July 11, 2006

Dear Professor Pietrucha,

Thank you for the invitation to become affiliated with STS. I am a multi-disciplinary scholar working in the rhetoric of emerging technoscience, science fiction, and Science and Technology Studies. Because my research, teaching, and initiatives at Penn State have focused primarily on understanding and forging creative responses to the massive and wide ranging effects of emerging sciences and technologies of information on our planet, I seek to become an affiliated faculty member with your department. Becoming affiliated with STS will help me share my teaching and research with faculty and students and give momentum to collaborations that are already under way.

My writings in scholarly books and online have focused their attention on the effects of mapping living systems as highly interconnected networks of information, an "informatic vision" whose effects are Copernican in magnitude and radically distributed in their effects. STS, as the multi-disciplinary location at Penn State connecting engineering and the liberal arts, is the best place for me to share that work, learn and collaborate with students and colleagues from a wide variety of disciplines. Already, I have taught courses and independent studies in STS, and I now seek the more formal committment of an affiliation so that I might help STS become the leading program of its kind and thus honor its long and illustrious heritage. I am currently Professor in the Department of English at Penn State University, as well as the Penn State Director of Composition. I hold a courtesy appointment with the College of Information Science and Technology. In 2002 I was Visiting Professor of Rhetoric at UC Berkeley, and I currently serve as US Delegate to the International Electrotechnical Commision TC 20/WG 5 and Expert, Wetwares and Human/Machine Interactions. (www.iec.ch), and proudly serve as a volunteer for the Penn State Center for Sustainability.

Writing and Research

I write books and teach classes that investigate the social, psychological and physical implications of emerging science and technology. As a rhetorician, I study the written, visual,

aesthetic, and oral precursors and responses to technical and scientific change. A scholar of scientific and technical innovation, I investigate the ways in which rhetorical forms - the classical rhetorical and shamanic tropes of metaphor, metonymy, analogy and repetition, as well as the digital and psychedelic tropes of flashback and figure/ground disolution - enable technical invention even while they swerve from the ideals of transparent communication repeatedly bundled with other protocols of the scientific method. My first book, On Beyond Living: Rhetorical Transformations of the Life Sciences (Stanford, 1997) argued that the rhetoric of "information" at play in concepts such as the "code script" "genetic code" and "program" were crucial but hardly referential tools in the invention of a new discipline and paradigm: molecular biology. This example of scientific change suggested that we re-examine our ideas about communication in science, arguing along with interdisciplinary colleagues throughout science and technology studies, computer science and molecular biology that innovative technical writing was less representative of Nature than it was conducive to a shared, albeit incomplete, vision: an often ecstatic and frequently disembodied world composed entirely of information.

With On Beyond Living, I hoped to intervene in the nascent arguments about the ethical, legal, social and political implications of genomics. As a rhetorician, I was challenged to find a way of addressing an audience that, strictly speaking did not exist but was emerging, since the field of genomics itself was a dynamic one, altering day by day and publishing thousands of pages per month. Those involved in the contingent future of genomics were as likely to work in industry as for the government or academia, and most of the premises of an academic audience were not those of any other audience involved in the future of genomics. Having spent my teen years programming early personal computers, I knew that I wanted any rhetoric of genomics "code" that I wrote to be highly portable, extractable from one context and easily planted in another. So I focused on the shared rhetorical codes of molecular biology, which proved crucial to the conceptual and indeed technical apparatuses of molecular biology. I also suggested that as a necessarily incomplete vision, the informatic paradigm of molecular biology induced a kind of blindness wherein the context of genetic expression - transcription and translation "ribotypes", developmental pathways, the dynamics of organisms and their environment including epigenesis - became invisible before the rhetorically blinding light of that amazing molecule, DNA. Subsequent history, wherein the "genocentric" model of the Human Genome Initiative is widely questioned in favor of a more "flexible" genome and epigenomics, convinces me that rhetorical and interdisciplinary analysis of scientific change can be a powerful part of scientific practice itself, as it highlights the insights, blind spots, weakness and constraints of any particular articulation of that highly participatory co-evolutionary mesh of what Charles Darwin called the "entangled bank", nature.

