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We Who Would Live the True Life of Nature

By Alice Loyd

I live wedged between the canyon walls of this culture. Beyond them I sense—I swear I’ve seen—the green light Of the world where I belong.

We who would live the true life of nature Only view it now through the cracks Scratched into hard walls by our own or earlier hands.

In order to become human, we must know trees. We must grow up alongside foxes, Run with quail, sleep on moss.

The ones who would have trained me— The small red wolf, the buffalo, Bachman’s warbler— They are all gone, though their light lasts.

It shines through concrete. I believe those rare rays Lean toward me from the other side, As if they know me.

That light must also be seeking us. Nature, from beyond this culture’s barriers, Must long for her lost children.

From two sides then life seeks life, And though we can’t pass through industrial cliffs, We know home by our longing.
The Chronicle (November-December 2013)

Here we offer a special year-end review of recently-published news stories reflecting the shrinking world humans have made. The planet seems smaller due to gains and losses: information and transportation technologies on the one hand, and species and habitat loss, including ice melt, on the other. But it is the world we have, the one we must support and repair. From many sources we’ve gathered information to help us know how to do that.

From Alice Loyd

Story 1: Fukushima Is Not Old News

Recent news stories have made clear that the Fukushima disaster is not over. There remain significant risks, and some believe that the Fukushima risks are at the top level of global environmental concerns. See Fukushima Response and No End in Sight. There remain 1,400 fuel rods in a damaged pool at Fukushima 4 containing many times the radioactive cesium that was released in the bombing of Hiroshima. These rods would be at risk were another large earthquake to occur. Over six thousand rods sit in a common storage pool, which because of radiation at the site cannot be continuously cooled. So, in November 2013, a delicate operation began to remove the rods and move them to a safer storage facility. If the rods touch or are exposed, there is a risk of an uncontrollable nuclear reaction and the release of large amounts of radiation. Because of the damaged condition of the plants, one person compared the operation of removing the 300 kilogram assemblies to removing cigarettes from a wet cigarette package. See Pandora’s Atomic Box Score, Fukushima Forever, and Fukushima’s Most Dangerous Operation Yields First Success.

Story 2: Destruction of Syrian chemical weapons

The first stage of the destruction of the Syrian government’s chemical arsenal has been completed, the head of the Russian Security Council said on December 26. “Critical parts of equipment to produce chemical weapons, mix their components and fill ammunition (with toxic agents) have been destroyed,” Nikolai Patrushev told the Russian government newspaper Rossiiskaya Gazeta.

Under the auspices of United Nations and the Organization for the Prohibition of Chemical Weapons, the operation to destroy the Syrian government’s arsenal of more than 1,000 metric tons of weapons-grade chemicals is taking place in two stages. The most dangerous weapons were to be removed from Syria by December 31—although late news on our publication date indicates it is unlikely the end-of-year deadline will be accomplished. The date set for the at-sea destruction remains April, whereas the remainder has been slated for destruction by mid-2014.

Russia is among many countries assisting the disarmament effort. Last week, Moscow deployed 75 vehicles in Syria to transport the dangerous cargo. Russia will also donate up to $2
million to finance the international operation. Danish and Norwegian vessels will take the chemicals from the Syrian port of Latakia to a port in Italy. They will then be loaded on to a US Navy ship and transported into international waters before being destroyed through hydrolysis in a specially built titanium tank on board.

The disarmament process, which prevented a US military strike on Syria, was launched after an August 21 chemical weapons attack on a Damascus suburb that killed hundreds of civilians. The US and its allies have accused the Syrian government of responsibility for that attack, but Damascus blamed rebel groups fighting the regime of Syrian President Bashar Assad.

According to ABC News, it appears likely that an offer from the United States to destroy the dangerous chemicals at sea will be accepted. The reserve merchant vessel MV Cape Ray, currently in Norfolk, Virginia, is in the process of being equipped with two Field Deployable Hydrolysis Systems, Pentagon officials said in a press briefing. These systems add water and bleach to dangerous chemicals, converting them into an inert liquid byproduct. Though this process has never been carried out at sea, the officials said hydrolysis is “a proven technology” that will result in “a very low risk operation.” About 100 personnel will be aboard the ship, 60 of them Defense Department civilians working with the hydrolysis systems, officials said.

The vessel and its equipment are expected to be ready for sea trials later this month and could begin processing Syrian nerve-agent precursors and mustard gas in January. A senior Defense Department official called the destruction process safe and “environmentally sound.”

“Absolutely nothing will be dumped at sea,” said the official, who spoke on the condition of anonymity to brief reporters about the sensitive mission.

But according to French NGO Robin des Bois, the plan to dispose of the chemical weapons at sea is “adventurous” and poses a serious threat to the crew and the environment. In a report published on December 12, 2013, Robin des Bois pointed to Cape Ray’s single hull and the absence of transverse partitions as indicators that the ship was not suited to perform such a critical task.

**Story 3: The U.S. Farm Bill**

At the end of 2013 the U.S. Farm Bill, a 1,000-page measure that sets the nation’s food and nutrition policy, remains in deadlock. Typically renewed every five years, the United States is currently operating under an extension due to expire at the end of this month. While the bill does set agricultural policy, it also governs food policy, making it a concern of city-based Americans, as well as farmers and non-farmers in other countries.

Both Senate and House versions currently protect the budget by cutting food stamps while leaving intact the large subsidies that go primarily to large-scale farmers.
Prominent economist Joseph Stiglitz criticized the economics and the ethics of the bill now under debate, calling it “a perfect example of how growing inequality has been fed by what economists call rent-seeking. As small numbers of Americans have grown extremely wealthy, their political power has also ballooned to a disproportionate size.”

In a New York Times Op-Ed headlined “The Insanity of Our Food Policy,” Stiglitz wrote,

Small, powerful interests—in this case, wealthy commercial farmers—help create market-skewing public policies that benefit only themselves, appropriating a larger slice of the nation’s economic pie. Their larger slice means everyone else gets a smaller one—the pie doesn’t get any bigger—though the rent-seekers are usually adept at taking little enough from individual Americans that they are hardly aware of the loss. While the money that they’ve picked from each individual American’s pocket is small, the aggregate is huge for the rent-seeker. And this in turn deepens inequality. House Republicans’ farm bill is an especially egregious version of this process. It takes real money, money that is necessary for bare survival, from the poorest Americans, and gives it to a small group of the undeserving rich, in return for their campaign contributions and political support. There is no economic justification: The bill actually distorts our economy by promoting the kind of production we don’t need and shrinking the consumption of those with the smallest incomes.

An example of the consequences under consideration is the situation in Humphreys County, Mississippi. Since 1995, farms there have received about $250 million in subsidies, which puts Humphreys close to the middle in a list of counties that get the payments. At the same time, nearly half of the county’s 9,100 residents receive food stamps, one of the highest rates in the nation. As a result, Humphreys has one of the greatest disparities between the poor, who face food stamp cuts under proposals in the new farm bill, and farmers, who stand to gain more in subsidies.

A summary of the 2012 farm bill can be read on the website of Food & Water Watch. See Farm Bill 101. A primer on agricultural policy is also available on the site.

Story 4: Environmental Assessment in China

In China the environmental tragedy of the year occurred in November in Qingdao, when an oil pipeline exploded, killing or injuring over 100 people. An investigation found the pipeline was too close to urban drains, which points to failures in the environmental impact assessment (EIA) and planning processes.

Air pollution in China has only grown worse in 2013, with broad swaths recording their highest air pollution levels in 52 years, causing widespread outrage over the massive environmental toll wrought by decades of unchecked economic growth. Wang Jinnan, deputy head of the Chinese Academy for Environmental Planning, said that the investment—part of an anti-pollution "action plan" announced by China's cabinet in September—“would drive up GDP by nearly two trillion yuan (£202b) and create over two million jobs.”
Cleaning up China’s air pollution will cost 1.75 trillion yuan between 2013 and 2017, a high-ranking environmental official has estimated (1 yuan = 0.1648 USD). The total cost will be higher than the 2012 gross domestic products of most countries, including Finland, Israel and Portugal.

While Beijing has long been notorious for what is often called “pea-soup” air, a number of traditionally clearer cities, including Shanghai and the northeastern metropolis Harbin, have registered pollution levels high enough for local authorities to ground flights, close schools and pull cars from the roads.

On December 20, 2013, Shanghai’s concentration of airborne particulate matter small enough to lodge deep within the lungs rose to 214 micrograms per cubic meter, three times China’s national limit. The five-year action plan pledged to reduce the level of airborne particulate matter by at least 10% in major cities by 2017.

Liu Jianqiang, Beijing editor of ChinaDialogue and author of China and the Environment: The Green Revolution, called 2013 a year of disappointment for the environment. In June a second draft of a revision of the Environmental Protection Law was published for comment. The revision specified that the semi-official All-China Environmental Federation (ACEF) has the exclusive right to bring environmental litigation in the public interest—a rule that many opposed. A third draft published in late October did not mention the ACEF and appeared to widen the scope to other bodies but ruled that organizations bringing environmental litigation must be nationwide bodies registered with the civil affairs authorities, have been engaged in environmental protection for five consecutive years, and be of good repute. Feng Yongfeng, founder of Green Beagle, explained that to be considered nationwide, a body must be registered with the Ministry of Civil Affairs. Add in the other requirements and only one body appears to be qualified—again, the ACEF.

He reports that the “Global Burden of Disease Study 2010,” http://www.thelancet.com/themed/global-burden-of-disease published in 2012, showed that China suffered 1.24 million premature deaths in 2010 due to air pollution. Beijing’s health authorities have recently revealed that between 2002 and 2011 the incidence of lung cancer in the city rose from 39.56 cases per 10,000 residents, to 60.09.

Air pollution has become a matter of genuine concern to the public, and is no longer just an environmental protection issue. Face masks have become a fashion statement and air purifier sales have spiked. An elementary school in north China’s Shijiazhuang, one of the country’s most polluted cities, has begun teaching its students a smog-defying aerobics routine involving acupuncture points associated with respiratory health.

It has become a quality of life problem, and even a diplomatic matter.

**Story 5: Global Climate Change: Warsaw UNFCCC Talks, Consumption-Based Accounting, and Emissions by Companies**
Greenhouse gas pollution in the global atmosphere is not the number four story in importance, of course, and at least at the end of 2013 we can say it is getting an increasing amount of attention.

Action? Progress? A New York Times article claims only that “Two weeks of United Nations climate talks ended with a pair of last-minute deals keeping alive the hope that a global effort can ward off a ruinous rise in temperatures.” More than 10,000 people, including national delegations, journalists, advocates and, for the first time, business leaders, were in attendance as delegates agreed to the broad outlines of a proposed system for pledging emissions cuts and gave their support for a new treaty mechanism to tackle the human cost of rising seas, floods, stronger storms and other expected effects.

As another NYT article comments, however, “Countless summit conferences since the Kyoto Protocol on climate change was adopted more than 15 years ago have failed to budge the fundamental roadblocks standing in the way of collective action: How should the costs be divided? Several novel suggestions that might break the log jam are being proposed.

The standard approach being considered to account for the cost of “traded” carbon is to tax recorded emissions at the border. Large, poorer exporters like China, not surprisingly, don’t like that approach. And they have some influential supporters. Glen Peters at the Center for International Climate and Environmental Research in Oslo is quoted as saying, “If China brought this up in negotiations it would be allowing the United States and Europe to regulate Chinese exports.” Other research has concluded that imposing a border penalty would encourage China and other developing countries to tax their own carbon emissions—and keep the money—rather than have them taxed by others.

