# The Radical Insufficiency and Wily Possibilities of RSTEM

***Caroline Gottschalk Druschke***
*University of Rhode Island, Kingston*

*Poroi* 12,2 (February 2017)

I'm losing my faith in rhetoric of science.

Rather, I'm losing my faith in a hegemonic version of rhetoric of science—one based squarely on rhetorical criticism—so long as it fails to make room for another—based on engagement. While the May 2016 Association for the Rhetoric of Science and Technology (ARST) pre-conference opened with a panel on engagement called "Productive Doubts: Centering Engagement in the Rhetoric of Science, Technology, and Medicine (RSTEM)," represented in this special section of *Poroi*, my own sense is that there continues to be a dominant version of RSTEM that focuses largely on critique: critique of scientific figures (e.g., Darwin or Bacon), of scientific concepts (e.g., punctuated equilibria or cold fusion), and of scientific controversies (e.g., nuclear power and climate change). This view is well represented in journals like *Rhetoric Society Quarterly* and *Quarterly Journal of Speech*, in our biannual ARST pre-conferences, and our Rhetoric Society of America Summer Institutes. We have learned much from this careful scholarship and thoughtful inquiry. This work made "us" and shaped us, insomuch as rhetoric of science, technology, engineering, and medicine has become an "us," and I think it has. But I'm hoping we can move from recognizing this work as the single form of scholarship in RSTEM and consider it one form of scholarship among other increasingly urgent ones that could help us collectively envision a new kind of RSTEM.

I want to speculate about this potential future of RSTEM from the assumption that a certain version of critique has, indeed, run out of steam (Latour, 2004). As a variety of scholars have suggested, following Bruno Latour (Latour, 2004), critique has continued to work as a fallback tool, turned to out of habit. As Karen Barad claimed, "It is no longer the tool needed for the kinds of situations we now face." She continued, "Reading and writing are ethical practices, and critique misses the mark" (Dolphijn and van der Tuin, 2012, 49). What we need now is not "a practice of negativity… about subtraction, distancing and othering" (Barad,

2011, 49). Instead, inspired by Donna Haraway, Barad proposed "the practice of diffraction, of reading diffractively for patterns of differences that make a difference. And I mean that not as an additive notion… I mean that in the sense of it being suggestive, creative and visionary" (Haraway, 1997; Dolphijn and van der Tuin, 2012, 49-50).

In my view, what RSTEM exactly needs at the present moment is suggestion, creativity, and vision. We need Barad's ethical practice of reading and writing—to which I would add listening and engaging—that moves us into new articulations with our objects of study… Maybe renders them not objects at all… Or renders us objects, too.

We need to develop tools, strategies, and collaborations to work "from the inside," an approach that, as Barad described it, "doesn't presume to take a position outside of science but rather constructively and deconstructively engages with science from the inside (not uncritically but not as critique)" (Barad, 2011, 51; Barad, 2007). My hope is that a growing interest in engaged RSTEM—"growing" insomuch as it is represented in this and previous special issues in *Poroi*—will begin to risk the co-construction of a RSTEM "from the inside" of STEM, making productive use of difference that makes a difference.

I am heartened by the recent playfulness with creative, visionary, and diffractive methodologies—from William Hart-Davidson, Nathan Johnson, Laurie Gries, S. Scott Graham, and more (Hart-Davidson *et al.*, 2007; Johnson, 2012; Gries, 2013; Graham *et al.*, 2015)—just as I am heartened by some of the interdisciplinary, high stakes, community-based collaborations "from the inside" emerging from up-and-coming scholars like Molly Hartzog and her National Science Foundation graduate fellowship (Gould, 2011), from Tim Amidon's community based work with fire fighters in Colorado (Amidon, 2016), and from Donnie Johnson Sackey's recent National Institutes of Health award to study the Flint Water Crisis (Mcelmurry, 2016). This, to me, feels like the work we've been sharpening our tools all this time to finally do.