My second book Wetwares: Experiments in PostVital Living, (Minnesota, 2003) connects the conceptual issues of On Beyond Living with contemporary transformations in the experience and treatment of the human body - experiences of illness, pleasure, death, and time. If emerging life science suggests that human beings are primarily informatic beings from our genes to our memes, how have various clusters of contemporary culture responded to this informatic vision? Wetwares ranges over recent research in artificial life, cloning, cryonics, computer science, organ transplantation, and alien abduction. Moving between actual technical practices, serious speculative technology, and science fiction, I highlight emerging scientific paradigms and technosocial communities where "life" becomes more a matter of information than of inner

vitality-in short, becomes "wetwares" for DNA and computer networks. These communties suggest – as much through their practices as through their content – that practices and insights responsive to the likely changes to human experience augured by the informatic vision *must be cultivated*; they must emerge or evolve in contact with experimental practices of community. My contribution to a Duke volume devoted to Growing Explanations exemplifies this penchant for the deployment of evolutionary heuristics in knowledge production and my involvement in the Open Source software community teaches me a great deal about the practicalities and generativity of this model of collective knowledge production.

My current book project investigates the role archaic information technologies played in the evolution of mind. Darwin's Pharmacy: Rhetoric, Ecodelics and the Evolution of Mind looks to the co-evolutionary history of humans and plants for clues to the emergence and transformation of rhetorical capacities in hominids. Compounds that systematically and consistently alter human consciousness abound in the terrestrial ecology, and have been frequent adjuncts to the rhetorical toolkit of orators, shamans, oracles and psychiatrists. Anthropologists, historians of religion and ethnobotanists have made a provocative and compelling case that tryptamines - such as those produced by *Psilocybe cubensis,* a mushroom first mass cultivated at Penn State in the 1950's - and phenethylamines - such as the mescaline biosynthesized by a legal household cactus growing in a State College, Pennsylvania Wal-Mart - have been an integral part of human culture for thousands of years, but the evolutionary role of such non human actants has for the most part puzzled researchers, who, through the seemingly inescapable context of the Drug Wars, view such plant and fungi use as pathologically dangerous and even demonic. Darwin's Pharmacy argues that such adjuncts have been rhetorical tools for the enhancement and induction of eloquence, seduction, narrative and argument that collectively deserve the term "mind". While much contemporary discussion of consciousness focuses on definitional issues and wonders repetitiously if consciousness even exists, (CF., Dennet) Darwin's Pharmacy looks to the huge archive of techniques for altering consciousness that the disciplines of rhetoric have deployed throughout diverse cultures and historical epochs. Hence I seek to understand "consciousness" pragmatically – in terms of its capacities to be altered. Altered consciousness can emerge through diverse media, such as the oral manipulation of mind states through speech in the practical eloquence of an insurance salesman – or through the "calming" efffects of a 1950's businessman's lunch whose medium was a pitcher of martinis.

The book also traces out a peculiar rhetorical symptom of psychedelic use among 1960's scientific researchers – the propensity of LSD to induce informatic visions in the scientists who ingested them, suggesting that psychedelic adjuncts have not be absent from the technoscientific toolkit. Indeed, it was the testimony of Novel prize winning biotechnologist Kary Mullis that was the original impetus for Darwin's Pharmacy; Mullis linked his invention of Polymerase Chain Reaction (PCR) to the informatic vision amplified by LSD-25, and more recent evidence suggests that Francis Crick also benefited from such 'psychonautic" practices in his own scientific context – modeling the double helical structure of DNA in 1954.

