Scientific Futures for a Rhetoric of Science:

"We do this and they do that?" A Junior-Senior Scholar Session, RSA 2018

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Abstract: Growing attention to a rift between epistemology and ontology, between words and things, sets new challenges and invigorations for a Rhetoric of Science that traditionally aims to "analyze and evaluate the persuasive communications of scientists" (Ceccarelli, 2017, para. 6). Rhetoricians confront a vibrant, new intellectual space where scholars across disciplines are seeking to better account for bodies and moving to "include the materiality of our ambient environs" in their analyses (Rickert, 2013, p. x). The question, in light of material expansions, is what is a Rhetoric of Science, and what are its futures?

In response to the Rhetoric Society of America's 2018 conference call for junior and senior scholars to discuss "major developments in rhetorical studies," we offer a Feyerabendian innovation-meets-dogma performative session: the junior scholar, representing innovation, argues that Rhetoric of Science must move aggressively beyond a study of texts and scientific language to account for continuous technological, social, and biological entanglements; specifically, that to expand the field's practices to include neuro-cognitive approaches and other forms of experiment. The senior scholar, representing dogma, expresses caution, arguing that the domain of a Rhetoric of Science is still symbols and semiosis; specifically, that looking at "ambient rhetorics" and "entanglements" is another approach, not a foundational shift.

Keywords: entanglement, junior senior scholar, bodies, futures, Materiality, Rhetoric of Science

David Gruber: To start, I want to say that Rhetoric of Science [RoS] is under-studied even by rhetoric scholars. In graduate school, I was one of maybe two pursuing it, and it never felt central to the field; perhaps, this is because it requires knowing about a very different and often derided disciplinary area. To do RoS, you have to learn the science or a considerable part. Lots of rhetoric scholars have to become interdisciplinary; those in Rhetoric of Religion and Politics, for example, have to do a lot of background work, but RoS can or should be particularly good at examining how scientific experiments are made and justified *in addition* to analyzing the ways that findings are applied or sold to the public. Any extra work being ascribed to RoS there in that comment is intended to drive at a key point: science happening in the lab, on the initial inventional and pragmatic level, remains ripe for rhetoricians yet under-examined. And I think the lack of work within the scientific process indicates a problem of how we, as rhetorical scholars, think about ourselves. Overall, I want to argue that we imagine ourselves talking about science mostly after-the-fact, after the press release, after the popular media presentation, and not sitting in and amongst the working processes of shaping science.

Randy Allen Harris: You kids today…! You want under-studied?! Try *my* grad school experience, in the good old days (well, except for disco and Ronald Reagan), the 1980s. A few of us had to propose and cajole our way into a directed reading course by, or rather under, the not-yet-venerable and always irrepressible James P. Zappen. Despite the presence of Jim in the department, and of S. Michael Halloran, there was nothing on the books, and I'm pretty sure Jim didn't get paid for it. We had the feeling of being pioneers, following the explorers and the scouts into territories not exactly uncharted, but charted with the blunter instruments of sociologists, philosophers, and historians. RoS certainly felt understudied at the time. Every article had to begin with a justification. Some articles were nothing *but* justifications. Now, RoS feels like a cottage industry, with regular articles and books and conference panels or presentations, virtually dedicated journals, thriving graduate programs, its own society (now 25 years old!). There's even an oral-history project. There's a *whole lot* of studyin' goin' on.

But I don't miss your central point, once we both stop reminiscing about grad school, that much of the studyin' these days

is off-base. Some aspects of science—the real, true aspects of science, you imply—go unstudied by rhetoricians. Do we have an equivalent of Bruno Latour and Steve Woolgar's *Laboratory Life* or Peter Galison's *Image and Logic*, which are anthropological/ethnographic lab studies? Perhaps not. Many rhetoricians, myself included, are more comfortable with a text in front of us than a scientist in front of us, a beaker in her hand. But, first, don't forget that science is *done* with texts, even more than with beakers—that's one of the central claims of RoS–and in fact we do have quasi-anthropological/ethnographic works like Charles Bazerman's "Physicists Reading Physics" and Greg Myers's "The Social Construction of Two Biologists' Proposals" (Bazerman, 1985; Myers, 1984). Even more relevantly, we have a new generation of RoSers growing up with the advent of citizen science, like Ashley Rose Mehlenbacher and James Wynn, who are participant-rhetoricians, as well as flexible older generation RoSers, like Carolyn R. Miller, who are engaged in this work as well.