In the other referenced NYT article on this topic, Eduardo Porter comments: “There is nowhere near a consensus on who is responsible for historical emissions. Some studies have concluded that the rich world put up to 80 percent of the existing carbon dioxide in the air. But this year researchers in the Netherlands and at the European Commission concluded that by including the impact of changing land use, developing countries actually accounted for nearly half of all heat-trapping gases emitted between 1850 and 2010.”

Another point he makes is this: Geographically based calculations make it look as if advanced industrial countries have managed to stabilize their carbon emissions. But they have just moved the growth outside their borders.

His inquiry, asking this question, focuses on consumption rather than generation: “Are emissions the responsibility of the countries that made them or of the countries for whom the products were made?”

Elizabeth Stanton and colleagues at the Stockholm Environment Institute-U.S. Center performed a set of calculations on carbon emissions. Rather than tally the carbon they produced, they wanted an inventory of the emissions generated in making, transporting, using and disposing of what they consumed. They were in for a surprise. San Francisco, for example,
generated only eight million metric tons of carbon dioxide equivalent in 2008. The city’s consumption, by contrast, added nearly 22 million tons of carbon to the air. Using consumption-based measurements, Oregon’s emissions in 2005 jumped to 78 million tons from 53 million.

The focus on consumption makes sense. Understanding its impact on climate change is a necessary first step for families, and municipalities to take concrete action to mitigate carbon emissions. This sort of recalculation, however, could have an unforeseen effect on the international politics of climate change by shifting responsibility on a global scale.

The carbon emissions created by Americans’ consumption are about 8 percent more than the emissions produced in the United States alone, according to scientists at the Global Carbon Project. Conversely, about a fifth of China’s emissions are for products consumed outside its borders.

And the European Union, self-contentedly green under standard calculations based on where carbon is emitted, looks less virtuous through a consumption-based lens. In 2011 Europeans emitted only 3.6 billion metric tons of carbon dioxide, but 4.8 billion tons were spewed into the atmosphere to make the things Europeans consumed.

As Mr. Porter comments, “Throwing consumption-based accounting into this forest of pointed fingers might add ethical nuance to the debate, but it is unlikely to make it any easier.”

Another possible approach would be to ask private corporations to bear some of the costs. In a Guardian story Suzanne Goldenberg reports on data collected over eight years by the Climate Accountability Institute in Colorado. The conclusion? The climate crisis of the 21st century has been caused largely by just 90 companies, which between them produced nearly two-thirds of the greenhouse gas emissions generated since the dawning of the industrial age.

In addition, half of the estimated emissions were produced just in the past 25 years—well past the date when governments and corporations became aware of the danger rising greenhouse gas emissions from the burning of coal and oil.

Among them, the 90 companies on the list of top emitters produced 63% of the cumulative global emissions of industrial carbon dioxide and methane between 1751 to 2010, amounting to about 914 gigatonnes of CO2 emissions, according to the research. The list includes 50 investor-owned firms—mainly oil companies with widely recognized names such as Chevron, Exxon, BP, and Royal Dutch Shell and coal producers such as British Coal Corp, Peabody Energy and BHP Billiton. Some 31 of the companies that made the list were state-owned companies such as Saudi Arabia’s Saudi Aramco, Russia's Gazprom and Norway’s Statoil.

Government-run oil and coal companies in the former Soviet Union produced more greenhouse gas emissions than any other entities—just under 8.9% of the total produced over time. China came a close second with its government-run entities accounting for 8.6% of total global emissions. ChevronTexaco was the leading emitter among investor-owned companies,
causing 3.5% of greenhouse gas emissions to date, with Exxon not far behind at 3.2%. In third place, BP caused 2.5% of global emissions to date.

All but seven of the 90 were energy companies producing oil, gas and coal. The remaining seven were cement manufacturers. Many of the same companies are also sitting on substantial reserves of fossil fuel which—if they are burned—puts the world at even greater risk of dangerous climate change.

The analysis, which has been published in the journal Climatic Change, shows the companies' operations spanning the globe, with company headquarters in 43 different countries. "These entities extract resources from every oil, natural gas and coal province in the world, and process the fuels into marketable products that are sold to consumers on every nation on Earth," writes climate researcher and author Richard Heede in the paper.

The historic emissions record was constructed using public records and data from the US Department of Energy's Carbon Dioxide Information and Analysis Center, and took account of emissions all along the supply chain.

"There are thousands of oil, gas and coal producers in the world," said Heede, "but the decision makers, the CEOs, or the ministers of coal and oil if you narrow it down to just one person, they could all fit on a Greyhound bus or two."

Climate change experts said the data set was the most ambitious effort so far to hold individual carbon producers, rather than governments, to account.

Two international climate talks are ahead for world leaders. United Nations Secretary General Ban Ki-moon has called for one to take place in September 2014 in New York, where they will be asked to show progress on cutting emissions in the full glare of the United States and the world news media. In 2015 United Nations members look toward a 2015 conference in Paris to replace the Kyoto Protocol.


Gavin A. Schmidt, deputy director of NASA’s Goddard Institute for Space Studies, has built RealClimate.org into what Andrew Revkin calls a vital online touchstone for anyone trying to understand research on the human influence on the planet’s thermostat.

Richard Heinberg of the Post Carbon Institute has approached climate change education from another perspective. First he condensed the needed message to 661 words, adding “There it is. It is a complicated message. And here’s a summation of the summation: it’s all about energy; renewables are the future; growth is over.”

Another idea about addressing climate change information is not as pro-active in timing. A panel appointed by the National Research Council called for the creation of an early warning system.
In the Stephen H. Schneider Lecture at the annual meeting of the American Geophysical Union, Gavin A. Schmidt, deputy director of NASA’s Goddard Institute for Space Studies, gave a lecture titled “What should a climate scientist advocate for? The Intersection of Expertise and Values in a Politicized World.”

Answering a question, he added this vital thought: It’s important for people who know things not to cede the public sphere to people who don’t know things because if we do then we have this vast hinterland between headlines and journal articles that is populated by people who have very, very different agendas and basically no understanding of the science at all.

Andrew Revkin of the New York Times, encourages anyone working at the interface of climate science and policy to watch the video of Schmidt’s lecture, posted by the Geophysical Union on YouTube.

Richard Heinberg of the Post Carbon Institute has approached climate change education from another perspective. First he condensed the needed message to 661 words, adding “There it is. It is a complicated message. And here’s a summation of the summation: it’s all about energy; renewables are the future; growth is over.” He admits, “Only readers with a lot of prior knowledge will be able to truly understand some of these words and phrases. And many people who are capable of making sense of what I’ve written would disagree with, or dismiss, much of it. The message faces a tough audience, and it flies against deep-seated interests.”

He continues, however, asserting “there is too much at stake to indulge in the luxury of cynicism. Our job is to keep coming up with convincing, well-reasoned, and well-documented arguments for change; attractive PR messages; a compelling new paradigm; and impressive demonstration projects—while opposing further fossil fuel extraction, new roads, and other things that lead toward ecological peril.

“And we must do it all with as much commitment and vigor as if the fate of the world depended on it. As far as I can tell, it does.”

Another idea about addressing climate change information is not as pro-active in timing. A panel appointed by the National Research Council called for the creation of an early warning system to alert society well in advance to changes capable of producing chaos. The recommendation released on December 3, 2013, considered “whether some changes could occur so suddenly as to produce profound social or environmental stress, even collapse.” It cited the outbreak of mountain pine beetles in the American West and in Canada. The disappearance of bitterly cold winter nights that used to kill off the beetles has allowed them to ravage tens of millions of acres of forests, damage so severe it can be seen from space. Although the panel avoided catastrophic predictions, it warned that Arctic sea ice could disappear in the summer within several decades, with severe impacts on wildlife and human communities in the region, and unknown effects on the world’s weather patterns.
Among the greatest risks in coming years, the panel said, is that many of the world’s coral reefs, a vital source of fish that feed millions of people, already seemed fated to die within decades. Moderately likely over the coming century, is that rising heat in the upper ocean could result in reduced oxygen in the deep. The worst-case scenario would be the creation of huge zones with too little oxygen for sea creatures to survive.

**Story 7: NAFTA’s 20th Anniversary**

In a report published December 22, 2013, by *Foreign Policy in Focus*, Karen Hansen-Kuhn appraises NAFTA’s results for the farmers in Mexico and the United States. Hansen-Kuhn, International Program Director at the Institute for Agriculture and Trade Policy, writes, “One of the clearest stories to emerge in the two decades since the North American Free Trade Agreement (NAFTA) was implemented is the devastation wreaked on the Mexican countryside by dramatic increases in imports of cheap U.S. corn. But while Mexican farmers, especially small-scale farmers, undoubtedly lost from the deal, that doesn’t mean that U.S. farmers have won.

“Prices for agricultural goods have been on a roller coaster of extreme price volatility—caused by unfair agriculture policies and recklessly unregulated speculation on commodity markets, as well as by increasing droughts and other climate chaos. Each time prices take their terrifying ride back down, more small-and-medium-scale farmers are forced into bankruptcy, concentrating land ownership and agricultural production into ever fewer hands.”

Hansen-Kuhn’s comments include the interlocking effects of the 1996 Farm Bill. “That legislation set in place a shift from supply management and regulated markets to a policy of ‘get big or get out.’ Farmers were encouraged to increase production with the promise of expanded export markets. But almost immediately, commodity prices dropped like a stone, and Congress turned to ‘emergency’ payments—later codified as farm subsidies—to clean up the mess and keep rural economies afloat.” Prices also increased for land, fuel, fertilizers, and other petrochemical-based agrochemicals. As a result, net farm incomes became much more erratic.

Her analysis continues, “Over the last 20 years, there has been a marked shift in the size of U.S. farms, with the numbers of very small farms and very large farms increasing dramatically. The increase in the number of small farms is due to several factors, including urban dwellers returning to the land (almost all of whom rely on off-farm jobs to support themselves), and the growth in specialty crops for local farmers’ markets. According to USDA researchers Robert Hoppe, James MacDonald, and Penni Korb, the number of farms in the middle—small operations that are commercially viable on their own—dropped by 40 percent, from half of total farms in 1982 to less than a third in 2007.”

The result of the NAFTA/Farm Bill 1996 constellation is a sector marked by inequality and corporate concentration. The report quotes Mary Hendrickson at the University of Missouri, who has calculated the share of production held by just four firms in different sectors. “In total beef production, for example, the share of the top four firms (Cargill, Tyson, JGF, and National Beef) increased from 69 percent in 1990 to 82 percent in 2012. The story is the same in poultry, pork, flour milling, and other sectors.” Fewer firms control bigger and bigger shares of total production, making it harder for other farmers to get fair prices or earn a living from their production.
Hansen-Kuhn concludes: “As corporations consolidated in the United States, they grew even larger by taking advantage of provisions in NAFTA that let them operate across borders. For example, U.S.-based corporations can grow cattle in Canada and pork in Mexico, and then bring their products back to the United States for slaughter and sale. Efforts to label these meats under Country of Origin Labeling laws have been vigorously opposed by the Mexican and Canadian governments. As a result of these advantages to large-scale growers, independent hog and poultry producers in the United States have virtually disappeared.”

Not surprisingly, the U.S. Chamber of Commerce holds a different opinion. The introduction to its 20-year summary of NAFTA states: “NAFTA has succeeded spectacularly in boosting cross-border trade, economic growth, and good jobs. Understanding this success is more important than ever as the agreement’s many critics are sure to repeat their attacks on the occasion of NAFTA’s anniversary. The bottom line is that NAFTA has supported millions of good jobs, raised standards of living, and enhanced the competitiveness of North American industry in a rapidly changing global economy.”