Darwin's less discussed theory of sexual selection provides my explanatory framework for understanding this co-evolutionary spiral of mind, plants and information. While sexual selection is the object of much research and argument in contemporary evolutionary biology, Darwin's own account of sexual selection is almost entirely absent from these discussions. Sexual selection is too often understood as natural selection by another name, wherein the peacock's tail serves

only to broadcast his fitness to the peahen, as if to say: "I am so fit I can carry this brightly colored train of plumage about and still survive! Have my progeny!" While elements of this "handicap" theory are compelling and enjoy some hegemony, this account is an all too semantic account of animal communication and overlooks the nature of the "broadcast" mechanisms and their function: the breakdown in the field of proprioception that enables the interconnectivity necessary to sexual reproduction and the informational broadcast of "fitness." It is not just any handicap the peacock is afflicted with, but instead a highly imbricated technique of seduction, seduction that is prima facie a breakdown in other naturally selected traits even as it paradoxically broadcast's the bird's fitness. Darwin's Pharmacy links these techniques of ecstasy to a new evaluation of the role of inebriants in human evolution.

My other current writing projects include a composition textbook, The Academy and the Bazaar The Academy and the Bazaar will articulate the models and the productivity of open source software development (e.g. Linux, Apache) into the classroom. During my current stint as Director of Composition, I am piloting a migration of our composition curriculum to one in digital rhetoric, rhetorical training that feataures an understanding of intellectual property and teaches writing and multimedia composition in a highly interactive context – the digital commons. An online proposal to transform the Penn State composition curriculum can be found here: http://pbl.ist.psu.edu/cgi-bin/analog.pl?DigitalProposal. I am in discussion with Prentice Hall to publish my writings on multimedia composition.

My work has periodically extended beyond the usual boundaries of academic writing and become fiction. After numerous trips to the writer Philip K. Dick's archives at Cal State Fullerton, I temporarily abandoned a scholarly project focused on Dick and instead sought to render the insights and contingencies of Dick's life through fiction: The Grasshopper Lies Heavy. The fifty five thousand word manuscript is in revision. Like my other books, The Grasshopper Lies Heavy explores the implications of an informatic vision: From 1974 until his death in 1982, Dick struggled to manage the enormous onslaughts of information he experienced in association with what he called "VALIS" - the Vast Active Living Intelligence System. Much of Dick's fiction explores the rather permeable boundaries between reality and fiction, and in The Grasshopper Lies Heavy (itself the name of a strangely effective novel within Dick's early novel, Man in the High Castle) works this space of indeterminacy in a attempt to respond in kind to Dick's hilarious and provocative work. This novel also represents an attempt to deploy literary tactics in order to provoke audiences into a new understanding of technological change and its implications for human culture. This summer, the Center for Sustainability will host a musical performance, "Da Grasshopper Lies Heavy", based on the novel.

Finally, my research has taken me to other media altogether - collaborative writing and DVD production. Along with my anthropology colleague Mark Shriver at Penn State, I am preparing a book and multimedia project :Admixtures: Dialogues after Genomics. The project seeks to investigate the ethical horizon presented as human evolution becomes irreducibly biotechnological and experimental. A collaboration between a geneticist and a "scholar of the transhumanities", Admixtures will be a learning resource – with images, DNA sequences, articles and experiments – designed to start sustainable learning communities capable of grappling and thriving through the ethical, political and even ecoysystemic complexity likely to emerge from the convergences, differentiations and cross fertilizations emerging in the sciences of life and consciousness induced in part by the informatic vision.

Teachings

If my scholarship, writing and research looks to models of interconnection and complexity while I try to understand and navigate the informatic vision and its effects, my teaching has always sought to provoke this experience of interconnection among students. I do not pretend (nor do I want to be) the peer of my students, but nor do I play the role of sovereign teacher instructing those ready-to-consume-knowledge. Instead, I seek to challenge and solicit students to have ears for the extraordinary differences that make a difference knowledge and reflection can provoke. I teach students to let go of their desire for an overarching solution to problems of complexity, instead encouraging them to learn how to "inhabit" problems and learn how to grow solutions and responses as well as make and articulate arguments. Because I find myself teaching in a culture that overly reveres centralized and hierarchical spaces of administration and knowledge production, I also attempt to create spaces where peer to peer teaching can make at least as much difference as the professor. A wiki – a web page that may be edited by any user – is exemplary in this regard, and I have come to depend upon free wikis to help create a zone of participation outside the classroom as well as within it. I am proud to say I have been integrating free and low cost technology into my teaching while maintaining the strengths of traditional pedagogy since I began teaching in 1987. A wiki for new instructors teaching English 15, the freshman writing course, can be found here:
http://mitochondriac.pbwiki.com/

