

Paradigm Shift U.

Talk of an education and worldview called ecospheric, in results if not in name

Imagine that you are watching a university news conference. Perhaps it is in your hometown. With the trustees standing nearby, the school's president makes this announcement:

“Would you send your children to a university that still taught that Earth was at the center of the solar system, and that the heavens are a separate sphere from Earth? Kepler and Copernicus shattered those views centuries ago, in a revolution that transformed nearly every facet of life in European history, including the university curriculum. Today universities teach students similarly false and increasingly dangerous views about the planet: its resources are there only for our use; those resources can sustain infinite economic growth; to solve problems along the way we need only greater efficiency. This teaching happens even though, from the work of 19th century ecologists and biologists to work now in biomimicry, industrial ecology, and what The Land Institute calls natural systems agriculture, there has emerged an understanding of Earth as a cloth spectacularly complex, but woven to work as a finite whole. For example, we can see that something like cutting Brazilian rainforest does not just cost us native plants, animals, and soil, it upsets the world's hydrology. It is time for higher education to reflect this new worldview of Earth as *ecosphere* - the house of the

globe - in its curriculum and mission. As of today we are putting this paradigm shift on a fast track. The university will begin a 10-year process to transform our educational mission, values, and goals to better reflect the ecosystem model of the human-natural world. We will still produce world-class research and highly sought-after graduates. We will still offer all of our traditional degree programs. But we will work tirelessly to find ways to bring the insights of the emerging ecospheric worldview to the entire university community, and to the world. Change is never easy; radical change is always resisted. But this is a change too long in coming, as statistics continue to show. We need better solutions to our energy and food system problems. We need to find ways for 8 billion people to live on the planet without a fourth of them living miserable lives. At this school we want to lead higher education in rejecting half-measures and curricular tinkering that increasingly make matters worse. To do otherwise is to give our young people worse than a second-rate education. It is to prepare them to live in and understand a world that no longer exists.”

This scene helped preface a two-day conference in June at The Land Institute. Participants did in fact talk about how to develop ecospheric studies, and to change the dominant worldview, from one of treating Earth as a mine and the economy as a

separate machine, to one of people working as an interdependent part of the planetary whole. The Land Institute studies how to farm more like a complex, natural ecosystem, such as prairie, growing perennial grains in mixtures of species. It has done this with a broader idea about humanity's fit and role, using a mission statement that opens, "When people, land, and community are as one, all three members prosper; when they relate not as members but as competing interests, all three are exploited." Now it has begun work toward an ecospheric worldview in other institutions, to make this the new paradigm, the standard.

"We want people to think differently about how the world is," said Bill Vitek, a philosophy professor at Clarkson University, in upstate New York, who helped organize the conference. At separate moments in the meeting, his cohort, Land Institute President Wes Jackson said, "We're talking about rearrangement of a neural network. We've got to overturn an awful lot of fundamental thinking. How do we get rid of some of these nutty ideas?" He referred to belief in capacity for the economy's eternal growth. Humans colonize but don't really understand the world, he said: "We just don't know our place in it."

He wants the ecospheric view's *institutionalization*. This has too many syllables, he said, but no other word will do. John Linstrom, a doctoral student in English at New York University, said he liked it more than "organizing" because it's unsettling. Going with Jackson's argument not to accept a thinking shift smaller than worldwide, Valentin Picasso, a former Land Institute graduate school fellow from Uruguay who recently took a position at the University of Wisconsin, drew laughs by saying, "I don't like the in of institutionalization. I'd rather have an extitutionalization."

The three dozen people who attended the conference did not dwell on finding a better word than institutionalization. But most were academics, and they spent time on the meaning of ecospheric studies, and whether the phrase is needed, instead of ecology or environmental studies.

Jackson was the main proponent of the new phrasing, for its exactness and distinctness. "Changing of the precision of our language has potential for changing the flow of information in our brains," he said. He wants to eliminate the word "environment" from discussion, because it means something around and apart from us, a false dualism. Citing botanist and ecologist J. Stan Rowe, he argued that even the word "biosphere" has a bias, toward the biological, "which lets us play fast and loose with the physical." He meant things distinct from organisms, such as minerals, though the same things help make the organism.

Citing Rowe again, Jackson worked his way up through a hierarchy of biological distinctions: molecule, cell, organ, organism, ecosystem. Each has "contiguous volume." Each also becomes something greater than its parts, the cell, for example, as a metabolizing, reproducing system, not just as interacting molecules; the organism more than a mass of cells. Each has "emergent properties."