Lawmakers and President Obama seem to agree with the Chamber as they push for the Trans-Pacific Partnership and the Transatlantic Trade and Investment Partnership. These are largely modeled on NAFTA, with new provisions that would limit any remaining restrictions on genetically modified organisms (GMOs) and permit food additives that are coming under increasing criticism.

**Story 8: 25th Anniversary of the Murder of Chico Mendes**

A story in *The Guardian* states that when Chico Mendes murder took place in Brazil on December 22, 1988, his opponents hoped to kill off the forest conservation campaign. Instead it boosted the campaign’s profile throughout the country and across the world, influencing a generation of conservationists and policymakers.

The Brazilian government has declared Chico Mendes “Patron of the Brazilian Environment,” and institutions have been named after him, including the main state agency in charge of conservation—the Instituto Chico Mendes de Conservação da Biodiversidade. His home state of Acre in the western Amazon has pioneered the establishment of extractive reserves.

Mendes is now a symbol of the global environment movement, and many of his ideas live on through associates, notably Marina Silva, who became environment minister and put in place Amazon protection systems that are credited with an impressive fall in the rate of deforestation until recently.

The *Guardian* tribute continues, “But the celebrations will be tempered by the resurgent influence of the landowners’ lobby, a recent sharp uptick in Amazon clearance and renewed questions about the Brazilian government’s willingness to protect forest workers and conserve the biodiverse habitat on which they depend. Mendes would have recognized the destructive forces at work, though contrary to his reputation as an environmentalist, he was first and foremost a union activist campaigning on behalf of rubber tappers whose way of life was being decimated along with the loss of the Amazon.”
Shots: A Collection of Good and Bad News.

First the good.

Redox Power Systems, a Fulton, Maryland-based start-up company founded last year, sealed the deal on a partnership with researchers at the University of Maryland to commercialize a fuel cell that is about one-tenth the size and one-tenth the cost of currently commercial fuel cells. Redox says that it will provide safe, efficient, reliable, uninterrupted power, onsite and optionally off the grid, at a price competitive with current energy sources.

USF professor Yogi Goswami has captured solar energy using salt-filled ceramic balls that can turn water into steam for hours after the sun disappears. The steam powers turbines that produce electricity, in much the same way as burning coal. He has devised a way to concentrate the energy storage into golf ball-size capsules that even at high volumes take up little space, reduce costs and last longer than other technologies.

And in California, utilities will install massive banks of batteries and other devices to store the power surplus created by solar panels in the afternoon, when the sun’s rays are strong. The batteries are then to begin discharging power into California’s electric grid in the early evening, around sunset, when the solar generation of energy dies down but demand rises. The new system is the opposite of an idea utilities have considered for years: use batteries to store power at night from traditional sources, like natural gas and coal, and run them down in the peak heat of late afternoon.

Bad news:

According to new, unpublished research by federal scientists, traces of 18 unregulated chemicals were found in drinking water from more than one-third of U.S. water utilities in a nationwide sampling. Included are 11 perfluorinated chemicals, an herbicide, two solvents, caffeine, an antibacterial compound, a metal and an antidepressant.

A December 22 report states that nearly 1,000 bottlenose dolphins—eight times the historical average—have washed up dead along the Eastern Seaboard from New York to Florida, a vast majority of them victims of morbillivirus. “Because bottlenose dolphins are top predators, have long life spans and live near shore,” said Dr. Greg Bossart, “whatever happens coastally impacts them and potentially us.”

An experienced Australian sailor laments observations made on his voyage from Japan to San Francisco in http://www.theherald.com.au/story/1848433/the-ocean-is-broken/

Good/Bad News:

Advances in molecular genetics and DNA sequencing technology have allowed a San Diego start-up to domesticate jatropha, a plant with seeds that produce high-quality oil that can be refined into low-carbon biofuel.
In October a report from the WHO’s International Agency for Research on Cancer for the first time described air pollution as a common and significant environmental carcinogen. The report found evidence to show that exposure to outdoor air pollution can cause lung cancer and an increased risk of bladder cancer. Air pollution is now as much of a cancer risk as tobacco, UV radiation and asbestos.

Apple hasn’t managed to produce its iPhone without adding heat-trapping carbon to the air. The company expects an iPhone 5s to inject 70 kilograms—about 154 pounds—of carbon dioxide equivalent into the atmosphere over its lifetime, 11 pounds less than the iPhone that Apple introduced last year.
WHY 2014 IS A SPECIAL YEAR IN RELATION TO THOMAS BERRY

The year 2014 has two special anniversaries related to Thomas Berry: June 1, 2014, will be the fifth anniversary of his death, and November 9, 2014, will be the 100th anniversary of his birth. CES is not focused on Thomas Berry, but we are focused on the Great Work, the work of moving on from a terminal Cenozoic era to an emerging Ecozoic era in the history of the planet Earth, identified by him.

We believe it is not Thomas Berry the man who is important but Thomas Berry’s work. We further believe that this would be his wish. He was a modest man and did not like to draw attention to himself. His passion was for the Earth. Nonetheless, his work cannot be separated completely from the man.

Now that five years has passed, an interval has passed when we can begin the reassessment of his work, the reappropriation of his work, and the expansion of his work. We believe, however, this should be an honest appraisal. Was Thomas a passing figure, inspirational for some for a time or is his work enduring? We would consider it enduring if it continues to provide guidance. Much has changed since the time he did his major writing and even since his death.

To this end we will be holding a Colloquium at the University of North Carolina on May 28-30, 2014, on “Thomas Berry’s Work: Development, Difference, Importance, Applications.” The purposes of the colloquium will be to

- Situate Berry’s work within broader intellectual and social currents and contexts
- Review his ideas critically
- Assess his contributions to particular domains and establish conversations between Berry’s work and other fields or thinkers
- Analyze the contemporary relevance and potential applications of his work
- Develop further his key concepts concerning the main elements of the transition(s).

A copy of the “Call for Papers and Participation” related to the Colloquium is available HERE.

Prior to the Colloquium we will publish an issue of The Ecozoic providing a critical commentary of Thomas Berry’s Work, and after the Colloquium we will host a celebratory weekend at Camp New Hope in Chapel Hill on Thomas’s work. In addition, we intend in the fall to publish an issue of The Ecozoic on “Thomas Berry’s Great Work Now.” Start preparing your articles!

It seems to us that the issue is not whether we affirm the Great Work, but how we do the Great Work and, more importantly, how we accomplish it. It is, of course, not within the power of any one of us or all of us receiving this publication to bring into being the Ecozoic era, but we should have a sense of what we need to do to do our part in bringing it about. We see this not as something that will be accomplished in our lifetimes, but a work that will take several lifetimes and, even then, will be ongoing. We subscribe to David Orr’s admonition to turn from the short run to the long run, but without excusing ourselves from taking actions now to preserve and protect Earth community.

In keeping with the idea of reassessing and reappropriating Thomas’s work, we offer in this issue two older summaries of Thomas’s work. This is a reminder of how Thomas spoke to people in the period of the 1990s and early 2000s, the time of his greatest public influence thus far. We are now, however, in a generational change. This must be passed on to a new generation if it is to live, and the message that the new generation takes will be different.
We caution people against spiritualizing Thomas, making Thomas an icon, equating his work with the universe story, and treating his ideas only as poetry and not as philosophical ideas. We commend attention to Thomas’s cultural critique and his ideas concerning ecozoic societies.

We celebrate and honor Thomas. In the grand scheme, however, it is not about Thomas the man, it is about his work and the guidance he gives for the work he gave to us and to future generations.

Please share your thoughts on this with us for future issues of CES Musings.
A PROPHETIC VOICE: THOMAS BERRY

By Marjorie Hope and James Young

Introduction

Whenever Thomas Berry looks out over the Hudson River from his home at the Riverdale Center for Religious Research, he experiences anew “the gorgeousness of the natural world.” The Earth brings forth a display of beauty in such unending profusion, a display so overwhelming to human consciousness, he says, that “we might very well speak of it as being dreamed into existence.”

But this Passionist priest and cultural historian—who calls himself a geologist—also reflects on the disastrous damage humans have wrought on the Earth. What is happening today is unprecedented, it is not just another change, he says. We are changing the very structure of the planet. We are even extinguishing many of the major life systems that have emerged in the 65 million years of this, the Cenozoic era—an era that has witnessed a spectrum of wonders, including the development of flowers, birds, and insects, the spreading of grasses and forests across the land, and the emergence of humans.

The Earth is changing, and we ourselves, integral aspects of the Earth, are being changed, he says. Religion must now function within this context, at this order of magnitude. But Western religion has been assuming little or no responsibility for the state or fate of the planet. Theology has become dysfunctional.

As a member of a Roman Catholic order, Berry directs much of his criticism at the tradition he knows best, Christianity. But his intention is to address people of any belief, and his searching mind and wide acquaintance with Chinese, Indian, Southeast Asian, Native American, and other cultures - indeed, the entire pageant of cultural history - make him catholic in the, non-sectarian sense of the term. His whole lifetime has been devoted to pursuing an understanding of the human condition and the condition of other beings on this planet.

Of course, he is thinking of present-day human beings who live under the spell of Western culture when he writes: “We have lost our sense of courtesy toward the Earth and its inhabitants, our sense of gratitude, our willingness to recognize the sacred character of habitat, our capacity for the awesome, for the numinous quality of every earthly reality.” For Berry, the capacity for intensive sharing with the natural world lies deep within each of us, but has become submerged by an addiction to “progress.” Arrogantly we have placed ourselves above other creatures, deluding ourselves with the notion that we always know best what is good for the Earth and good for ourselves. Ultimately, custody of the Earth belongs to the Earth.

In the past, the story of the universe has been told in many ways by the peoples of the Earth, but today we are without one that is comprehensive. What is needed is nothing short of a new creation story, a new story of the universe, he asserts. Creation must be perceived and
experienced as the emergence of the universe as both a psychic-spiritual and material-physical reality from the very beginning.

Human beings are integral with this emergent process. Indeed, the human is that being in whom the universe reflects on and celebrates itself in the deep mysteries of its existence in a special mode of conscious self-awareness.

Everything tells the story of the universe - the wind, trees, birds, stones. They are our cousins. Today it is harder to hear them. Berry has concentrated over the years on listening to the story told by the physical sciences, the story narrated by human cultures, the story recounted through cave paintings, visions of shamans, the pyramids of the Egyptians and Mayans. Each narrative is unique. But ultimately, they all tell the same story too.

We need a narrative that will demonstrate that every aspect of the universe is integral with a single organic whole, he insists. Its primary basis is the account of the emergent universe as communicated through our observational sciences. The universe as we know it today not only has cyclical modes of functioning, but also irreversible sequential modes of transformations. From the beginning of human consciousness, all cultures experienced the cyclical modes: the ever-renewing sequence of seasons, of life and death. But today scientists and some others have begun to move from that dominant spatial mode of consciousness to a dominant time-developmental mode, time as an evolutionary sequence of irreversible transformations. We are beginning to recognize that our might can do temporal damage that is also eternal damage.

The new narrative will encompass a new type of history, a new type of science, a new type of economics, a new mode of awareness of the divine—in the very widest sense, a new kind of religious sensitivity. Such ideas as these do not always sit well with traditional Christians, nor with the followers of some other religions.