But this work doesn't come without its own perils. There are few forms of loneliness more lonely than the life of a deeply interdisciplinary researcher. We're frequently homeless, uncomfortable in our own disciplinary homes or in the cross-disciplinary spaces where we linger and attempt to build new collaborations. But I've also been writing about the uses of discomfort, tension, and *agôn*, as both subject matter and methodology (Druschke, under review). Borrowing from Anna

Tsing's emphasis on the illuminative friction that can emerge from "patchwork ethnographic fieldwork" (Tsing, 2005, x), I've been arguing that rhetorical fieldwork—such as the sorts of engaged activities we're proposing in this special section of *Poroi*—serve as agonistic encounters that force the lived experience of discontinuity and irresolvable contradiction, expanding disciplinary understandings of rhetoric, and generating significant insights for intervention.

In other words, our field needs discomfort.

We need strength, fortitude, confidence. Flexibility. Dynamism. Wiliness. If our field emerged from Aristotle's conception of rhetoric as "an ability, in each case, to see the available means of persuasion" (Aristotle, *Rhetoric* I.2.1355b26-28, trans. G. Kennedy), we necessarily need to engage ourselves in these particular cases. Not always or only from a distance. Or on paper. Or from the point of view of a rhetorician. Rhetoric is the means of negotiating life in common, and at few other times in (human) history has that negotiation of common life taken on weightier stakes in the realms of science, technology and medicine. We need—now—to engage with people and things, potentially make fools of ourselves, and labor with others to do the work that most matters to us, our field, and our world. Risk learning what others have to offer. Risk learning what we don't have to offer. Take a lesson from Ezra Pound's famous annotation on the pages of T.S. Eliot's "The Waste Land": "Perhaps be damned" (Patterson, 1972, 269).

So what's at risk here? I've mentioned loneliness. Certainly there are risks for giving up a strong disciplinary identity, especially pre-tenure. I sympathize, too, with a concern about ceding what little territory rhetoric still holds onto in the (post-)postmodern (nonmodern?) academy (Miller, 2013; Walsh, 2013; Cagle, this issue). But I want to push against the notion that this engaged work forces us to give up our rhetoricians' union cards and instead think about how much rhetorical studies might gain by airing it out in the world at large.

So I wonder: What would it take for RSTEM to unite around our rhetorical sensibilities? To recognize our shared compulsion to pick away at the foundations of every bit of language, argument, theory, and paradigm around us. And then collectively attune to and act upon an equally strong compulsion to create… with piles of sand, pillars of butter, blocks of ice. To embrace the radical insufficiency of tentative answers. And to build anyway. To act as if. To hope. To do.

In other words, what I am suggesting is that rhetoric does not—and cannot—have all of the answers to its most pressing questions. As we try to make our collective ways together in the world, we necessarily need to mingle with, create relationships with, and build with other disciplines, species, kinds. And we also owe it to these relationships to identify what it is that rhetoric can and cannot offer to them. To realize that we might not (ever) have the answers but that we need to try to most ethically use the (always already) insufficient tools at our disposal. And work to improve them. To embrace this risky work.

Now is the time for RSTEM to risk engagement. People need us! The scientists I work alongside at the University of Rhode Island, the University of New Hampshire, University of Maine, the U.S. Environmental Protection Agency, and the National Park Service are doubting their abilities to connect with public audiences. At the same time, the National Science Foundation's Broader Impacts review criterion, which rewards public communication and engagement, pushes them to engage seriously with non-specialist audiences. The future of their funding quite literally depends on it. But broader impacts criteria are poorly defined (Skrip, 2015), and this lack of direction leaves a vacuum, with scientists, department chairs, and deans scrambling for training and guidance.

This moment offers a *kairotic* opportunity for rhetoric of science: one in which RSTEM scholars might begin to engage with STEM colleagues to experiment with taking RSTEM out into the field and consider what it could become through this collaborative work. If we do not, we will miss important opportunities to introduce rhetorical tools and sensibilities to scientists working to engage with publics in consequential ways. We also—significantly—will miss the opportunity to enhance our own field by co-producing the sorts of theoretical and applied knowledge for which Celeste Condit *et al.* and Carl Herndl and Lauren Cutlip, respectively, have called (Condit *et al.*, 2012; Herndl and Cutlip, 2013).