Above ecosystem Jackson sees the ecosphere. It is more than just the biggest ecosystem, a superorganism, he said. It's a supraorganism, something different, with emergent properties such as global climate. It came before ecosystems in time and in place, and it creates and sustains all of them. Jackson said it is really the only truly creative thing. (He recognized powers outside the sphere - the sun, and even Jupiter's pull - as constants.) There's nothing wrong with loving organisms and species and even

ecosystems, he said, as long as we don't dismiss the larger, sustaining whole. Here is some of the exchange that followed.

From John Hausdoerffer, professor of environmental sustainability and philosophy at Western State Colorado University: Is ecospheric studies different than environmental studies? How would this not just be a new label for my campus to laugh at?

From Chris Brown, director of environmental studies at University of Kansas: If we're already teaching some of these things, what are we doing wrong? Why does this not qualify as ecosystem studies?

From Tim Crews, The Land Institute's research director: Environmental economics is more about trying to address environmental issues in the growth economy. Ecological

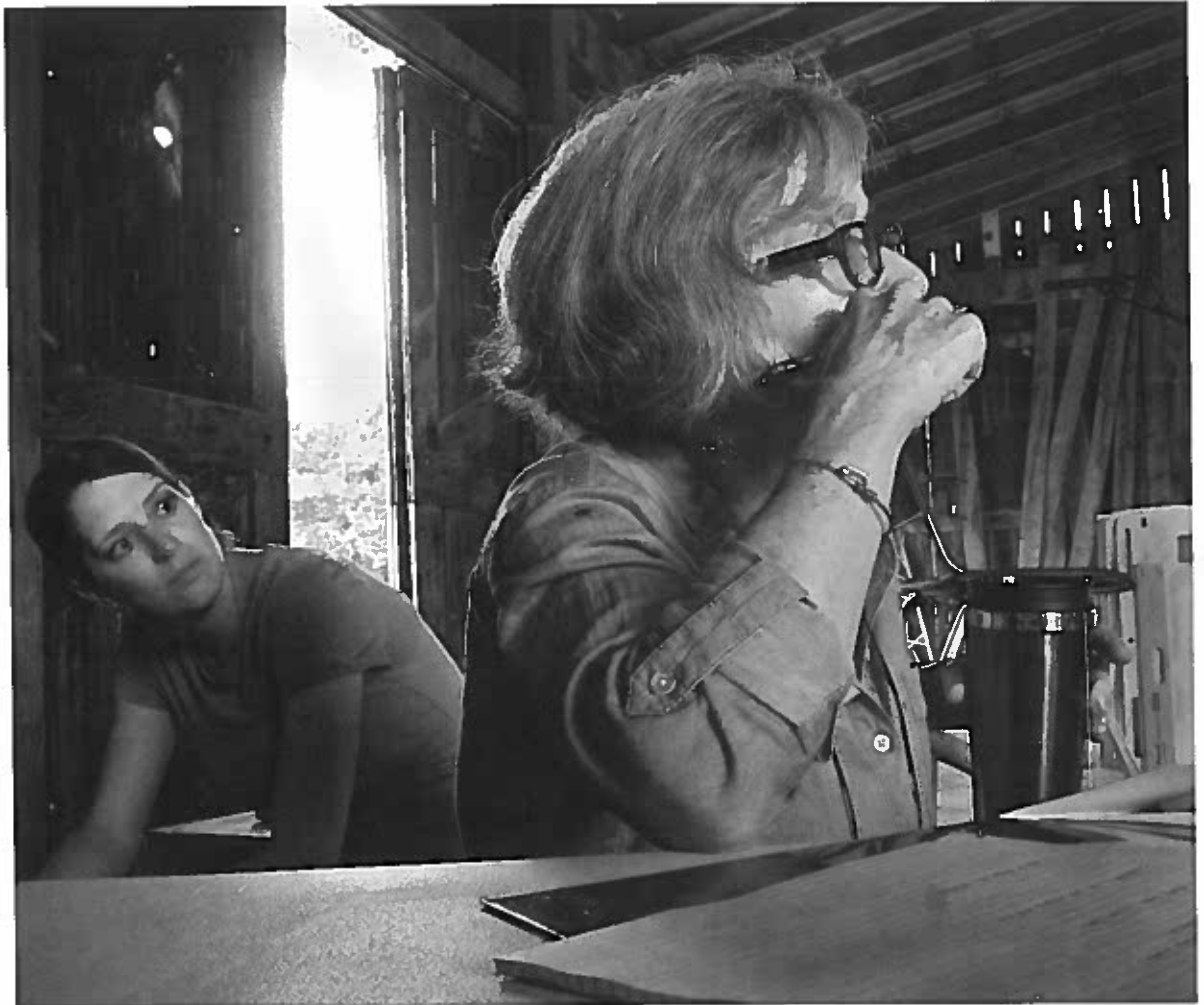


Ken Levy-Church, a historian, philanthropist, and Land Institute board member, argued that teaching of an ecospheric worldview should not begin in college, but as early as preschool. Scott Seirer photo.

economics tries to think about the human economy within natural ecological constraints. Ecospheric is a better term for what environmental studies has been leading up to. The penalty is that few yet recognize the term. It might be seen as merely groovy. But it could differentiate the perspective from a sea of other environmental studies. The

Ecological Society of America now has an online science journal called Ecosphere.