My own beef (but not just mine; Leah Ceccarelli has turned it into a mantra, "Where's the rhetoric?") is less with *what* is being studied than with *how* it is being studied. There is work being done, much of it good, by RoSers, which doesn't involve very much rhetoric. The Grand Poobah of this approach is Alan G. Gross, who is perhaps the single most important rhetorician of science and also perhaps the least rhetorical. He has always been happier with methodologies from philosophy or sociology than from rhetoric, and, after his rhetoric-without-constraints period, has settled into a prolonged rhetoric-as-handmaid period. Indeed, his important work with Joe Harmon on visualization in science (Gross and Harmon, 2013) and his new book on the scientific sublime might be characterized as a why-even-bother-with-rhetoric period (Gross, 2018). But he is far from alone. The rhetorical quotient in RoS work is often distressingly slight, limited sometimes to the use of the word *rhetoric* once or twice.

Gruber: Rhetoric that doesn't involve much rhetoric? Well, perhaps this leads me to how RoS is, in my view, too often *misunderstood***.** Ceccarrelli, one of the major contributors to the growth and dignity of our field, whose work I respect and enjoy, recently wrote an online article for *The Conversation* magazine. Her title is "Defending Science: How Rhetoric Can Help" (Ceccarrelli, 2017). I was glad to see the article. Given the current atmosphere around government funding of science in the United States, the effort is appreciated. However, I was struck by the way Ceccarelli tells a

story of rhetoric historically distrusting scientists and critiquing them only to more recently turn to seeing scientists as united with us "in the fight against forces that would starve higher education of funding. Many rhetoricians began to see their mission not as taking scientists down a peg or two, but as helping scientists improve their public communication" (2017). Ceccarelli goes on to detail how rhetoricians have helped scientists "understand their audiences," think of "more accurate and less alarming metaphors," find useful figures of speech to "debunk skeptics," and to build a "trustworthy character" (2017). All of this is true, of course. But nowhere is RoS characterized as studying experimental processes or as a participant in the development of scientific aims and the structure of experiments.

Harris: True. Even a chef as dexterous as Ceccarelli can only fry so many fish at a time. She is pointing out an important cultural mission of RoS for a general audience, not exploring its critical dimensions for a specialist audience.

Gruber: Work like Jordynn Jack's "Mapping the Semantic Structure of Cognitive Neuroscience" or Melissa Littlefield's experiments in lie detection should not be invisible in characterizations of RoS (Jack, Beam, Huettel, Moody, & Appelbaum, 2014; Littlefield, Dietz, Fitzgerald, Knudsen, & Tonks, 2015). I recognize that these kinds of engagements are still few and unlikely to get a mention in a general overview designed for public consumption. But I still want to say that these efforts might be misunderstood. Ceccarelli aside, generally speaking, experimentation or interdisciplinary collaboration to create a new experiment that answers a specific question of a rhetoric scholar could be perceived as an 'adventure' or 'side project' designed to tactically enhance the scholarly profile. But I think such characterizations do RoS a disservice. To be brief: We need to stop talking about RoS as something about language, something about texts, something about the way that science can be explained to the public.

Harris: Er, no, we don't. *Rhetoric is about texts* (broadly construed; the flickering overhead lights in this room are a text). RoS is about scientific texts (broadly construed; I'm including beakers here, and colliders). But you are right that there is plenty more work to do than helping scientists talk to the public, and I enthusiastically agree that folks like Jack and Littlefield are doing it.

Gruber: Just in case we're talking at cross-purposes, allow me to stop you there. What I want to say is that RoS can no longer be limited to being a field content to investigate scientific texts, big T or little t. The central pivot point of RoS cannot be anything about *a text* in the current state of the broader field. I'll call upon Thomas Rickert here and say, "Rhetoric is *itself* ontological," which is a statement that more or less suggests that the field must expand and become about studying continuous technological, social, and biological entanglements (2013, p. vi). This idea pushes us well beyond texts. To go back to Rickert: "Rhetoric cannot be understood as suasion attempted between discrete or among aggregate subjects embedded in a transitive subject-driven view of rhetorical situations. Rhetoric is not, finally, a shift in the mental states of subjects but something world-transforming for individuals and groups immersed in vibrant, ecologically attuned environments" (2013, p. xvi).

