

## Editor's Introduction

In our era of burgeoning knowledge and multiplying sub-specializations, to attempt interdisciplinary research is no small task. Complex global issues, new interstices of research and trends in higher education all demand inquiry across traditional departments. As many have commented, hunger, global warming, discrimination and war do not have corresponding “departments” in the academy, yet they are issues that call for the broadest possible interdisciplinary research to challenge our preconceptions and imagine new models of understanding and enact positive and sustainable practices.<sup>1</sup>

Like the spaces of a great cathedral, seemingly open to the infinite but firmly contained by stone pillars, the architecture of each discipline structures its particular questions and field of focus. Whether by tradition or the compatibility of specific tools to specific problems, some issues never emerge from the shadows. Philosophical differences about the nature of knowledge are among the most significant barriers to interdisciplinary research. At the same time, by crossing these barriers, traditional disciplines may expand their own field of view while lending clarity and fresh approaches to the investigations of other specialties. Questions and conceptualizations are themselves enlarged when formed in the nexus between mental frameworks. Nonetheless, even the meaning of “interdisciplinary” is often debated.

Furthering that debate, signs of a critically self-conscious phase of interdisciplinary research appear in recent meta-analyses of the field. This emerging body of literature is producing typologies of collaboration, defining schemas of methodologies, identifying best practices and organizing criteria for assessment.<sup>2</sup> One might read these signs ironically as presaging a “scholasticism” of interdisciplinary collaboration, better served by open and undefined discourse. In fact, these meta-analyses provide helpful handholds for what can otherwise be a slippery slope toward unspecialized discourse that lacks focus, rigor, or even appropriate recognition as interdisciplinary research.

Within the dialogue of science and religion a body of literature is also

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1 John McArthur and Jeffrey Sachs, “Needed: A New Generation of Problem Solvers,” *The Chronicle of Higher Education*, June 18, 2009 <http://chronicle.com/article/Needed-Problem-Solvers/44512/>; Mark Taylor, “End the University as We Know It,” *New York Times*, April 27, 2009 <http://www.nytimes.com/2009/04/27/opinion/27taylor.html>.

2 L. J. Bracken and E.A. Oughton, “What do you mean? The importance of language in developing interdisciplinary research,” *Transactions of the Institute of British Geographers* 31(2006): 371-382; L. J. Bracken and E.A. Oughton, “Interdisciplinarity within and beyond geography,” *Area* 41 (2009):371-373; H. Buller, “The lively process of interdisciplinarity,” *Area* 41 (2008):395-403; S.D. Eigenbrode, M. O'Rourke, J.D. Wulforst, D.M. Althoff, C.S. Goldberg, K. Merrill, W.C. Morse, M. Nielson-Pincus, J. Stephens, L. Winowiecki, & N.A. Bosque-Perez, “Employing a philosophical dialogue in collaborative science,” *Bioscience* 57 (2007):55-64; W.C. Morse, M. Nielson-Pincus, J. Force, & J.D. Wulforst, “Bridges and barriers to developing and conducting interdisciplinary graduate-student team research,” *Ecology and Society* 12 (2007):1-8; D. W. Robertson, D.K. Martin, & P.A. Singer, “Interdisciplinary research: Putting the methods under the microscope,” *BMC Medical Research Methodology* 3 (2003):1-5.

emerging that addresses the ethics and theologies of sustainability. Traditionally, classic encounters of science and religion have explored atheism and cosmology; evolution and the creationism-intelligent design-theistic Darwinism continuum; determinism and reductionism versus the possibility of human freedom—all major points of contact between reason and faith traditions. The present centripetal pull of the environmental crisis now draws much energy to ecological questions with their theoretical and practical urgency. Both science and religion can and must contribute to defining these problems clearly and issuing the call for adequate technical, ethical and spiritual responses. Indeed, the responses the earth community urgently needs must be far more than just adequate, but transforming. In this area of religion and ecology and environmental ethics, science and religion meet not as competing claims to barricade empiricism against the realm of faith, but seek solutions for the sake of our most fundamental common ground, the earth itself.

This issue of the *Union Seminary Quarterly Review* brings together contributions from biology, ecology, environmental ethics, moral theology, physics, social philosophy, social science, sustainable development and systematic theology in Christian, Islamic and Jain traditions. Many such discussions originated in the collaboration between Union Theological Seminary and the Center for the Study of Science and Religion (CSSR) of the Earth Institute, Columbia University. For ten years the nucleus of this collaboration has been a course taught by Robert Pollack, Professor of Biology at Columbia University and Director of the CSSR. Through this seminar, “DNA, Evolution and the Soul,” seminarians, theological students, poets, artists, scientists and practicing clergy have pondered the intimate liaison of energy and organization that characterizes life – a dynamism no less mysterious through the lens of science than through the eyes of faith.

In that spirit, it is a pleasure to note that this issue also represents the first open-access on-line publication of the *Union Seminary Quarterly Review*.

Several subthemes run through the issue. Among them are the (un?)certainty of science, the plasticity of concepts and their terminology and the urgency of actively and ethically addressing sustainability. Questions about the relative responsibilities of science, ethics and religion to foster transforming and accurate understandings of the earth that galvanize action recur among our authors.