I have been honored with both College and University level teaching awards in my eleven years at Penn State and have consistently earned among the highest student evaluations in the College of Liberal Arts. I attribute this success to the simple fact that I enjoy teaching a great deal, and that the experience of teaching novel material is a creative engine for my research. In well over fifteen different courses at the undergraduate and graduate level, I have brought together interdisciplinary studies of science and technology with the discipline of rhetoric and the teaching of writing and literature. Courses in cyberculture, the rhetoric of biotechnology and a NASA and STS sponsored course on Space Colonization all link the fundamental insights of a rhetorical perspective on language, culture and science with interdisciplinary inquiries into the discourses of science and technology, particularly the information and life sciences. Undergraduate courses on writers such as William S. Burroughs (“The Burroughs Machine”) and Philip K. Dick (Dicktations) finds in literary practice guidebooks for ecstatic survival of the informatic vision. My graduate courses range from pro-seminars in contemporary philosophy (e.g. “Theory Toolbox, “A Thousand Plateaus”) to special topics emerging from my research (e.g. “Becoming Virtual”, “Ecstatic Rhetorics”, “Psychetropics”) I have taught courses at every level of Penn State’s curriculum with a level of excellence in direct proportion with the joy, humor and learning that I am proud to say makes up my classrooms, office hours and web presences. More information on my courses can be found at http:/www.personal.psu.edu/rmd12.

I have served on well over forty graduate committees and am currently directing two dissertations, while seven Ph.D. students have completed their doctorates under my direction within the last year, and all were offered tenure track jobs at Research 1 Universities after writing

interdisciplinary theses in rhetoric and Science, Medicine, Technology & Culture. Some recent thesis topics have included the visual rhetoric of nanotechnology, a history of essay grading machines, a genealogy of habit, and the rhetoric and history of cybernetics. Working with the multi-disciplinary and interdisciplinary students and faculty in STS is one of the exciting prospects of becoming an affiliate faculty member.

Interconnections and Multi-Disciplinary Initiatives

In addition to maintaining the highest levels of engagement and service in my own department of English, I have worked hard to create protocols, spaces and communities for work that extends over several departments and colleges at Penn State. After a Post Doctoral Fellowship at MIT in Science, Technology and Society, I arrived at Penn State in 1994, where I helped found the Science Studies Group (now SMTC) at Penn State with faculty from History, Physics, English, Sociology, African American Studies, Speech Communication, Biology and others. I learned that a good deal of work and enthusiasm was necessary to create the infrastructure for linking and cross listing curricula at the undergraduate and graduate level, running interdisciplinary workshops, speaker series, etc. Penn State is a very hierarchical and tradition bound institution, but with the help of my excellent colleagues I have learned to fashion configurations of funding, support and community that preserve the interdisciplinary and decentralized ethos of our group while allowing for the continuity and consistency of institutional support. The struggle continues, of course, but over the years I have managed to direct a very successful working group in virtual technologies (Virtual Research Group or VRG) and collaborate on numerous successful grants large and small, including an NSF grant that supports the mainstreaming of gender analysis into Science Studies. My current job as Director of Composition has me working with faculty and adminstration across all of the disciplines to revamp our teaching of the core Batesonian skills of "learning to learn." More recently, my volunteer work with the Center for Sustainability has generated a new class, "Remixing Discourses of Sustainability." In short, I have been working hard to create the conditions for multi-disciplinary classrooms and publications, and I am most excited by the prospect of working with STS faculty and students to further this agenda.

My thanks for your patience with a lengthy letter, in which I hoped only to indicate my preparation, qualification and enthusiasm for the becoming affiliated with STS. Please feel free to contact me at mobius@psu.edu or (814)883-9597 if you have any questions concerning my work or my application.

Sincerely,

Richard Doyle
Professor
Dept. of English
Penn State University