Of course, I am not going to dispute that RoS should examine how bodies are textual and textualized, infused with discourses, co-constituted by interactions with many big T- and little t-texts. Textualizations of the body are pertinent to rhetorical scholarship since texts are often central to deliberations about the body and burrowed into public and institutional sense making. Nevertheless, RoS, as a study of texts or scientific language, risks missing Rickert's point when he says that, "Rhetoric is *itself* ontological." We can't get stuck on scientific texts because we would miss the machines, the living performances, the affects, and florescent lighting in the room that makes us feel crazy or the smell of sewage at a landfill. *(The effects of florescent lighting, like the seething piles of garbage living, breathing, and stealing breath outside the city, are not only textual.)* I risk getting off-point here as I originally intended to primarily argue for getting more involved in the actions of scientific experimentation in order to answer rhetorical questions, but I feel the need to pause at your statement "RoS is about scientific texts."

Harris: Yes, we can use experimentation, and other forms of scientific research, to answer rhetorical questions, but you have turned Rickert into a zealot here, dropping an important subordinate phrase. He says, "On this approach [namely, on his ambient-rhetoric approach] rhetoric cannot be understood …" He is not saying, as you seem to want him to say, that rhetoric can no longer ever study the trade of suasions among the sorts of beings who traffic in texts, discrete and/or aggregate subjects. While I

admire his ambient rhetoric proposals, I take them as an *augmentation* of traditional rhetorical criticism, a new and important grounding for traditional rhetorical criticism, a set of resources for traditional rhetorical criticism, a continuation of Kenneth Burke's globalization project, *not* as a replacement of traditional rhetorical criticism.

Gruber: That's where we run square into another difficulty. Adding scientific partnership and adoption of scientific experimentation into RoS confronts the area where the field is most **'**unstudied'**:** *from within* the scientific lens. That is to say, rhetoric's internally accepted theories and narratives of co-constitutive, scaffolded, or compositional worlds teeming with life and wrapped up in a complex material milieu remain supported mostly through appeals to former rhetorical scholars, mostly investigated through textual analysis and mostly detailed through ideas in continental philosophy, residing relatively independent of scientific, biological investigations. Traditional rhetorical work takes us a long way down the road of knowing the body and our world better. However, I think that RoS also needs to move toward adopting the scientific lens as one additional valid way to consider what we're now so interested in, i.e. materiality and the asignifiying affects/effects in persuasion.

To be blunt about it: I wonder if we can, on the one hand, celebrate pro-science protest signs, many of which have recently read, "Science is real" / "Climate change is real" / "Have Polio? No? Thanks, Science!" and still, on the other hand, dismiss scientific processes as less useful or dangerous methods for rhetorical scholars who must avoid the slippery slope of scientism, objectification, and universalization. Can we affirm science on the one hand and then say that we need to stick to discursive work for fear of becoming overly deterministic or losing what we 'do best' in English and Communication Departments? The obvious retort is to simply say that 'we should do this, while they do that' because clear distinctions make for defined field areas and follow from our history. Yet I wonder if the mentality of 'they do this, and we do that' risks missing the point of our own serious investment in doing more with rhetoric by turning to materiality, affect, and the body.

Harris: To be blunt, yes, of course we can. We can celebrate painters, study their craft, and critique their art without painting. We can study sculptors without sculpting, farmers without farming, scientists without sciencing. But I will be blunter yet: *You*

misunderstand RoS specifically and rhetoric more generally. Its domain is symbols and semiosis, which means texts.

Gruber: groans audibly, releases a sigh.

Harris: But that doesn't mean we can't learn from science. For all its finely wrought and natively forged tools for the study of symbolic inducement, rhetoric is always on the lookout for more ways to study the style and context and structure and resonances of inducing symbols. Rhetoric is opportunistic. And science has some pretty neat tools.