Rational claims alone do not compel ethical conclusions or reasonable policies and values too often exist more in theoretical debate than in lived practice. Experiential educators, philosophers and cognitive psychologists argue that values gain traction when literally grounded by experience, allowing the treads of reason to catch hold. Moving in the direction of sustainability within and beyond the cathedral and ivory tower requires the shared momentum of clear thinking and grounded values, both impelled by impassioned concern for our earth’s future.

#### CREATIVE AND COLLABORATIVE PRAGMATISM

Willis Jenkins explores the role of cosmology and pragmatic adaptive management as societies develop creative new strategies from their cultural values. Ecologists Simon Queenborough and Liza Comita respond by articulating ways

ethicists, ecological managers and scientists may most fruitfully collaborate. They suggest that finding solutions is thwarted less by the uncertainty of research than by conflicts of human values and priorities.

Peter Goodwin Heltzel analyzes the mutual cultural insularity that has historically blocked liberal and evangelical Christians from joining together in environmental activism and argues that their separate strategies of sustainable communities and creation care neglect the toxic realities facing communities of color. The environmental justice movement offers an arena for Protestants both to heal their internal divisions and to seek to repair the earth as a common ethical task.

#### AUTHORITY AND UNCERTAINTY

What is truth? Is it at least co-extant with the findings of science, or is a positivist view of absolute objectivity no longer possible? Globally, debates rage over how much uncertainty is consistent with “trust” in science and “assent” to policy recommendations based upon it. Mary-Elena Carr, oceanographer and researcher of physical science-social science interactions, and Madeleine Rubenstein, both of the Columbia Climate Center, examine scores of recent critiques of the Intergovernmental Panel on Climate Change (IPCC). They propose and analyze three major categories of IPCC critiques: mission, procedural and content. Especially given that climate science is not a classic, experimental science, but an emerging science of chaotic systems, the standards of certainty themselves are being recalibrated, and climate change underscores the ambiguous interface between science and society.

#### METHOD, METAPHOR AND MEANING

Daniel Maguire addresses the short-sighted assumptions that contribute to currently unsustainable lifestyles including the real challenges of hyperfertility. Society has apparently stopped asking the moral questions needed to restore hope—whether awed into silence by the power of science, or acting on the assumption that prosperity has no limits. He argues that the process of discerning moral values can, and must, be re-engaged. Kathryn Lilla Cox analyzes the role of language in forming our views of reality and argues that metaphors have a key role in influencing behavior by the way they shape moral perceptions and actions. By clarifying the assumptions and interpretations within our descriptions of human action, the way is opened for the creative and imaginative work of moral reasoning.

Christiana Z. Peppard traces the evolving meaning of the term “nature” as it is engaged by environmental philosophers, feminists, social geographers and other critical theorists. She analyzes how shifting historical frameworks contain our understanding of nature and parses the implications of nature’s description for normative prescriptions. Pankaj Jain discusses the powerful resource of Jain spirituality and asceticism as a holistic framework for sustainable living, in which ecological values are embedded in daily practices. Rather than accommodate these terms to Western notions of distinct “religious” practices, such ecological living should be understood as part of an all-encompassing “dharmic” framework.

## SCIENCE AND RELIGION TOWARD SUSTAINABILITY AND COOPERATION: EQUAL OR OPPOSITE REACTIONS?

In a novel and quasi-quantified analysis of the threat of self-induced “humanicide,” Nicholas Beale and Robert Pollack assert that levels of cooperation must radically increase to maintain sustainability. They point to the limitations of purely rational approaches for addressing the problem of sustainability and explore the possible compatibilities – and perhaps convergence-- of scientific and religious insights regarding cooperation. Munjed M. Murad offers a classic view of the relationship between sacred philosophy and science in traditional and contemporary Islamic thought. In this perspective, nature is suffused with the signs of God and science seeks an understanding of reality in its fullest senses.

## EXPERIENCE AND EARTH

Matthew Ally delves into the foundations of the meaning of “sustainability” through a philosophical analysis of sustainability as value, as fact and as experience. He argues that the idea of sustainability “does not obligate, it only orients,” unless grounded in the felt experience of living. Ram Mukul Fishman responds by underlining the critical distinction (without separation) between the sustainability of nature and the sustainability of development. He proposes that if the sustainability of nature is not an ethical question but a demonstrated fact, the sustainability of human development is an uncontested value but a doubtful fact.

## AN ETHIC OF HUMILITY

Cynthia Peabody develops an ethic of humility inspired by reflection upon the natural sciences as well as the work of Hans Jonas, Howard Thurman and Abraham Heschel. Instead of signifying a false posture of subservience or worthlessness, a humility that places the human person within dynamic systems is called to responsibility precisely because of humanity’s power. Physicist Aileen O’Donoghue responds, affirming the wonder of all life from her vantage point onto the cosmos. From personal communication she reflects on how physicists involved with the Manhattan Project felt the challenge and the horror of human power and urges that humility requires we accept the reality and the responsibility of our collective impact on the earth.

Finally, the work of poet Ossian Foley appears in *Delta Change*.

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