In the spirit of considering *how* to build these relationships with colleagues in the sciences, engineering, and medicine, to get out of the mode of distanced critique and into the mode of being suggestive, creative, and visionary by working "from the inside" of science, I offer a useful, but certainly not exhaustive, list of recommendations for building relationships across rhetoric and the sciences—what Leah Ceccarelli pointed to as "best practices for engaging scientists with public outreach" (Ceccarelli, 2014)—that will offer the possibilities to co-produce knowledge across STEM and RSTEM. These modes offer possibilities where, as I once suggested in this journal, "We can suspend belief in the boundary

drawn between rhetoric and science and conceive of a future where rhetoric of science becomes an integral part of the practice of science itself" (Druschke, 2014, 6):

1. **Work with scientists who want to work with you and who can.** This sounds simple, but it matters. There are particular disciplines that are more and less capable of making sense of our rhetorical sensibilities. Ecologists? Absolutely. They think in systems, networks, articulations. Engineers? Maybe. Economists? A harder sell. Look for collaborators with a generosity and curiosity that opens them to new perspectives. Like the bryologist who sends me regular emails about Deleuze's rhizomes and horizontal gene transfer, or the French biogeochemist who shocked me in a recent meeting when he described collaboration as "fractal" and urged us to build on a growing "kinetic" in the room. Find those people.
2. **Realize you might need to spend a lot of time doing work that you don't value in order to do work you finally do value.** Developing relationships across colleges and outside the university has meant saying "yes," a lot. Yes, I'll edit that manuscript. Yes, I'll conduct an audience workshop in your class. Yes, I'll write a resource brief about watershed management. Yes. Yes. Yes. And, in many ways, I have paid a price. I haven't always had time to pursue some of my more theoretical interests because I was busy putting in the labor of creating relationships, learning about other disciplines, and teaching people what I could about my own. There's a tradeoff there, but an enriching one in the long-term.
3. **Recognize that funding is a double-edged sword.**
    a. **Prepare for criticism… at least until the money rolls in.** This one is crass. But it's also true. Administrators may have been skeptical about the daily practicalities of my interdisciplinary work until multiple large National Science Foundation awards arrived in Fall, 2015. All of a sudden, publications across rhetoric and agriculture and environmental management and ecology journals seemed a lot more attractive to university administration. I'll bet they would to yours.
    b. **But don't be in it for the money!** I get asked a lot by fellow rhetoricians how to cultivate these funded projects, and I'm quick to warn people about losing a sense of autonomy in their work when it has to follow the constraints and promises of particular awards. You can't spend the summer reading all the French theory you can

find because your quarterly reports are due, and research protocols don't write themselves. Awards often come with either strategic deliverables or with outreach activities that may not directly count as "research" in our rhetoric-as-discipline world. So engagement needs to matter to you, and matter over the long-term.

4. **Realize that you're going to have to explain your field over and over and over and over again.** This is self-explanatory. How many times have you already had to answer the question: "What's a rhetorician?" Multiply that by a thousand and you're still nowhere near it.
5. **Recognize that if we don't do this work, deficit model science communicators will.** For years I have been struck by the limited conceptions of communication and argument and writing and language that frequently exist out there in the world of science communication training and that many respectable scientific associations have been willing to fund. Without us, scientists are doomed to be trained in strategic conceptions of communication for the rest of their days, when, in fact the scientists I work with instinctively have incredibly rich senses of language, thought, and ontology that are being beaten out of them. Without rhetoricians to encourage them to explore those conceptions, they'll be thrown to the wolves. Left to believe that Claude Shannon and Warren Weaver are the end-all, be-all of science communication (Shannon and Weaver, 1949). Help them. Help me help them.

So what sorts of collaborative work can emerge from these practices? At the University of Rhode Island, it has meant ongoing classroom-based engagement with a group of local, state, and federal partners for public events and contextual scientific communication (Druschke, 2014; Druschke and McGreavy, 2016). It has meant the in-process development of an environmental communication track in the Masters of Environmental Science and Management and the establishment of my Society, Ecology & Communication lab, thanks to a large influx of funding from the National Park Service's Northeast Coastal and Barrier Network. It has meant two large, recent National Science Foundation awards: one for SciWrite@URI, a rhetoric and writing training program for graduate students in the sciences (Lofgren, 2015) and one to study decision-making about dams, which includes an innovative collaboration between rhetoricians, physical, natural, and social

scientists, and designers to create and study alternative fora for engagement about dams (Gardner, 2015).