Gruber: Yes, science has neat tools, but if those tools are not merely playing in a representational field divorced from material worlds that influence us, then why not use those tools too? Rhetoric, as you say, is opportunistic. So let's live up to the designation. Of course, I agree that we can celebrate science, study the craft and critique the art, as you say; but that's not what we are debating here exactly. I think we are asking if we must or must not try to consider an analysis of bodies and materialities outside of and/or alongside of textualizations, and we seem to also be asking if we can adopt scientific experimentation in RoS and still call it RoS.

To the latter point, in my view, there are cases where we, as rhetorical scholars, must engage science and can use scientific processes to answer our own questions. Not every question posed by a rhetorician has an answer in a text or in the existing rhetorical canon, especially questions about affect and materiality. Likewise, not every question has an answer adequately supplied by existing scientific studies. Consider the debate about identification, as an example. Without getting too far into it here, I would say that Diane Davis' reformulation of identification as always-already there, in contrast to Burke's view that is it compensatory to a pre-existing division, sits unresolved (Davis, 2008). Davis' view, seems to me, remains up-in-the-air because it depends on theorization from Freud and draws on neuroscientific ideas about mirror neurons that have since been overturned or re-theorized in the neurosciences as a result of additional observations (See Hickok, 2014); so here, in this case, we have an opportunity to look again at the question of identification and see if further scientific experiment can illuminate bodily engagements. We can clarify what, exactly, Davis or anyone else might be able to do with this now fuzzy term 'identification.' Perhaps 'identifications' would be more fitting. But in terms of developing new theorizations, I don't

think that she needs to wait for neuroscience to confirm or deny her ideas; she can be actively involved now and work with scientists to develop other kinds of research questions if she chooses. So I want to argue for embracing scientific processes and building our own experiments and making blended methodologies—not merely critiquing those processes in the sciences—and to do so, I think we'll need to overcome historical/philosophical resistance that remains.

Harris: You're not listening, youngster. I *am* saying we should use those tools. I'm all for embracing scientific processes and technologies. I'm currently engaged in fancy-tool projects. One of them knowledge-engineers an ontology of rhetorical figures. Another explores the role of the neurocognitive principles of style when they are realized in language breakdowns; for instance, in dementia. But those projects are pursuits of cognitive science, not rhetoric of science. They are *rhetorical*, certainly, and they help tell us things about rhetoric. But rhetoric is more the object of study in these projects than the methodology. Sticking just with figures and style, there are all kinds of efforts researching tropes in psychology, in developmental terms, in categorization, and in concept formation. Computational linguists are researching irony in the Twittersphere, detecting chiasmi in the Europarl corpus, exploring the potential of epanaphora for argument mining. Cognitive linguists are now paying considerable attention to repetition, a neurocognitive affinity that is basal not just to style but to communication even in its pre-symbolic aspects.

We might see these efforts, collectively, as research into the science of rhetoric, to use a familiar term (Harris, 2013). (As an aside, this work would be much richer if the researchers bothered to talk to rhetoricians, and I encourage an interdisciplinarity that would get rhetoricians involved in it.) But, however much we can and should make use of its results in all forms of rhetorical criticism, the science of rhetoric is not the rhetoric of science. If we are asking, "Can we adopt scientific experimentation in RoS and still call it RoS?" my answer, based largely on terminological hygiene, is no.

Gruber: I guess I'm not very hygienic. I think we should all get our hands dirty. In a recent book chapter in *Methodologies of Rhetoric of Health and Medicine*, I touch on a few reasons why rhetoric scholars resist scientific experimentation (2018). Some exploration on this topic has yielded the following ideas:

1. Rhetoric, as a field, was never interested in simplified or staged settings, preferring in-situ human interactions so that the discourse would be situated and the text not decontextualized.

2. Experiment risks upsetting rhetoric's two main historical roles, as outlined by Alan Gross in 1994:

    a. developing theories of how such areas are socially negotiated and communicated to the public; and

    b. helping scientists communicate with the public.

3. Marxism's historical tie to place and personal experience—and rhetoric's historical affinity with critical-cultural approaches—embraces the notion that the social and political mystifications of life are not best elucidated in a laboratory but in the streets, or in the libraries where records of the streets are housed.