From Craig Holdrege, director of The Nature Institute in Ghent, New York: We don't have to worry as much about the name as about the work. But the name would stretch the concept and make for an interesting research course. We should try to



Loretta Pickerell, right, of Oregon Department of Environmental Quality, said people have been taught to think about ecosystems, but not about the ecosphere. Rachel Stroer, left, managed the ecosphere discussion, which drew people from around the nation. Many had never met. Stroer closed with, "Those of you who didn't know each other now do." This must have meant something for advancing an idea, because they applauded. Scott Bontz photo.

understand Rowe's claim that the ecosphere is alive, but not an organism.

Jackson: Part of our struggle is to overcome common sense. The name helps do that. The idea of an ecosystem as a mere container, like a political boundary, has to be overcome. How do we overcome the problem of reassertion, of current ideas regaining their hold? This kind of term forces explanation of a difference. Then there is less risk of reassertion. Look at plowing of the Amazon rainforest after advocacy for its protection as mere ecosystem, a container.

Brown: But people study this already.

Jackson: Not recognizing emergent properties.

Brown: We're clearly not going to settle this here. I want to read more. There is disconnect between the things we already do and arguing about whether an ecosystem is a container or not.

Holdrege: How do I experience that the ecosphere is not a container? How do I show a student?

To perhaps partly answer that, from the conference preface, here are possible courses in ecospheric studies:

Carbon Pools Through History. The discovery and exploitation of the five carbon pools: soil, forest, coal, natural gas, and oil. Energy and its influence on the development and collapse of societies.

Sustainability Theory and Practice: History of the sustainability movement within the American environmental movement. Critical review of the movement's principles: efficiency, technological optimism, and maintenance of the status quo.

The Agrarians: From Thomas Jefferson to Wendell Berry.

Modernism and its Discontents: Francis Bacon, Rene Descartes, Galileo, and others who created our modern way of life,

from science and technology to economics and politics.

Fundamentals of Ecosystems Science.

Environment Philosophy and the Emergence of the Ecosphere: The philosophical contributions of thinkers including Ralph Waldo Emerson, Henry Thoreau, John Muir, Aldo Leopold, and Stan Rowe.

The Perennial Analogs: Ecospheric models being developed outside of perennials for agriculture, including biomimicry, industrial ecology, information theory, and ecological economics.

Fundamentals of the Sunshine Farm: The Land Institute's 10-year comparison of the energy going in and out of a conventional farm and of one that relies on contemporary sunlight.

Confronting the Demons of Ecological Pride: The sustainability movement is filled with well-meaning people who want change, but not too much of it, and who pride themselves on their ecological choices. This course asks the hard questions about how much change is necessary.

Vitek and Jackson said an ecospheric curriculum would need to shun half-measures, and remake the basis of education. "It would be akin to the rejection of Aristotelian science in the world's great universities during the Middle Ages," they wrote. These kinds of changes are disruptive, dangerous, and can get their architects killed. But Vitek said cultures are capable of remaking their "primary operating assumptions," and for other examples he gave the rise of monotheism, Greek and Roman humanism, and humanism's continuance in the Enlightenment. "Each new system unleashes a new way of being," he said. Vitek already sees evidence of ecospheric approach, even if not explicit: community supported agriculture, intentional communities, and thou-

sands of experiments in plain living. Four centuries ago Descartes and the other modernists helped launch a view that, in seeing the world as machinelike, and humans as self-interested, has made a great many humans very successful. But Vitek said, "We are living in a living universe, one constantly creating." The philosopher pressed that this was not just a concept, a way of description, but real. For a parallel he offered the recent recognition that our bodies are actually ecosystems, in which bacteria outnumber our cells 10-to-1. To leave ecosphere as only a conceptual container is to leave it open to injury for exploitation of its parts. Vitek asked if treating slavery as a conceptual tool would lead to its abolition. "Claims about what is real change the game," he said. For current example of resistance to getting beyond concept, he pointed to climate change skeptics.

Ken Levy-Church, a historian and Land Institute board member, said that an ecospheric worldview should not hit college freshmen as new, it should come in pre-school, summer camps, and grades K-12. "I think we have to work from the early stage on," he said.