We realized on our first meeting with him at the Riverdale Center that Berry does not fit the common image of a nonconformist. A man with a gentle smile, bright eyes, and tousled whitening hair opened the door of the three story brown house and introduced himself simply as “Tom Berry.” It was a little hard to imagine that this retiring man, dressed in an old shirt and subdued in his speech could write so passionately of the dance, song, poetry, and drumbeats through which human beings have expressed their exultation and sense of participating in the universe as a single community. He led us through the inside of the house, which appeared to be one vast library with special collections of books, many in original languages, on Hindu, Confucian, Buddhist, Shinto, and Native American cultures. He then seated us on the plant-filled sun-veranda overlooking the Hudson. Despite his shy manner, he responded easily to our questions, and sometimes took the initiative.

Noticing that our eyes had been drawn to the majestic red oak outside the window, he told us that it had endured more than four hundred years of nature’s buffets, and had withstood even human-made disasters, like the massive tremors from a gas tank explosion that uprooted its fellow oak several years ago. To him it stood as a symbol of hope. Indeed, it was to this tree
that he had dedicated *The Dream of the Earth*: “To the Great Red Oak, beneath whose sheltering branches this book was written.”

As we listened, occasionally looking across the river at the Palisades, we sensed that the Riverdale Center, set in the valley that had witnessed a story that included the emergence of the Palisades, the appearance of trees and birds and bears, then the long habitation by Native Americans, is a fitting place to contemplate the fate of Earth. It seemed fitting, too, that scientists, educators, environmentalists, and people of many faiths from all over the world would gather here, in small groups, to dream a new vision of the Earth into being.

Although clearly reticent about personal matters, he told us that his own life story began in 1914 in Greensboro, North Carolina. The third of thirteen children in a middle-class Catholic family, he managed to develop a congenial relationship with his parents, but at the same time a certain distance.

This trait of distance, combined with a growing attachment to the land, surfaced often as he talked of his boyhood. The family had a horse, cow, chickens, and dogs; he felt close to the animal world. He often roamed the hills alone, except for the companionship of a collie, sensing the freedom of the woodlands and delighting in the clear streams, the songs of the birds, the subtle smells of the meadows. “But even at the age of eight,” he recalled, “I saw that development was damaging nature. At nine, I was collecting catalogues for camping equipment, canoes, knives, all the things I’d need to live in the Northwest forest. I felt the confrontation between civilization and wilderness, and I was acting on it.”

At nineteen, Berry went on, he decided to enter a religious community that would offer the best opportunity for contemplation and writing. He wanted to “get away from the trivial.” Sometimes he has wondered how he got through religious life, but he did, and yet managed to maintain that certain distance between himself and the establishment all the way.

After ten years in various monasteries, he pursued a doctorate in history at Catholic University in Washington, D.C., then spent a year studying Chinese in Beijing. After teaching at the Passionist seminary college, he became a chaplain with NATO in Germany; traveled in Europe, North Africa, and the Middle East; and went to England to meet the distinguished historian of cultures, Christopher Dawson, who had helped awaken him to the role of religion as a powerful factor in shaping culture. Later he taught Japanese history at Seton Hall University, helped found a seminar on Oriental thought and religion at Columbia University and an Asian Institute at St. John’s University, built up Fordham University’s history of religions program, and for eleven years served as President of the American Teilhard Association. During these years he continued his search to discover how people find meaning in life. Always drawn to Native Americans because of their sense of integrity and freedom, their bond with the riches of nature, he came to know many, including Sioux chief Lame Deer, Onondagan leader Oren Lyons, and the poet Paula Gunn Allen. He continued his studies of history and philosophy, and aided by knowledge of Sanskrit and Chinese, deepened his exploration of Eastern religious traditions. Over the years he also published a large number of papers and books on subjects ranging from Buddhism to the religions of India, the creative role of the elderly, the spiritual
transformation of Carl Jung, and the thought of Teilhard de Chardin. Philosophers ranging from Confucius to Thoreau and Bergson; poet/visionaries extending from Dante to Blake and Chief Seattle; ecologists and scientists from Rachel Carson and Ilya Prigogine to Anne and Paul Ehrlich, all came to influence his conception of the Earth Community.

“But Teilhard had the greatest influence on what might be called your ecological vision?”

“Yes. As a paleontologist as well as philosopher, he had a grasp of the need for healing the rift between science and religion. I would say that he appreciated the important role of science as a basic mystical discipline of the West. He was the first great thinker in the modern scientific tradition to describe the universe as having a psychic-spiritual as well as a physical-material dimension from the very beginning. Teilhard had a comprehensive vision of the universe in its evolutionary unfolding. He saw the human as inseparable from the history of the universe. Also, he was keenly aware of the need in Western religious thought to move from excessive concern with redemption to greater emphasis on the creation process.”

“And Teilhard’s thought inspired you to delve into science?”

He nodded. “I needed some general knowledge of geology, astronomy, physics, other sciences. But I must emphasize that in an ecological age, Teilhard’s framework has its limitations. Remember, he died in 1955. He believed in technological ‘progress,’ and saw the evolutionary process as concentrated in the human, which would ultimately achieve super-human status. He could not understand humans’ destructive impact on the Earth. When others pointed it out, he could not see it. Science would discover other forms of life! Well, his work remains tremendously important. The challenge is to extend Teilhard’s principal concerns further, to help light the way toward an Ecozoic Age.”

“Teilhard posed the greatest challenge of our time: to move from the spatial mode of consciousness to the historical, from being to becoming. The Church finds difficulty in recognizing the evolution of the Earth. For a long time it wouldn’t accept even the evolution of animal forms. To this day there is no real acceptance of our modern story of the universe as sacred story. As a child I was taught by the catechism that Earth was created in seven days, 5000 years ago. There was no sense of developmental, transformative time in the natural world.”

“And the church, as so often, is behind the times instead of leading?”

He looked at us for a long moment. “There is some concern, of course, but it does not go far enough,” he said slowly. “The Vatican, for example, makes vague statements on being careful about the environment, but there is emphasis on making the natural world useful to human beings. So far, the most impressive Catholic bishops’ statement comes from the Philippines. It’s called ‘What is Happening to our Beautiful Land?’”
Over lunch we learned more about the ever-widening scope of Thomas Berry’s activities and about some of the people who are helping to carry out his work. He told us that on occasion he spoke at New York’s Cathedral of St. John the Divine, which has become the most ecologically-minded church that he knows of, largely because of the enthusiasm of its Dean, James Parks Morton. He speaks on occasion at gatherings at Genesis Farm, a religiously-based center seeking to develop a model of bioregional community; at the California-based Institute in Culture and Creation Spirituality, headed by radical priest Matthew Fox; and at Grailville, an educational center and laywoman’s community stressing ecological living. He also has spoken at Au Sable Institute where practical and theoretical programs in ecology are integrated with biblical studies. He has participated in many conferences, including the seminal 1988 meeting of the North American Conference on Christianity and Ecology, the first (1988) Global Conference of Spiritual and Parliamentary Leaders on Human Survival, and international gatherings in Costa Rica at the United Nations University for Peace. He helped the Holy Cross Center in Port Burwell, Ontario build an institution for spirituality and ecology. In Puebla, Mexico, a Jesuit group has founded the Institute for Ecological Personalism based on his ideas. Letters come in continually from people in countries all over the world.

During the afternoon our talks continued, touching on animism, Taoism, and Buddhism, as well as Buddhist ideas for human habitats, which Berry considered models of ecological functioning because they disturb the natural world very little.

**Pulling the Strands of Berry’s Thought Together**

Since that day we have met Berry several times, studied his more recent writings, and gradually gained a clearer picture of the transforming vision he presents.


Their partnership has been an unusual one. Swimme, a physicist and a mathematical cosmologist, is younger, and lives thousands of miles away, on the West Coast. Brian Swimme’s early book is entitled *The Universe is a Green Dragon*. Now they have written the story of the universe as a single comprehensive narrative of the sequence of transformations that the universe has experienced. Grounded in present-day scientific understanding, it parallels the mythic narratives of the past as they were told in poetry, music, painting, dance, and ritual. Nothing quite like this coupling of science and human history has been published before.

Planet Earth is surely a mysterious planet, say Swimme and Berry. One need only observe how much more brilliant it is than other planets of our solar system in the diversity of its manifestations and the complexity of the joy of its development. Earth appears to have developed with the simple aim of celebrating the joy of existence.
Through this story, they hope that the human community will become present to the larger Earth community in a mutually enhancing way. Our role is to enable Earth and the entire universe to reflect on and celebrate itself in a special mode of conscious self awareness. We have become desensitized to the glories of the natural world and are making awesome decisions without the sense of awe and humility commensurate with their impact. We need a new mystique as we move into the Ecozoic era, and this process will need the participation of all members of the planetary community.

The various living and nonliving members of the Earth community have a common genetic line of development, the authors tell us. It begins with the Beginning: the primordial Flaring Forth of the universe some 15 billion years ago. It starts as stupendous energy, and evolves into gravitational, strong nuclear, weak nuclear, and electromagnetic interactions. Before a millionth of a second has passed, the particles stabilize. From this point we are carried through the seeding of galaxies, and the appearance of galactic clouds, primal stars, the first elements, supernovas, and galaxies. These are magnificent spiraling moments, carrying the destiny of everything that followed. They are moments of grace. Some five billion years ago the solar system forms, and a billion years later, the living Earth. We travel through the Paleozoic Era (in which vertebrates, jawed fishes, and insects appear); the Mesozoic Era (witnessing the first dinosaurs, birds, and mammals), and the Cenozoic (beginning with the emergence of the first rodents and bats, and carrying through to the arrival of various orders of mammals and humans), up to today.

After the emergence of the first humans, *Homo habilis*, some 2.6 million years ago, the new species evolves to *Homo erectus*, and then to *Homo sapiens*, with its marvelous new gifts of expression—ritual burials at first, then language, musical instruments, cave paintings, and other skills and artifacts that we associate with human civilization. *Homo sapiens* evolved through periods of the Neolithic village, classical civilizations, the rise of nations, and the “modern revelation.”

The latter refers to a new awareness of how the ultimate mysteries of existence are being manifested in the universe. This revelation, a gradual change from a dominant spatial mode of consciousness to perception of the universe as an irreversible sequence of transformations, might be called a change from “cosmos” to ever-evolving “cosmogenesis”. It can be seen as beginning with the discoveries of Copernicus, and embracing those of Kepler, Galileo, Francis Bacon, Descartes, Newton, Kant, Darwin, Einstein, Whitehead, Teilhard, Rachel Carson, and many other scientists and philosophers.

Throughout the book the two men write from a unified point of view as they present some cardinal principles. Among them, that the birth of the universe was not an event in time; time begins simultaneously with the birth of existence. There was no “before,” and there was no “outside.” All the energy that would ever exist erupted as a single existence. The stars that later would blaze, the lizards that would crawl on the land, the actions of the human species, would be powered by the same mysterious energy that burst forth at the first dawn.
Another cardinal principle is that the universe holds all things together, and is itself the primary activating power in every activity. It is not a thing, but a mode of being of everything. Recent scientific work has shown that it is not workable to think of a particle or event as completely determined by its immediate vicinity. Although in practical terms their influence may be negligible, events taking place elsewhere in the universe are directly related to the physical parameters of the situation. It is beyond the scope of this summary to present the authors' account of this phenomenon. However, it underlines their conclusion that “since the universe blossomed from a seed point, this means that a full understanding of a proton requires a full understanding of the universe.”