And while all that is important, here is my most important point—and maybe my most disciplinarily selfish one:

Without a doubt, the time I have spent with community organizers, ecologists, hydrologists, and evolutionary biologists has fundamentally changed and continues to fundamentally change the ways I understand both science and rhetoric. Thanks to my colleagues in labs and fields, neighborhoods and forests, my conception of rhetoric has expanded beyond the human, beyond strategy, beyond intent. It has come to incorporate microbes, moon tides, and migration. Bacteria and beachings. These relationships have imprinted upon me a visceral sense of rhetoric's radical insufficiency and its wily possibilities.

I want to suggest that the important work that is to be done through engagement is not—or not only—an issue where rhetoricians should "pass along our most important findings" or "ensure the 'broader impacts' of our research" (Ceccarelli, 2014, 1-2), but rather an issue of co-producing knowledge with colleagues outside of RSTEM. This expansion and porosity will push the field of RSTEM beyond its own deficit model of rhetorical research dissemination into contextual and consequential engagements with scholars in the sciences and beyond (Gross, 1994). We need to adopt a curious, speculative, experimental mode; set aside our understanding of rhetoric as the master discipline; and realize that there is plenty for us to learn from our engagements with community members (both human and other-than-human) inside and outside the academy.

This engaged, collaborative work can move us into a different relation with critique, providing tools for what Eduardo Kohn called, "a thinking that grows" (Kohn, 2013, 14). I am suggesting here that this is a moment where RSTEM can reimagine itself, or at least what—and with whom—it now wants to be. Remember that cross-pollination is an important survival strategy, resulting in a stronger and more diverse gene pool that enables a species to become more adaptable to changes in the environment. Let's diversify our gene pool. Become more porous. Attend to another way of being. And walk—humbly—out into the world.

## Reference List


Amidon, T. R., Principal Investigator. (2016). Factors Impacting How Firefighters Perceive and Communicate Risk: An Interdisciplinary, Mixed Methods Examination of Factors Impacting Firefighter Safety. Pre-Catalyst for Innovative Partnerships (PRECIP), Colorado State University.

Barad, K. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham: Duke University Press, 2007. https://doi.org/10.1215/9780822388128

———. "Nature's Queer Performativity." *Qui Parle: Critical Humanities and Social Sciences* 19.2 (2011): 121-158. http://www.jstor.org/stable/10.5250/quiparle.19.2.0121

Ceccarelli, L. "Where's the Rhetoric? Broader Impacts in Collaborative Research." *Poroi* 10.1 (2014): 1-9. http://dx.doi.org/10.13008/2151-2957.1182

Condit, C. M., J. Lynch, and E. Winderman. "Recent Rhetorical Studies in Public Understanding of Science: Multiple Purposes and Strengths." *Public Understanding of Science* 21.4 (2012): 386-400. https://doi.org/10.1177/0963662512437330

Dolphijn, R., and I. van der Tuin. "'Matter Feels, Converses, Suffers, Desires, Yearns and Remembers': Interview with Karen Barad." In *New Materialism: Interviews & Cartographies*. Open Humanities Press, 2012. https://doi.org/10.3998/ohp.11515701.0001.001

Druschke, C. G. "Agonistic Methodology: A Rhetorical Case Study in Agricultural Stewardship." In *The Places of Persuasion: Studying Rhetoric in the Field*. C. Rai and C.G. Druschke, eds. Under review.

———. "With Whom Do We Speak? Building Transdisciplinary Collaborations in Rhetoric of Science." *Poroi* 10.1 (2014): 1-7. http://dx.doi.org/10.13008/2151-2957.1175

Druschke, C. G., and B. McGreavy. "Why Rhetoric Matters for Ecology." *Frontiers in Ecology and the Environment* 14.1 (2016): 46-52. https://doi.org/10.1002/16-0113.1

Gardner, K., Principal Investigator. (2015). RII Track-2 FEC: Strengthening the scientific basis for making decisions about dams: Multi-scale, coupled-systems research on ecological, social, and economic trade-offs. National Science Foundation.

