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Geoscience and Geoscience Education in a Sustainable World

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GEOSCIENCE AND GEOSCIENCE EDUCATION IN A SUSTAINABLE WORLD

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If living sustainably meant adopting green technologies and paying more for fair trade or locally grown food and fiber, it would be easier to imagine and accept than the reality: to live sustainably we will need new worldviews, value sets, and modes of thinking. This mode of transformation is unsettling because it threatens our identities, including how we see ourselves as scientists and educators. What will my research, my courses, my classroom be like? Will the things that attracted me to my field and that keep me energized and happy still do so? Or will “sustainability” just suck the fun out of everything?

The specifics of when and why humans began to live unsustainably are argued but it's widely accepted that a deep rift between humans and nature is at the root of our current situation: people have come to think differently than nature “thinks.” I build on the work of Gregory Bateson and others to illuminate these differences, to explore their implications for science, psyche, and society, and to imagine what living sustainably – resynching human minds and nature's mind – will mean. As scientists who pay attention to nature we have much to teach and to learn. Earth's life and its geological support systems, self-sustaining for billions of years, could be a singular source of wisdom; but the reductionist framework in which we study these systems keeps us from thinking sustainably. We can develop a more holistic perspective if we re-imagine earth systems as cybernetic systems – systems of communication and control. This view doesn't diminish the importance of what we do as scientists but challenges us to see our science in a larger context.

We can engage our students (and ourselves) in this challenge beginning in our introductory courses. I show how examining gradients in human control of nature (e.g., from the rural to the urban) during mini-field trips can help introduce and build the concept of earth systems as cybernetic systems. Flows of water, sediment, carbon, and nitrogen obeying physical and chemical laws are transformed into messages in an ongoing conversation among atmosphere, stream, landscape, and ecosystem. “Hearing” the changing character of that conversation as we move from a forested watershed to a turf-and-concrete watershed is a move toward a more holistic and sustainable worldview.

Session No. 75

T86. Intersections of Sustainability and Geosciences

Sunday, 27 October 2013: 1:00 PM-5:00 PM

Colorado Convention Center Room 402

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