Articulating the new story so that humans can enter creatively into the web of relationships in the universe will require, to some degree, reinventing language and the meaning we attach to words. For example: what is gravitation? In classical mechanistic understanding, it is a particular attraction things have to each other. Newton called it force, and Einstein, the curvature of the space-time manifold. But the bond holding each thing in the universe to everything else is simply the universe acting. Therefore, to say “The stone falls to Earth” misses the active quality of that event. To say that gravity pulls the stone to Earth implies a mechanism that does not exist. To say that Earth pulls the rock misses the presence of the universe to each of its parts. It is more helpful, say Berry and Swimme, to see the planet Earth and the rock as drawn by the universe into bonded relationship, a profound intimacy. “The bonding simply happens; it simply is. The bonding is the perdurable fact of the universe, and happens primevaly in each instant, a welling up of an inescapable togetherness of things.” Thus we can begin to grasp what is meant by the statement that gravity is not an independent power; it is the universe in both its physical and spiritual aspects that holds things together and is the primary activating power in every activity. We can begin to understand the idea that the universe acts, that it is not a thing, but a mode of being of everything. Each process, then, is ultimately indivisible.

Primal peoples of every continent understood this bonding, this intimacy, although obviously not with the tools and complex theories developed by modern science. Recent centuries have witnessed a concerted effort to rid scientific language of all anthropomorphisms. Instead, it has become mechanomorphic and reductionist. But let us consider the Milky Way. Its truth cannot be realized by focusing only on its early components, helium and hydrogen. Its truth also rests on the fact that in its later modes of being it is capable of thinking and feeling and creating—of evolving into creatures such as human beings. The Milky Way expresses its inner depths in Emily Dickinson’s poetry, for Emily Dickinson is a dimension of the galaxy’s development. In the long process of evolution, the sensibility of a poet derives from the Milky Way, and her or his feelings are an evocation of being, involving sunlight, thunderstorms, grass, mountains, animals, and human history. They are the evocation of mountain, animal, world. Poets do not think on the universe; rather, the universe thinks itself, in them and through them.

Thus, the vibrations and fluctuations in the universe are the music that called forth the galaxies and their powers of weaving elements into life. Our responsibility is to develop our capacity to listen. The eye that searches the Milky Way—the eye of humans or that of telescopes—is itself
an eye shaped by the Milky Way. The mind searching for contact with the Milky Way is the very mind of the Milky Way searching for its inner depths.

The appearance of humans on this planet brought with it a new faculty of understanding, a consciousness characterized by a sense of wonder and celebration, and an ability to use parts of its external environment as instruments. Even in the time of *Homo habilis* (2.6 million to 1.5 million years ago), an intimate rapport between humans and the natural world was developing. And in the much later period of classical civilizations (3500 BCE to 1600 CE), the human social order was integrated with the cosmological order. Neither was conceivable without the other.

Yet while there was a great deal of teaching about humans’ relationship with the natural world in the Western, and especially the Eastern classical civilizations, there was also great devastation. Many Chinese philosophers and painters, for example, depicted that intimacy in eloquent terms, but endless wars and stripping the forests for more cultivation despoiled the countryside.

In the West, particularly, there developed an exaggerated anthropocentrism. When the Plague struck Europe in 1347, this changed to theocentrism, for since there was no germ theory to explain such a calamity, humans concluded that they must be too attached to Earth and should commit themselves to salvation from the Earth, absorption into the divine. Anthropocentrism and theocentrism, however, both denied the unity between the natural, human, and divine world. The mystical bonding of the human with the natural world was becoming progressively weaker. Closely associated with this insensitivity to the natural world was an insensitivity to women; patriarchal dominance reigned.

Since the late eighteenth century, the West has considered its most important mission to be that the peoples of Earth achieve their identity within the democratic setting of the modern nation-state. Nationalism, progress, democratic freedoms, and virtually limitless rights to private property are the four fundamentals of this mystique. That unless their limits are recognized, these might bring catastrophe upon the natural world was not even considered. Land became something to be exploited economically rather than communed with spiritually. Wars of colonial conquest were related to the mission of propagating Western bourgeois values.

The “modern revelation”—characterized as it is by gradual awareness that the universe has emerged as an irreversible sequence of transformations enabling it to gain greater complexity in structure and greater variety in its modes of conscious expression—is a new mode of consciousness. This change in perception from an enduring cosmos to an ever-transforming cosmogenesis has awesome implications that humans have not yet come to grips with. Our predicament is itself the result of a myth—the myth of Wonderland. If only we continue on the path of progress it tells us, happiness will be ours—happiness virtually equated with the ever-increasing consumption of products that have been taken violently from Earth or that react violently on it.
We need a new myth to guide human activity into the future. It should be analogous to the sense of mythic harmonies that suffused the fifteenth century Renaissance. At the beginning of the scientific age, the universe was perceived as one of order and harmony, in which each mode of being resonates with every other mode of being.

Somehow this sense of an intelligibly ordered universe has directed the scientific quest, say Swimme and Berry. But only recently have we been able to comprehend the depths of these harmonies, and thus fully recognize the mission of science. The scientific meditation on the structure and functioning of the universe that began centuries ago has yielded a sense of what can be called “the curvature of the universe whereby all things are held together in their intimate presence to each other.” Each thing is sustained by everything else.

We are on the verge of the Ecozoic era. What will it mean? This is a question explored in The Universe Story and Befriending the Earth, and in essays on economics, technology, law, bioregionalism, education, and planetary socialism in The Dream of the Earth. The basic answer begins to be found when we question some of our implicit assumptions:

- The assumption that we need constant economic growth, for example. How could we believe that human well-being could be attained by diminishing the well-being of the Earth? That we could achieve an ever-expanding Gross Domestic Product when the Gross Earth Product is declining? Since the threat to both economics and religion comes from one source, the disruption of the natural world, should economics not also be seen as a religious issue? If the water is polluted, it can neither be drunk nor used for baptism.
- The implicit assumption that we could cure sick people by technologies and by focusing on their present problems. How can we have well people on a sick planet?
- The widespread idea that the primary purpose of education is to train people for jobs. We need jobs, certainly, but is it not more important for people to be educated for a diversity of roles and functions? Is it not more realistic, in the long run, to view education as coming to know the story of the universe, of life systems, of consciousness as a single story—and to help people understand and fulfil their role in this larger pattern of meaning? Even in the arts, rather than focusing on producing specialized professionals, would it not be better if all of us played music, if all children painted and wrote poetry?
- The conviction that a democracy that is exploiting the natural world is the highest form of governance. The anthropocentrism of the word is implicit in the root; “demo” refers to people, not to all beings on Earth, beings whose fate we are controlling in the name of human life, liberty, and happiness. We need a biocracy, a rule that will emerge from and be concerned with all the members of the community.

Re-evaluating these and other “truths” that we hold as “self-evident” should enable us to realize that Earth is primary, while the human is secondary; that the universe is a communion of subjects, not a collection of objects. We should be enabled to step back a little from our diligent efforts to impose our will on life systems. We will then be free to listen to the natural world
with an attunement that goes beyond our scientific perceptions and reaches the spontaneous sensitivities in our own inner being.

All human professions need to recognize that their primary source is the integral functioning of the Earth community. It is the natural world that is the primary economic reality, the primary educator, the primary governance, the primary technologist, the primary healer, the primary presence of the sacred, the primary moral value. The professions do not have the words for the type of transformation required; we need a new language. We need to transform the legal profession, for instance, and invent a new language in law, and then move from the ideal of democracy toward the more comprehensive paradigm of biocracy. One example: a constitution that recognizes not only the human on this continent, but the entire North American community, including animate beings, geographical structures, life systems.

Religion needs to appreciate that the primary sacred community is the universe itself. Our ethical sensitivities need to expand beyond suicide, homicide, and genocide, to include biocide and geocide.

Interwoven in all this is the need to fully recognize women’s gifts and their roles in the future, both for themselves and for the well-being of Earth. The need to limit human population is modifying the traditional roles of women and men, indeed the entire human situation. As women are liberated from the oppressions they have endured in most traditional civilizations, a new energy should be released throughout the Earth.

Albeit slowly, changes are already happening, as divisions of learning begin to overcome their isolation. Fundamental to a real sea-change, however, will be the move from a human-centered to an Earth-centered language. Words like good, evil, freedom, society, justice, literacy, progress, praise should be broadened to include other beings of the natural world.

A basic principle of the emerging Ecozoic era is that the universe requires two modes of understanding: it has cyclical modes of functioning, yes, but also irreversible sequential modes of transformation. The law of entropy must evoke a certain foreboding in human consciousness.

The Cenozoic era emerged quite independent of human influence, but *Homo sapiens* will enter into virtually every phase of the Ecozoic era. We cannot create trees, fish, or birdsong, but they could well disappear unless we choose to temper our awesome power with humility. We must follow three basic axioms in our relations with the natural world: *acceptance, protection, fostering*: Acceptance of the given order of things. Protection of the life-systems at the base of the planetary community. Fostering a sense of active responsibility for the larger Earth community, a responsibility that devolves upon us through our unique capacity for understanding the universe story.

Our fundamental commitment in the Ecozoic era should be to perceive the universe as a communion of subjects rather than as a collection of objects. A major obstacle to this is our reluctance to think of the human as one among many species. Moreover, the change in
consciousness required is of such enormous proportions and significance that it might be likened to a new type of revelatory experience.

In the new era we shall need to recapture the basic principle of balance. Its prototype lies in the awesome reality that the expansive original energy of the primordial Flaring Forth keeps the universe from collapsing and gravitational attraction holds the parts together, enabling the universe to flourish. So, too, on Earth: The balance of containing and expanding forces keeps the Earth in a state of balanced turbulence.

In the industrial age, however, humans have upset the equilibrium. In the Ecozoic era the task will be to achieve a creative balance between human activities and other forces on this planet. When the curvature of the universe, the curvature of the Earth, and the curvature of the human are in proper relation, then the Earth and its human aspect will have come into celebratory experience that is the fulfilment of Earthly existence.

Where does God fit into this story? This is a word that Berry rarely uses. It has been overused, and trivialized, he says. The word has many different meanings to people. His principal concern is to reach the larger society, including people who would not call themselves religious.

Although Berry does not say it in so many words, he implies that in the West, especially, we spend too much time defining God and arguing over definitions rather than recognizing—in both theological and experiential ways—the ineffable. The term “God,” he says, refers to the ultimate mystery of things, something beyond that which we can truly comprehend. Many primal peoples experience this as the Great Spirit, a mysterious power pervading every aspect of the natural world. Some people dance this experience, some express it in song, some find it in the laughter of children, the sweetness of an apple, or the sound of wind through the trees. At every moment we are experiencing the overwhelming mystery of existence.

Berry prefers to speak of the Divine, of the numinous presence in the world about us. This is what all of us, child or elder, Christian or Muslim or Buddhist or agnostic, can experience; this is the ground that all of us can truly know.

Since the universe story is the way the Divine is revealing itself, humans become sacred by participating in this larger sacred community. The gratitude that we feel in this experience, we call “religion.” For Berry, it would seem, all this is more real and less abstract than theology, because it emanates from experience of the emergent universe, an experience so basic that it is shared by other members of the Earth community.

Perhaps because of his comprehensive Weltanschauung, embracing non-theistic faiths, Berry never speaks of a God who commands, judges, rules over a paradiasical afterlife, or watches over human actions. He does not go into traditional religious questions like good, evil, Heaven, Hell, or individual salvation. Yet he points out that his position follows quite directly from Saint Paul’s Epistle to the Romans. In the first chapter Paul declares that “Ever since God created the world, this everlasting power and deity—however invisible—have been there for the mind to see in the things He has made.”
In our discussions with Berry, he has stressed that his primary interest is that humans come to see the visible created world with whatever clarity is available. In his writings he does not go into all the basic theological questions like that of ultimate origins, but the first step, as Saint Paul suggests, is perception of the created world. In Berry’s view, God is not our first clear perception. Rather, the sense of God emerges in and through our perception of the universe. Just how the divine is perceived obviously varies among different peoples. In any case, it seems that the divine is perceived “in the things He has made.” The knowledge of God emerges in the human mind not directly, but through this manifestation.