Award no. 1539071. https://nsf.gov/awardsearch/showAward?AWD_ID=1539071

Gould, F., Principal Investigator. (2011). IGERT- Genetic Engineering and Society: The Case of Transgenic Pests. National Science Foundation. Award no. 1068676. https://www.nsf.gov/awardsearch/showAward?AWD_ID=1068676

Graham, S. S., S.Y. Kim, D.M. DeVasto, and W. Keith. "Statistical Genre Analysis: Toward Big Data Methodologies in Technical Communication." *Technical Communication Quarterly* 24.1 (2015): 70-104. https://doi.org/10.1080/10572252.2015.975955

Gries, L. E. "Iconographic Tracking: A Digital Research Method for Visual Rhetoric and Circulation Studies." *Computers and Composition* 30.4 (2013): 332-348. https://doi.org/10.1016/j.compcom.2013.10.006

Gross, A. G. "The Roles of Rhetoric in the Public Understanding of Science." *Public Understanding of Science* 3.1 (1994): 3-23. https://doi.org/10.1088/0963-6625/3/1/001

Hage, G. "Critical Anthropological Thought and the Radical Political Imaginary Today." *Critique of Anthropology* 32.3 (2012): 285-308. https://doi.org/10.1177/0308275X12449105

Haraway, D. *Modest_Witness@Second_Millennium.FemaleMan_Meets_OncoMouse: Feminism and Technoscience*. Routledge: London, 1997.

Hart-Davidson, W., G. Bernhardt, M. McLeod, M. Rife, and J. T. Grabill. "Coming to Content Management: Inventing Infrastructure for Organizational Knowledge Work." *Technical Communication Quarterly* 17.1 (2007): 10-34. https://doi.org/10.1080/10572250701588608

Herndl, C. G., and L. L. Cutlip. "'How Can We Act?' A Praxiographical Program for the Rhetoric of Technology, Science, and Medicine." *Poroi* 9.1 (2013): 1-13. http://dx.doi.org/10.13008/2151-2957.1163

Johnson, N. R. "Information Infrastructure as Rhetoric: Tools for Analysis." *Poroi* 8.1 (2012): 1-4. http://dx.doi.org/10.13008/2151-2957.1113

Kennedy. G. A. *Aristotle on Rhetoric: A Theory of Civic Discourse*. New York: Oxford Press, 1991.

Kohn, E. *How Forests Think: Toward an Anthropology Beyond the Human*. Berkeley: University of California Press, 2013. https://doi.org/10.1525/california/9780520276109.001.0001

Latour, B. "Why has Critique Run out of Steam? From Matters of Fact to Matters of Concern." *Critical Inquiry* 30.2 (2004): 225-248. https://doi.org/10.1086/421123

Lofgren, I., Principal Investigator. (2015). NRT-IGE: Science Writing and Rhetorical Training: A New Model for Developing Graduate Science Writers. National Science Foundation. Award no. 1545275. https://nsf.gov/awardsearch/showAward?AWD_ID=1545275

McElmurry, S. P., Principal Investigator. (2016). Rapid Response to Contaminants in Flint Drinking Water. National Institute of Environmental Health Sciences. Award no. R21ES027199. https://tools.niehs.nih.gov/portfolio/index.cfm/portfolio/grantDetail/grant_number/R21ES027199

Miller, C. R. "Audiences, Brains, Sustainable Planets, and Communication Technologies: Four Horizons for the Rhetoric of Science and Technology." *Poroi* 9.1 (2013): 1-6. http://dx.doi.org/10.13008/2151-2957.1159

Patterson, G. "'The Waste Land' in the Making." *Critical Quarterly* 14.3 (1972): 269-283. https://doi.org/10.1111/j.1467-8705.1972.tb02062.x

Shannon, C. E., and W. Weaver. *A Mathematical Model of Communication*. Urbana, IL: University of Illinois Press, 1949.

Skrip, M. M. "Crafting and Evaluating Broader Impact Activities: A Theory-based Guide for Scientists." *Frontiers in Ecology and the Environment* 13.5 (2015): 273-279. https://doi.org/10.1890/140209

Tsing, A. L. *Friction: An Ethnography of Global Connection*. Princeton University Press, 2005.