4. Pursuing experiment would mean adding a layer of rhetoricalness to what is already rhetorical, doubling the task of the rhetorical scholar. Untangling what one is doing rhetorically while testing rhetorical concepts is a messy enterprise.

Each of the above contentions needs to be tackled. But for now, I'll pose the question of whether we can usefully comment on materiality, affect, and the body without finding ways to study connections between signifying and *asignifying* materiality. If we want to see the world in multiple dimensions, then the world may be rhetorical, yes, but also *More Than, Other Than,* and sometimes *In Opposition To* the circulation of signifiers. Accepting this premise, I believe, requires turning to neuro/biological/gastro-enterological/physical scientific processes and finding ways to expand rhetorical ideas and to do science, when useful, in RoS.

Harris: Your ear is, I think, closer to the RoS ground than mine, so I will defer to you on the question of how **unstudied** it actually is from an experimental perspective. You are overgeneralizing, however, to identify experimentation with a scientific lens; many sciences conduct no experiments. I can't call to mind any rhetorical experiments.

But none of your four resistance factors are in any way insurmountable. Indeed, not all of them are even resistance factors.

1. Rhetoric, for long stretches, has been not only interested in, but also obsessed with staged settings. Don't forget the second sophistic, or the belletristic and elocutionary movements, and the centrality of epideictic rhetoric for many rhetoricians and rhetorical movements. This, of course, does not open the door to experimentation, but it does mitigate your claim that a natural *in situ* (if not *in vivo*) disposition precludes *in vitro* research in rhetoric.

2. I see no risk here.

3. Even Marxists conduct 'social experiments,' with housing projects, free injection sites, and the like. Ontario, for instance, recently implemented a three-year basic-income project, giving 4,000 people a guaranteed income to measure the impact of such a plan [This project was ongoing in June 2018, when the dialogue occurred, but cancelled two months later, after the election of a socially regressive government].

4. You got me there: It's more work, and it's messy.

Gruber: You make good points, but I'll hold my ground: RoS is historically understudied, currently misunderstood as a discursive discipline whose usefulness is in being a service to scientists or their communicative efforts, and has a future path in practical engagement that has, up to now, gone largely unstudied. As a field, we've been too interested in artifacts made after the science is, more or less, over.

Harris: We agree it is understudied, though we use somewhat different metrics. We agree, too, that it is misunderstood, though again we diverge on specifics. It is a discursive discipline, and it does have utility in the cultural service of science—which is to say, in the service of facts and evidence and standards of argumentation. But that is not its only cultural service. Rhetoricians study the ways in which knowledge is made, because epistemology is a symbolic enterprise, not just the way knowledge is propagated. We agree, finally and most strongly, on your suggestions of borrowing what we can from scientists to study rhetoric, and rhetorically study science.

But, of course, we are in a dialectical space, and Burke tells us that the dialectical pressures push us apart, not together (1941, p. 139): it would not do to end on agreement. So I will first push you,

then pull you. The push: The burden of proof on someone who endorses something new is to show that it works. You need to show the success of rhetorical experimentation. The pull: Experimentation is not the only method we can borrow from science. Longitudinal observation, for instance, could open up a field of developmental rhetoric: when, in a child's acquisition of language, does metaphor appear? Is a sense of ethos inborn or, like theory of mind, does it appear developmentally? In my own work, I build knowledge representations, models, something else that science does best.

Gruber: Who gets the last word here? The senior or the junior scholar? Well, since I'm the junior scholar and, presumably, have more time to persuade and publish, I'll leave it there.

Harris: Good point. I'm many decades closer to the worms and the fishing poles of retirement, and to the worms of another state of being, best not mentioned, with many fewer words left to squeeze out, so I'll go last, with an anecdote from Richard Feynman. "When I was young, we had a lot of new ideas about quanta," he said, or something very much like it, "and there were lots of old men who resisted these ideas by all sorts of methods. They were very foolish to say we were wrong. Even Einstein thought quantum theory was crazy." This was in the early 1990s. An interviewer was asking him about superstring theories. "But now *I'm* an old man," he went on, "and I know old men resist new stuff just because it's new. But, goddamn it, this new stuff is crazy and wrong!" (Davies & Brown, 1988, p. 193-194).

I'll leave the moral of this fable to you, and to the audience.

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