Perhaps a major difficulty for many believers lies in Berry’s view that the universe is not a puppet world without an inner power through which it functions. Rather, God enables beings to be themselves, and to act in a way to bring themselves into being—not independently of deity, but still with a valid inner principle of life and activity. This activity of creatures is known as Second Cause, while the deity remains First Cause. These causes are not “real” in the same way, nor do they function in the same manner. But to deny the reality of the created world and the validity of its proper mode of activity, is to deny the capacity of the divine origin of things to produce anything other than ephemeral appearances. Ultimately our perception of the divine depends precisely on our perception of the reality of the visible world about us.

Speaking of the universe as a single multiform sequential celebratory event and of the human as that being in whom the universe reflects on and celebrates itself in a special mode of conscious self-awareness, is speaking in and of the “created” order. That it says nothing directly about “God,” does not to Berry indicate any denial of the divine. It is, rather, the proper way of speaking to our times without getting into a preaching mode that would do more damage to religion than anything else. Humans can participate in the great celebration that is the universe itself, and the celebration is ultimately the finest manifestation of the divine. It is our way of seeing the divine “in all things that are made.” This great celebration might also be considered the Grand Liturgy of the universe, the shared liturgy that we enter into through our own humanly contrived pluralistic liturgies.

As we have seen, Berry is highly critical of many aspects of Christian doctrine and practice, since all of Western civilization has been profoundly affected by the biblical Christian tradition. Thus Christianity is involved not as a direct cause of our ecological crisis, but as creating the context. To summarize briefly:

- The first problem is the emphasis on a transcendent, personal divine being, as clearly distinct from the universe.
- A second related problem is Christianity’s exaltation of the human as a spiritual being as against the physical nature of other beings—the human is so special that the human soul has to be created directly by God in every single case.
- The third problem is that redemption is seen as some kind of out-of-this-world liberation.
- The fourth is the idea, developed particularly by a devout Christian named Descartes, that the world is a mechanism.
All these “transcendencies” - transcendent God, transcendent human, transcendent redemption, transcendent mind—foster entrancement with a transcendent technology which shall liberate us from following the basic biological laws of the natural world. In this manner we create a transcendent goal, a millennial vision harkening back to the Book of Revelation, with which to go beyond the human condition, says Berry.

While the Christian tradition until the Renaissance included elements of seeing the natural world as having a soul, since the time of Descartes, particularly, there has been a progressive loss of the cosmic dimension. Although there have always been strands in the tradition that deal well with the natural world, this is not emphasized in Christianity as it is preached. There is no adequate emphasis in the catechism, or Biblical commandments concerning the natural world.

The Bible introduced an emphasis on the divine in historical events. Its historical realism stimulates a dynamism toward developmental processes.

Like many other religions, Christianity, with its intense monotheism, tends toward narrowness. Among religious people, the more intense the commitment, the more fundamentalist they tend to be. What is needed today is not intensity, but expansiveness. By the same token, humans should have moved beyond the idea that any one religion has the fullness of revelation.

Narrowness also is evident in the traditional Christian hostility to animism. Saint Boniface, for example, cut down sacred oak trees. Today that would seem absurd. Could we not entertain the idea that instead, the future of Christianity will involve assimilating elements of paganism?

In view of all this, Berry makes the startling suggestion that we consider putting the Bible on the shelf for perhaps twenty years, so that we can truly listen to creation. One of the best ways to discover the deep meaning of things, he says, is to give them up for a while. Thus, we would be able to recover the ancient Christian view that there are two Scriptures, that of the natural world and that of the Bible. We would be able to create a new language, more adequate to deal with our present revelatory moment. Unfortunately, at present we are still reading the book instead of reading the world about us. We will drown reading the book.

Organized religion is frequently a destructive force—yet religion in the more basic sense is an important part of our being, he asserts. Among other things, it brings us together in celebration, and gives us the gift of delighting in existence.

We must recognize that the revelations of most religions as they are practiced today are inadequate to deal with the task before us. The traditions of the past cannot do what needs to be done, but we cannot do what needs to be done without all traditions. The new story of the universe does not replace them; it provides a more comprehensive context in which all the earlier stories can discover a more expansive interpretation.

It is of pivotal importance, Berry says, to be open to ongoing revelations, including those emerging from the scientific venture. Science does not reduce the mystery of the world, but
actually enhances it. Indeed, in a broad sense scientific understanding is the key to the future of religion.

It is too early to appraise Berry’s influence, especially in a period when economic growth, land development, invention of mega-technologies, and winning computerized wars against Third World upstarts continue to define our nation’s measures of might and our sense of personal power. The full import of Berry’s message may not sink in for many years.

But some of his influence is clearly visible. He cannot keep up with requests for speaking engagements. The demand for his writings grows every year, and his work is now being translated into other languages. During the course of our own travels, in conversations with people as diverse as Buddhists in Japan, Muslims in Egypt, and agnostics in Russia, speaking of Berry has always provoked great interest and requests for copies of his work.

One criticism of his thought is that he exaggerates the extent to which the Bible provides a context for an exploitative attitude toward the Earth. Another is that the challenges we face are more complex than rediscovering an integral relationship with Earth, and inevitably involve specific, personal, economic, and political questions about our own communities. A frequent objection is that his biocentric vision denies the chosen status of “man,” vice-regent of God. Berry listens to such criticisms, sometimes adapts his thought to accommodate them, and sometimes replies with a helpful rejoinder.

Even critics admire his realism, sweeping synthesis, imaginative insights, and courage to confront the narrowness of traditional theology. They also respect the fact that although he often uses abstract terms, he always lends them a vivid—at times biting—concreteness. He describes environmental, economic, and political problems with down-to-earth examples. When looking to the future, he illustrates his ideas with examples ranging from methods of appropriate technology to bioregionalism or steady-state economics. He even proposes, not entirely tongue-in-cheek, running every other truck on our highways into a ravine. It is not that he eschews all technological advances. But our new technologies must harmonize with natural processes, which operate on self-nourishing, self-healing, self-governing principles.

It is our observation that Berry, contrary to conventional wisdom, is becoming not less but more radical as he advances in years—and sees the time left for saving the planet running out. He is “radical” in the original sense of the word, harkening back to the Latin word *radices*, roots. It is as if he is driven by the thought “They just don’t get it. They don’t comprehend how deeply rooted it is, the crisis that confronts us!”

Sometimes one can hear the anger in this gentle man as he speaks of “the order of magnitude of the present catastrophic situation.” It is, he says, “so enormous, so widespread, and we don’t know what we are doing.” The people who built the automobile, the people who built the nuclear program, the people who dreamed up the Green Revolution in agriculture, were unable to make the connection between these and their adverse effects. Vandana Shiva says the Green Revolution initially produced great increases in India’s food supply, but in the end, it devastated
the whole agricultural system. We made 50,000 nuclear bombs, and now we don’t know what to do with them!

We fool ourselves into thinking that recycling cans and papers will do it. Of course we must recycle. But basically that is designed to keep the system going. It can help mitigate the problem, but only until we can do the fundamental changes. Meanwhile, when ecology groups try to protect the last bit of our first-growth forest, the entrepreneur types say these radicals are trying to do away with jobs. If these are the only jobs we can imagine, it is a sick society, and we need cultural therapy. We can’t solve this crisis by meliorism.

Yet Berry sees hope in the upwelling of movements and modes of perception that suggest an awakening. He points to the growth of bioregional movements, Green political organizations, and confrontational movements launched by activist groups such as Greenpeace and Earth First! He talks about shifts of consciousness revealed in New Age thinkers, countercultural writers, and feminist, antipatriarchal movements. On the international level, he has been encouraged by shifts within the World Bank toward more viable programs, and the addition of an environmental department; the spread of vital information through organizations like The International Union for the Conservation of Nature, the World Resources Institute, the Worldwatch Institute, and various United Nations programs; and even stirrings among some national and multinational business organizations.

Our awesome power spells our danger, but it also presents our opportunity, an unparalleled opening to a larger creativity, he observes. The danger lies in the mystique that pervades our patriarchal, plundering industrial society. It is a mystique that could propel us not into an Ecozoic era, but into one that could be called Technozoic, led by people—epitomized in the corporate establishment—who are committed to an even more controlled order. In the future. The dominant struggle will be the struggle between entrepreneur and ecologist. Our task is to reinvent the human, at the species level. Basic to this task is creating a new integration of the human with the forces of the natural world, and celebrating that integration.

Who will lead us into the future? The intimacy with the cosmic process that is needed describes the shamanic personality, a type that is emerging again in our society. As in earlier cultures, today the shaman may be woman as well as man. Certainly, to fulfil the function of healers, shamans must represent the feminine principle, embodied in the growing scientific perception of our planet as a single organism, alive, self-governing, self-healing. True, nurturance is not the only role for women. Nurturing roles, however, are the key to the future; they are epitomized in the archetype of woman but reside in the capacities of each one of us.

Taking our cues from earlier peoples, we can create, or recreate, renewal ceremonies. We need to celebrate the great historical moments in the unfolding of the universe, cosmic events that constituted psychic-spiritual as well as physical transformations. Such celebrations might begin with the primordial Flaring Forth and the supernova implosions, moments of grace that set the pattern for emergence of this planet. They might go on to include the beginning of photosynthesis, followed by the arrival of trees, then flowers, then birds, and other aspects of this wondrous evolution.
Once we begin to celebrate this story we will understand the fascination that draws scientists to their work. Without entrancement in this new context it is unlikely that humans will have the psychic energy needed for renewal of Earth.

That entrancement comes from the immediate communion of humans with the natural world. We are rediscovering our capacity for entering into the larger community of life. Every form of being is integral with this story. Nothing is itself without everything else.

Berry’s shamanic voice raises a challenge. Is the human species viable, or are we careening toward self-destruction, carrying with us our fellow Earthlings? Can we move from an anthropocentric to a biocentric vision—and more importantly, actualize it in a biocracy? How can we help activate the intercommunion of all members of the Earth community? What shall we be leaving the children—the young of our own families, our own species and of other species whose fate we share?

Can we find the guidance we need in religions as they exist today?

References


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THOMAS BERRY

By Michael Colebrook

Of all the writers and thinkers to have shaped what we now call GreenSpirit, by far the most influential was Thomas Berry.

Thomas Berry, C.P. (November 9, 1914 – June 1, 2009) was a Catholic priest of the Passionist order, cultural historian and ecotheologian (although cosmologist and geologist— or “Earth scholar”— were his preferred descriptors).

Among advocates of deep ecology and “ecospirituality” he is famous for proposing that a deep understanding of the history and functioning of the evolving universe is a necessary inspiration and guide for our own effective functioning as individuals and as a species. He is considered a leader in the tradition of Teilhard de Chardin, as demonstrated in the Introduction to his book, The Christian Future and the Fate of the Earth. Author Michael Colebrook describes two key elements in Thomas Berry’s thinking: “Firstly, the primary status of the universe. The universe is, ‘the only self-referential reality in the phenomenal world. It is the only text without context. Everything else has to be seen in the context of the universe.’ The second element is the significance of story, and in particular the universe as story. ‘The universe story is the quintessence of reality. We perceive the story. We put it in our language, the birds put it in theirs, and the trees put it in theirs. We can read the story of the universe in the trees. Everything tells the story of the universe. The winds tell the story, literally, not just imaginatively. The story has its imprint everywhere, and that is why it is so important to know the story. If you do not know the story, in a sense you do not know yourself; you do not know anything.’”

