Editorial Essay

Thinking about "The *Nature* of Science" immediately invokes one to question the understanding of both terms. At first this statement engenders the essential character of science. The concept, though, is further troubling as the object of science, at least in principle, is nature. Hence, it becomes easy to see how our understandings of nature are bound up with science, while, simultaneously, our understandings of science are bound up in our notions of nature. Arguably, it is predominantly through science, at least since the Enlightenment, that we have come to know, name, represent and produce our natural world.

Bringing together the concepts of nature and science has provided this issue with fertile terrain to explore the multiple ways in which science is produced, interpreted and politicized in its relationship to "knowing" nature. As much scholarship in this area suggests, and as many of the authors herein maintain, science has been premised upon particular assumptions stemming from the Enlightenment, which has greatly influenced knowledge production. Science can no longer be thought of as the expression of an absolute truth, or linear, canonized and universal fact. Instead, it must be considered as a discourse, a product of social relations between subjects, and the objects of analysis. For if science is interpreted as neutral, it ignores and neglects the power/knowledge nexus that informs our perception of a given material object. There is, then, no innocent view of nature, nor can we uncritically accept the doctrine of objectivity. In this issue we seek to critically engage these scientific epistemologies.

Drawing on the Tatshenshini controversy, Anne Bell's provocative piece exposes the political nature of science, demonstrating that there are no value neutral "facts". Science, she argues, in the line of Donna Haraway, is a story telling practice and one which must be understood as the product of culture. Of particular interest is the manner in which the biological imperative demonstrates a commitment to objectivity, yet it is this same imperative that is drawn upon by both wilderness preservationists and the factions which oppose them. Her compelling portrait of the use of science in the Tatshenshini controversy demonstrates that science can be used in any number of ways, and, as Neil Evernden argues, that it has "no inherent bias towards nature preservation." Similarly, what we select to preserve is closely linked to our subjectivities, or to our attachment to a place. Bell thus argues that wilderness preservationists face a complexity of problems that include the social, political, economic, and ethical, for example, and calls for a challenge to the prerogatives of science and invokes alternative perspectives.

The epistemic underpinnings implicit in a commitment to objectivity is also found in the way science has been historically produced along gender lines. Amy Block's inquiry into the gendered construction of science traces first, second and third wave feminist critiques of science in relation to the "women question in science," and "the science question in feminism." Unearthing issues of phallogocentrism and power, she demonstrates that a simple joining of feminism and science does not escape the possibility of relying on essentialist discourses. Drawing on Elizabeth Fee and Donna Haraway, she argues that to escape the scientific canon and provide for responsible theorizing, we need an understanding that circumscribes a myriad of social relations, locations and contexts. Such a task would necessarily focus on the embodied nature of vision, where objectivity is understood as situated knowledge.

Recognition of the value laden nature of science is of central importance to Tres Fromme's piece on geographic information systems (GIS). Addressing the "darker side" of GIS technologies, he attempts to provide a critique of GIS in the context of power relations and metanarratives. He argues that no technological development is innocent, but is part of a larger matrix of multiple generative forces. Further, the insistence of GIS on standardization and universalization perpetuates a technological imperialism which could emerge as an aggressive colonizing force. Fromme poignantly argues that if we accept that culture and landscape exist as "polyglot matrices of perceptions, discourses and idiosyncratic responses," then the universalizing character of GIS has the potential to suppress multiplicity, at least to some degree.

Challenging the metanarrative of science is insisted upon in a number of pieces in this issue, as is the concern with fostering alternatives. Complexity theory, a theory which emerged from chaos theory, is one such position. Guy Letts insightfully argues that complexity theory poses interesting questions to the "modernist" view of the natural world as an ordered, mechanistic system. He suggests that complexity theory views systems, whether natural or cultural ones, as disordered, chaotic, fluid, interdependent and unpredictable. While criticisms of this perspective assert that complexity theory may be a simple refashioning of another metanarrative, Letts maintains that the important tenant of complexity lies in a new interpretation of the natural world which moves beyond oppositions, incorporating culture and society into a diverse web of interaction.

Recognition of closely interconnected forces frames Karl-Michael Nigge's essay on the role of boundary work. Writing on regulatory controversies, Nigge maps out the processes involved in regulatory decision making and demonstrates that science plays a limited substantive role as a result of "uncertainties", leaving much room for the strategic manipulation of the "gray zone". A prevalent theme throughout this volume, Nigge suggests that science is not independent of policy and cannot be separated from the social, political and economic realms in which policy decisions are made.

Pushing these themes to their logical limit, Laurie Miller questions whether the science of ecology is a useful foundation upon which to build an ethical basis for relating to the land. Indeed, subjecting moral *premises* to the "proof" mechanisms of ecological science reduces them to mere conclusions supported by a body of "objective" evidence. Hence, the ethical basis for our relationships to "the earth" depend on the body of evidence, or scientific story, to which one chooses to grant authority. Moral/ecological principles therefore become more subject to the rigors of the scientific peer review process, and are, as Miller suggests, an inadequate guide to "nature." The "land ethic" requires a deeper and more participatory source of authority to become truly meaningful.

Returning to Fromme's theme of the "darker side" of scientific production, Dean Bavington addresses the larger implications of the Human Genome Project (HGP). Scientists present nucleotide sequences as "pure" "truth" stemming from nature in much the same way as literal biblical interpretations were presented as stemming from God. In writing the book of life, scientists have assumed many of the roles of the priest, holding the interpretive power to create, define and describe that which they name – in this case life and nature. From the power of death to the power of life, to calls for genetic service, Bavington houses the HGP within a Foucauldian framework suggesting that it is now the gene (as opposed to the larger body) that is disciplined, thus producing "docile genes". In relation to late capitalism, the manipulation of genes has tremendous implications for pre-life and life management, and raises controversial questions relating to "purity", "difference", "nature", and the need to debunk the metaphor of life as a code.

This issue of UnderCurrents is attempting to deconstruct, and, perhaps, reinterpret, scientific knowledges in an attempt to unveil their particular, Western, relationships to the natural world. As many of the authors insist, science and its concomitant products, such as objectivity, knowledge, technique and technological artifacts, serve to mediate our multifarious conversations with nature. Recognizing, of course, that the articles presented herein do not exhaust the possible lines of inquiry, we do hope that, as a contested terrain, writing nature and science explores the multiplicity of forces that are part of the work of science, and provides space for further conversations.

Laura Wood and John Sandlos
for the UnderCurrents Editorial Collective

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