But only one of the educators at the conference taught children, and how the studies would work in higher education, including the land grant university agricultural extension services, is where the discussion stayed.

Strategy alternatives were to invade existing universities, found affiliates and influence the establishment laterally, create entirely new schools, and work outside brick-and-mortar, with students building their own education, online and hands-on. Ken Renaud, who teaches architecture and environmental design at University of Colorado, said students are already halfway

to the last route, needing professors less, and fearing debt like the \$150,000 that he wracked up. They don't want to come to campus, he said, "They want to go do the things." He predicted that in five to 10 years, employers would not care about degrees, but about what applicants can build.

Mary Berry took the route of affiliation. Her mind had stuck with what Jackson said a decade and half ago about today's college majors being in upward mobility. He said the need is for a major in homecoming - of understanding and caring for your home place. (Gerald Gillespie, who teaches psychology at Kansas Wesleyan University, said education should address "a beautiful downward mobility.") Berry is daughter of agrarian writer Wendell Berry, and she wanted to educate and encourage young people for staying on or returning to farms. Kentucky's land grant school told her it no longer graduated "farmers." "I want to graduate farmers, and I want to get hold of what's left of a culture," she said.

The Berry Center, of which she is executive director, works toward this with St. Catharine College, a Catholic school of the Dominican order with about 600 students and 40 instructors in central Kentucky. Degrees are offered in farming and ecological agrarianism, one a bachelor's of science, the other a bachelor's of art, with science and culture elements shared. "The word 'culture' is imbedded in 'agriculture'," though this is often forgotten, said Leah Bayens, the three-year-old program's coordinator at St. Catharine. Bayens has a doctorate in English, and was chosen to keep the study interdisciplinary. It includes cornerstone classes in agrarian history and the measure of nature in literature.

Also required is the business of sustainable agriculture. A professor takes students over market hurdles, and how to

farm efficiently. Farming is hard to start. Few children of farmers follow them. St. Catharine works for economic and social encouragement for the would-be farmers, such as wholesale outlets to public schools.

There have been about 20 students, including some from The Congo and India. The first will graduate in December. Their degree will not be called ecospheric studies or homecoming, but Bayens said those things are part of the idea: using nature as a measure, achieving ecological literacy, making one's self part of a whole. "I think a major in homecoming is a paradigm-changing concept," she said.

What would ecospheric studies get for students and their societies? Conference-goers thought about this too. Here are some of the ideas.

Ryan Anderson, an ecological economist with the Delta Institute in Chicago, warned that environmental studies graduates are such generalists that they can't get jobs with his business. But he suggested, from Wendell Berry, this general skill: "The ability to solve for pattern."

Randy Schwering, who teaches management at Rockhurst University in Kansas City, Missouri, suggested a workshop instead of a college degree, and including in it how to negotiate and lead.

Linstrom, who learned about the formation of capitalism from English classes, thought students should leave ecospheric studies understanding the histories of ecology, economics, philosophy, literature, and science.

Aubrey Krug, a doctoral student in English at University of Nebraska, included these goals from one of the conference's work groups: Ask what it means to be a human citizen of the ecosphere, and how other cultures have answered this ques-

tion. Understand patterns and systems. Recognize your own ignorance. Learn ecology, economics, and ethics, and about empire, the erotic, and beauty.

From another group, Vitek gave these aims: More farmers. More solutions with unlikely partners. Understanding the link of local and global power. Skills to build livelihood, not just get a job. Understanding that we are "placelings," place-based beings, which entails physical work, social justice, and unlearning and relearning to imagine a new human niche.

Katherine Jenkins, who teaches ninth-graders in Baltimore, said her group thought students should learn to be a jack of all trades, master of one. They should develop a sense of resilience, and the abilities to learn from failure and deal with ambiguity. Feel capable of change. Feel affection for local place. Self-reflect. See one's self historically. Think scientifically, and about how things relate. Use ritual. Spend time outdoors. Learns species and rock forms. Spend time in community.

Holdrege, who reads Johann Wolfgang von Goethe in the original German, said the writer and scientist saw that nothing happens in isolation from the whole, and, even before the rise of evolutionary theory, that the organic world was one of "ceaseless creativity." We need to revolve around the phenomena, not the phenomena around us. In Goethe's words: "We must follow nature's example and become as mobile and malleable as nature herself."

Jenkins's husband, McKay Jenkins, who teaches journalism and environmental humanities at University of Delaware, said students are depressed and anxious about the world, and ready for change. "There's got to be some way to uncork this," he said. "You think they're apathetic, but they're really just waiting for the moment."