Here is what Michael Colebrook had to say about Thomas Berry in a presentation to a seminar held at the College of St Mark & St John, Plymouth, England, February 2001.

Let me start with a story:

One day in the early months of 1954, the fourteen-year-old Jean Houston was running along a street in New York when she ran into a frail old man. They picked themselves up and he asked her where she was going. She replied that she was going to take her dog for a walk in Central Park. ‘I will go with you’ he said, and after that, several times a week for about a year Jean and the old man, whom she called Mr. Tayer, would meet and walk together in Central Park.

Jean continues the story:

Old Mr. Tayer was truly diaphanous to every moment, and being with him was like being in attendance at God’s own party, a continuous celebration of life and its
mysteries. But mostly Mr. Tayer was so full of vital sap and juice that he seemed to flow with everything. Always he saw the interconnections between things—the way that everything in the universe, from fox terriers to tree bark to somebody’s red hat to the mind of God, was related to everything else and was very, very good. He wasn’t merely a great appreciator, engaged by all his senses. He was truly penetrated by the reality that was yearning for him as much as he was yearning for it. He talked to the trees, to the wind, to the rocks as dear friends, as beloved even. “Ah, my friend, the mica schist layer, do you remember when . . .” And I would swear that the mica schist would begin to glitter back. I mean, mica schist will do that, but on a cloudy day? Everything was treated as personal, as sentient, as “thou” And everything that was thou was ensouled with being, and it thou-ed back to him. So when I walked with him, I felt as though a spotlight was following us, bringing radiance and light everywhere. And I was constantly seized by astonishment in the presence of this infinitely beautiful man, who radiated such sweetness, such kindness . . .

The last time that I ever saw him was the Thursday before Easter Sunday, 1955. I brought him the shell of a snail. “Ah, escargot,” he exclaimed and then proceeded to wax ecstatic for the better part of an hour. Snail shells, and galaxies, and the convolutions in the brain, the whorl of flowers and the meanderings of rivers were taken up into a great hymn to the spiraling evolution of spirit and matter.

Several years later someone showed Jean Houston a copy of The Phenomenon of Man, and looking at the jacket she recognised the face and realised that old Mr. Tayer was Pierre Teilhard de Chardin who had died just a few days after their last meeting.

If there is one man who has inherited the mantle of Teilhard de Chardin, it is Thomas Berry. A couple of years ago I asked Ursula King, who has written extensively about Teilhard, what she thought about Thomas Berry. She simply replied, ‘They even look alike,’ which they do.

Thomas Berry was born in 1914 in North Carolina, USA, one of a large family of 13 children. He was ordained a Passionist priest in 1942, and studied history at the Catholic University of America. His specialty was the cultural history of China and India. He has taught at a number of American Universities and in 1970 he founded the Centre for Religious Research at Riverdale, New York which has been his base ever since. In addition to his Asian studies he has also looked at the Native American cultures. As he has written, “I wished to get beyond the classical civilisations, back into the earlier Shamanic period of the human community. The more I gave to the study of the human venture, the more clearly I saw the need to go back into the dynamics of life itself. I was progressively led back to what I call the study of the Earth community, including its geological and biological as well as its human components. I call myself a geologian.”

Thomas Berry received his initiation as a geologian in a childhood encounter with a meadow. His family were moving into a new house on the edge of town:
The house, not yet finished, was situated on a slight incline. Down below was a small creek and there across the creek was a meadow. It was an early afternoon in late May when I first wandered down the incline, crossed the creek, and looked out over the scene.

The field was covered with white lilies rising above the thick grass. A magic moment, this experience gave to my life something that seems to explain my thinking at a more profound level than almost any other experience I can remember. It was not only the lilies. It was the singing of the crickets and the woodlands in the distance and the clouds in a clear sky. It was not something conscious that happened just then. I went on about my life as any young person might do.

Perhaps it was not simply this moment that made such a deep impression upon me. Perhaps it was a sensitivity that was developed throughout my childhood. Yet as the years pass this moment returns to me, and whenever I think about my basic life attitude and the whole trend of my mind and the causes to which I have given my efforts, I seem to come back to this moment and the impact it has had on my feeling for what is real and worthwhile in life.

This early experience, it seems, has become normative for me throughout the entire range of my thinking. Whatever preserves and enhances this meadow in the natural cycles of its transformation is good; whatever opposes this meadow or negates it is not good. My life orientation is that simple. It is also that pervasive. It applies in economics and political orientation as well as in education and religion.

I have heard Tom Berry talk about his meadow and even well into his eighties he speaks as if the event happened just yesterday. He has elaborated his feelings about the meadow into a set of 12 principles “For Understanding the Universe and the Role of the Human in the Universe process.”¹ The first of these principles states: “The universe, the solar system, and planet earth in themselves and in their evolutionary emergence constitute for the human community the primary revelation of that ultimate mystery whence all things emerge into being.”

This represents what I believe are two key elements in Tom Berry’s thinking. Firstly, the primary status of the universe. The universe is, “the only self-referential reality in the phenomenal world. It is the only text without context. Everything else has to be seen in the context of the universe.” The second element is the significance of story, and in particular the universe as story. ‘The universe story is the quintessence of reality. We perceive the story. We put it in our language, the birds put it in theirs, and the trees put it in theirs. We can read the

¹Editor’s Note: A copy of these 12 principles are available here. They are the 12 understandings that appeared as an appendix to Anne Lonergan and Carol Richards, eds., Thomas Berry and the New Cosmology (Mystic, CT: 23rd Publications, 1990), and is the preferred list for CES. That list of principles differs from the 12 principles that are an appendix to Thomas Berry, Evening Thoughts: Reflecting on Earth as Sacred Community, ed., Mary Evelyn Tucker (San Francisco: Sierra Club Books, 2006).
story of the universe in the trees. Everything tells the story of the universe. The winds tell the
story, literally, not just imaginatively. The story has its imprint everywhere, and that is why it is
so important to know the story. If you do not know the story, in a sense you do not know
yourself; you do not know anything.”

Here, Tom Berry displays his prime inheritance from Teilhard de Chardin who claimed
that, “We do not live in a world which can be viewed as a complete and coherent mechanism,
we live in a world that is still being created, still creating itself. And, by its very nature it doesn’t
know precisely where it is going, it does not follow a determined path. In any truly creative
activity the outcome is unpredictable and uncertain.” The story is not finished, it is still being
written, by the birds and the trees and the wind and ourselves and none of us knows for certain
what will happen next.

On one of the two unforgettable occasions when I met Tom Berry I put to him the
problem of the unpredictability of the future, I quoted Whitehead, that “it is the business of the
future to be dangerous” and I asked whether it was possible to reassure those who find this
prospect frightening and disturbing. He replied without hesitation, “Tell them the story”—by
which he meant the story of the universe. This story, at least as told by Brian Swimme and Tom
Berry in their superb book, The Universe Story, is marvelous and beautiful and the element of
reassurance lies in the probability that it will continue to be so. Although the future is
unpredictable, when we look back at the story so far, there is a clear impression of inevitability.
That what has happened had to happen somehow, somewhere. Also the story so far covers a
period of somewhere around 14 thousand million years and there is every prospect of it
continuing for thousands of millions of years to come. This is all the reassurance that we should
seek and can expect in a world that is still creating itself. We have the assurance that the
universe has come from somewhere and is almost certainly going somewhere, even if the
‘where’ is unknowable.

Whitehead is clearly a major influence on Berry although he claims that of the two
Teilhard was the more important, “Whitehead, unlike Teilhard, did not have a clear idea of
realistic historical time. He understood process time . . . . He understood the universe as an
organism, as holistic, as integral, as interacting, as a process, but he did not have it going
anywhere. The story is missing in Whitehead. Teilhard had the story.” I think Berry is being
rather hard on Whitehead who, I suggest, certainly believed that his processes were going
somewhere. In Science in the Modern World he talks of evolution as, “the development of
enduring harmonies of enduring shapes of value, which merge into higher attainments of things
beyond themselves. Aesthetic attainment is interwoven in the texture of realisation.” And
again, “All organisms modify their environment. Those organisms are successful which modify
their environments so as to assist each other. This law is exemplified in nature on a vast scale.”

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2Brian Swimme and Thomas Berry. The Universe Story (San Francisco, CA: HarperSanFrancisco,
This sounds to me very like a succinct version of Lovelock’s Gaia hypothesis, but anticipating it by about 60 years.

As far as I know neither Whitehead nor Teilhard de Chardin were aware of each other’s existence and yet they have so much in common. In Tom Berry they have come together and we can be grateful for this, especially as Berry’s writing is a lot easier to understand than that of either Whitehead or Teilhard.

In spite of Teilhard’s ecological sensibility and his awareness of the connectedness of all things, he was not completely able to transcend the anthropocentrism of his theological background. In an essay he suggested that “Ilboriously, through and thanks to the activity of mankind, the new Earth is being formed and purified and is taking on definition and clarity.’ And elsewhere, “should the planet become uninhabitable before mankind has reached maturity; . . . then, there can be no doubt that it would mean the failure of life on Earth.” Teilhard accepted the Enlightenment idea of human progress; he saw the future of evolution in very human centred terms as leading toward unitary Mind through the development of a collective global consciousness. Tom Berry, on the other hand, sees the necessity of letting his meadow be itself, in its own ways and in its own time. As he has said on numerous occasions, the wellbeing of Earth is primary, the wellbeing of humanity is derivative and we can ensure the wellbeing of Earth only by letting it be. We cannot care for the Earth, because we don’t know how. In Tom Berry’s universe, the idea of stewardship betrays a level of presumption amounting to the ultimate sin of hubris.

Another of Berry’s legacies from Teilhard, which he acknowledges, is the realisation that the universe, from the beginning, has a spiritual dimension and that the universe story is a sacred story. Berry seldom speaks of God, he thinks that the word has been overused. But he claims that, “Peoples generally experience an awesome, stupendous presence that cannot be expressed adequately in human words . . . people often dance this experience, they express it in music, in art, in the presence of beauty throughout the whole of daily life, in the laughter of children, in the taste of bread, in the sweetness of an apple. At every moment we are experiencing the overwhelming mystery of existence. It is that simple but that ineffable.” Elsewhere he writes, “Saint Augustine says that God is more intimate to us than we are to ourselves. God is more intimate to everything. Every existence is a mode of divine presence. There is indeed a difference, a distinction, but if there were a difference in the sense of separation, the created world would not be . . . . There is always a mystery of things.”

In her latest book Sacred Gaia, Anne Primavesi says that the confines within which we place and then describe God are all on our side of the horizon. She speaks of the need to “give God room: room to be God of the whole Earth system: enchanting and terrible, giver of life and death.” This is the God of the sacred story of the universe and its emergent unfolding over a period of some fourteen thousand million years. But, as Tom Berry emphasises, the universe is not a puppet show, it is a reality, functioning from within its own spontaneity. It is so remarkable and so stupendous to come to understand this process. The divine enables
the universe to function in this remarkable way. There is a capacity of self-articulation inherent in the universe, and the more we know about that, the more clear it is that we will gain a totally different sense of the universe than we had previously, and a different sense of how the divine functions in relation to the universe.

