist*, May 28th-June 3rd, 2011,"Welcome to the Anthropocene: Geology's new age," illustrates this stance as well. The feature describes an unprecedented era of Earth under human eco-stress and says it "means thinking afresh about the relationship between people and their world and acting accordingly." But the

story is new wine in old wineskins, as perfectly captured by the cover. Except for a few empty, unfinished patches, the surface of the entire planet is all steel plates, riveted together. The remaining holes await the completion of this human project by the master species. This is the Anthropocene as industrial eco-modern.

[xi] Thomas Berry, "Conditions for Entering the Ecozoic Era," *The Ecozoic Reader*, Vol. 2, No. 2, Winter, 2002:10.

[xii] Thomas Friedman, "Connecting Nature's Dots," *The New York Times* Week in Review, 23 August, 2009:8.

[xiii] From this chapter, p. **Check wording.**

[xiv] Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (New York: Penguin Books, 2008), 203.

[xv] Ibid., 138.

[xvi] Ibid., 134.

[xvii] Ibid., 140.

[xviii] Ibid., 229.