Thomas Berry has a lot to say about wildness. In his latest book, The Great Work, he has a chapter titled “The Wild and the Sacred.” These are not, as one might expect, treated as antithetical elements. Rather they are treated as identities. He quotes Thoreau, “In Wildness is the Preservation of the World.” And he goes on to claim that in saying this Thoreau made a statement of unsurpassed significance in human affairs. I know of no more comprehensive critique of civilisation, this immense effort that has been made over these past ten thousand years to bring the natural world under human control. . . . This we need to know: how to participate creatively in the wildness of the world about us. For it is out of the wild depths of the universe and of our being that the greater visions must come.

What a contrast with the efforts we are making to create comfortable and secure lives for ourselves! What a contrast with the whole thrust of the Biblical vision of the creative process which focuses on the emergence of order and intelligibility!

There is a delightful short story by Stephen Dunstone called “God’s First Draft,” which I think captures the idea of wildness. After three attempts to create a perfect world, all of which manifestly failed, God tried the idea of the level playing field . . . .

Time for the fourth attempt! Let there be light and – no hills or streams or woods or up or down, and let there be five hundred identical men and five hundred identical women; no birds or animals or insects in case they upset the balance, and no fish and no marrows or parsnips or any kind of vegetable, because there must be no hunger or cold or fear or any kind of desire [there]. And God looked at his creation; his blameless creatures who stood without blemish, motionless, on this flat featureless world, untouched by any breath of wind: Changeless – eternal. He looked at this world and saw that it was perfect. He sat in his heaven in contemplation of perfection; and no seed of discontent stirred in the timeless silence. No cries of anger or pain or joy pierced the harmony of stillness. He looked and looked, and watched and waited. But nothing came to disturb the world. It was indeed perfect, and would last forever. And God contemplated eternity. And he said to himself, “God, this is boring.” And it’s just as well that he did, because if he hadn’t, you wouldn’t be here today. With a contemptuous click of his fingers he consigned the perfect world to eternal non-existence. Gone. And not a trace of remorse or regret did he feel.

And God said ‘let there be light and dark and sun and moon and stars and dry land and hills and valleys and woods and streams and all manner of plants and insects and birds and animals and people; and let them fear and fight and feel pain but let them also feel
desire and joy and love. Let the wind carry the sound of their suffering but let it carry the sound of their laughter too. Let them grow old but let them give birth, let them toil but let them dance, let there be sorrow but let there be ecstasy; let them work on the world, but let the world work on them. Let what may happen, happen. But above all let them learn from their mistakes.

Tom Berry seldom engages in theological discourse. However there is one book Befriending the Earth, 3 which takes the form of a dialogue with a Jesuit, Thomas Clarke, in which he does address the main themes of Christianity. Although he does his best to voice his concerns as gently as he can, it is clear that his main criticism of mainstream Christianity is that it has not taken on board, or at least has not grasped the full implications of the concept of the time-developmental aspect of the universe. “That is why Christians are alienated people in their relationship to the present world. We cannot accept the story of an evolutionary universe as our sacred story. . . . This is possibly the most significant change in human consciousness since the beginning of human consciousness, the change in perception of the world as cosmos to its perception as cosmogenesis, from being to becoming.”

Ralph Waldo Emerson was among the first people to realise the fundamental significance of evolutionary theory, and this was before Darwin. In his essay on Nature published in 1844 he claimed that “we knew nothing properly for lack of perspective. And he asks, ‘Why should we not have a religion by revelation to us, and not of tradition?’”

Tom Berry issues the same challenge today. “We have to make a shift in our religious understanding. We cannot start with the written scriptures. . . . Why are we not getting our religious insight from our experience of the trees, our experience of the mountains, our experience of the rivers, of the sea and the winds? Why are we not responding religiously to these realities?” He sets the Book of Nature alongside the Book of Scripture and he leaves one in no doubt about which of the two is of greater relevance in today’s world.

The latest issue of the journal Ecotheology contains a review of a book by Calvin Beisner called Where Garden Meets Wilderness: Evangelical Entry into the Environmental Debate. The central argument of the book is that humanity is created to act as stewards of God’s creation. Humanity has legitimate authority to subdue and rule the Earth, progressively conforming it to human needs and the glory of God. “Creation does not abundantly yield blessed fruits, but it becomes abundantly fruitful only under the wise and resolute hand of man.” No possible reading of the Book of Nature as we now understand it could lead anyone to such a view. I sometimes wonder what the likes of Calvin Beisner think God was doing during the thirteen thousand, nine hundred and ninety eight million years it took to creation to produce humans.

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It is true that the Book of Nature has been substantially re-written during the 20th century. A lot of what we now understand about the universe story has emerged during my lifetime. I was born in 1929, the year in which Edwin Hubble made the critical observations that led to the realisation of the expanding universe, that led to the Big Bang theory of the origin of the universe, that led to the realisation of an evolving universe. As far as Earth is concerned: the story of plate tectonics, of how the oceans and continents have moved around and evolved was in its infancy when I went to college. The story of life has changed dramatically with the realisation that bacteria existed for nearly two thousand million years before any more complex forms of life were able to evolve. Much of the story is still shrouded in the unknown and possibly the unknowable.

Tom Berry’s main contribution has been to look at the Book of Nature from the top down and to see the universe story as a coherent whole. He speaks of the force of gravity as the great compassionate curve in which the universe is enfolded. He speaks of the spirituality of carbon. We cannot know the reality of carbon until we see in their wholeness the things that carbon can do. It plays a key role in the fantastic diversity of living creatures including ourselves. It plays a part in our thinking and in our ability to contemplate the spirituality of carbon.

In *The Great Work*, Tom Berry focuses on the most recent pages of the story of the universe, the last 65 million years, which opened with a devastating catastrophe when a small comet or asteroid collided with Earth and landed in the sea off the Yucatan peninsula, Mexico. This caused a traumatic extinction event and marked the end of the age of the dinosaurs. Out of the ashes of this catastrophe arose a prodigious flowering of life. Evolution went into overdrive and produced a fantastic radiation of flowering plants and trees, also of birds, mammals and bony fish. On the back of this flowering of diversity, other groups, especially the insects took advantage of the new habitats and have flourished and diversified in their turn. The Cenozoic era has seen a flourishing and abundance of life unique in the whole history of Earth. The emergence of humans is part of this story. But we are now exploiting this abundance to such an extent that Earth is now experiencing another major extinction event. The Great Work as Tom Berry sees it is to carry out a transformation from a period of human devastation of Earth to a period in which humans would be present to the planet in a benign and mutually beneficial manner.

He has something to say about the role of the university in this process.

The university would be the context in which the universe reflects on itself in human intelligence and communicates itself to the human community. The university would have the universe as its originating, validating, and unifying referent. Since the universe is an emergent reality the universe would be understood primarily through its story. Education at all levels would be understood as knowing the universe story and the human role in the story. The basic course in any college or university would be the story of the universe.
While our universities have gone through many transitions since they first came into being in the early medieval period, they have never experienced anything like the transition that is being asked of them just now. The difficulty cannot be resolved simply by establishing a course or a programme in ecology, for ecology is not a course or programme. Rather it is the foundation of all courses, all programmes and all professions because ecology is a functional cosmology . . . . Such a functional cosmology can exist, however, only within a university where the spirit dimension of the universe as well as its physical dimension is recognised.

Bibliography (in addition to sources cited in footnotes)


This article is reprinted in its entirety with permission from GreenSpirit, where it was originally published. It may be read online here. Author Michael Colebrook is now deceased.
BARBARA MARX HUBBARD PUBLIC LECTURE AND WORKSHOP—FEBRUARY 21-22, 2014, UNITED CHURCH OF CHAPEL HILL

World renowned futurist and social visionary Barbara Marx Hubbard will be giving a public lecture on Friday, February 21, 2014, from 7:00 pm to 9:00 pm at United Church of Chapel Hill followed by a full day workshop on Saturday, February 22, 2014, from 9:00 am to 4:00 pm at the same location. The event is co-sponsored by the Center for Ecozoic Societies, the Fenwick Foundation, Pickards Mountain Eco-Institute, and United Church of Chapel Hill. Read More and Register Now!

COLLOQUIUM ON THE WORK OF THOMAS BERRY: DEVELOPMENT, DIFFERENCE, IMPORTANCE, APPLICATIONS – MAY 28-30, 2014, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

This event is sponsored by Center for Ecozoic Societies and Carolina Seminars of the University of North Carolina at Chapel Hill (UNC-CH).

The colloquium will

- Review Thomas Berry’s ideas critically
- Assess his contributions to particular domains
- Establish conversations between Berry’s work and other fields or thinkers
- Analyze the relevance and potential applications of his work
- Develop his concepts of the Ecozoic Era and ecozoic societies or civilizations

See the Call for Papers posted here.

If you would like to participate in planning this conference, contact ecozoicsocieties@gmail.com. You may also submit a poem, story, music or art related to the colloquium topics. This colloquium will have an academic format though it is for professional academics and others who wish to make presentations. In addition, we anticipate that people who wish to attend the colloquium but not make presentations will be able to attend.

CONFERENCE ON THOMAS BERRY’S GREAT WORK NOW – MAY 30-JUNE 1, 2014, CAMP NEW HOPE, CHAPEL HILL.

CES in association with other groups will host a conference at Camp New Hope, outside of Chapel Hill, North Carolina, on “Thomas Berry’s Great Work Now.” We hope the conference will introduce Thomas Berry to those new to his work—especially young people, while also nurturing people of long acquaintance. Through lectures and workshops we will provide introductions to Thomas’s work. In addition, there will be workshops on the Great Work in
action—architecture, art, farming, energy, body-work, plant medicine, meditation are only a few of those planned.

Registration for the conference will begin in January 2014, as activities and times are ready to be announced. Please contact us if your organization would like to co-sponsor the event or if you would like to serve on the organizing committee or conduct a workshop. Write us at ecozoicsocieties@gmail.com.

NOVEMBER 2013 PUBLICATION OF THE ECOZOIC ON “WHAT IS ECOZOIC?”

CES members have now received their copies of our beautiful print publication The Ecozoic: Reflections on Life in an Ecological-Cultural Age, published November 2013. This book-length edition on “What Is Ecozoic?” contains 41 inspiring and informative essays, poems and statements about the meaning of ecozoic.

Free copies will be sent to all those who join or renew their membership in early 2014.

Let us know if you want additional copies by writing us at ecozoicsocieties@gmail.com.

TIME TO RENEW OR BECOME A MEMBER OF CES FOR 2014

As we expand our services, your support of CES through becoming a member becomes all the more important. The benefits of membership in CES include a subscription to our print publication, The Ecozoic, and discounts to CES events. Membership is on a calendar year basis. Memberships received after November 1 of a calendar year count as membership for the following year. Thus new or renewal memberships received in January 2014 will be valid for the entire twelve months of 2014—with its numerous events, including those already announced.

To become a member of CES, send a letter (or send this form) to CES at 2516 Winningham Road, Chapel Hill, North Carolina 27516, USA, with your contact information (name, address, email and phone) and dues. Dues for each calendar year are US$35 (individual or family). You may become a Sustaining Member of CES by paying US$135 each year or by paying $5 or more monthly through an automatic payment service. Alternately you may become a member (and pay by credit card or PayPal) by contacting us at ecozoicsocieties@gmail.com. CES also accepts members who pay lesser dues or no dues.

ANNOUNCEMENTS

Be sure to read The Chronicle at the beginning of in this issue. Alice Loyd did a marvelous job preparing it and it is very informative. You may send comments to Alice at ecozoicsocieties@gmail.com.
Though we have recently referred to the website www.ecozoicsocieties.org, it is not yet ready yet. For the time being, please use our existing website, www.ecozoicsocieties.org. The new website will be up soon.

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