"Scientific Futures for a Rhetoric of Science: We do this and they do that?"

David Gruber and Randy Allen Harris

GRUBER: To start, I want to say that Rhetoric of Science [RoS] is **understudied** even by rhetoric scholars. In graduate school, I was one of maybe two pursuing it, and it's 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. Lots of Rhetoric scholars have to become interdisciplinary; those in Rhetoric of Medicine, for example, have to do a lot of background work, but RoS has been particularly good at examining how scientific experiments are made and justified, whereas other areas might focus more on the way that X is applied or sold to the public. The distinction that I've just made there is intended to drive at a key point: science, in the lab and on the initial inventional and conceptual level, remains understudied. 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.

HARRIS: You kids today, …! You want understudied?! Try my grad school experience, in the good old days (well, except for disco and Ronald Regan), in the 1980s. A few of us had to propose and cajole our way into a directed reading course, under the not-yet-venerable and always irrepressible James P. Zappen. Despite the presence of Jim in the department, and S. Michael Halloran, there was nothing on the books. We had the feeling of 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 programmes, its own society (now 25 years old!). There's even an oral-history project. There's a *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. We don't have the equivalent of a *Laboratory Life* or an *Image and Logic*, an anthropological lab study? Perhaps not. Many rhetoricians, myself included, are more comfortable with a text in front of us than a scientist with a beaker in her hand. But, firstly, don't forget that science is *done* with texts, even more than with beakers—that's one of the central claims of RoS–and that we do have quasi-anthropological works, like Bazerman's "Physicists Reading Physics"

and Myers's "The Social Construction of Two Biologists' Proposals." 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 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 recent work on visualization in science might be characterized as a why-even-bother-with-rhetoric? period. 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: This leads me to how RoS is too often **misunderstood.** Leah Ceccarrelli, one of the true giants 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." I was glad to see the article, and given the atmosphere around government funding of science in the United States, the effort is appreciated. However, I was struck by the way that 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."* 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." 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 processes 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 are invisible. Now these kinds of engagements are few and far between and unlikely to get a mention in a general overview of RoS designed for

public consumption. But I still want to say that these efforts might be misunderstood. In my experience, they can be perceived as 'adventures' or 'side projects' designed to tactically enhance interdisciplinarity and scholarly profile. But I think such characterizations do RoS a misservice. 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). RoS is about scientific texts. 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: Whoa. Let me stop you there, just in case we're talking at cross-purposes. What I want to say is that RoS can *no longer* be about scientific texts, big T or little t-text. 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. This idea moves/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" (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 in saying, "Rhetoric is *itself* ontological." If we adopt this conception, then 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. I risk getting off-point here as I originally intended to primarily argue for taking advantage 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, 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 continental philosophy, residing relatively independent of scientific, biological investigations or attempts at experimental replicability. 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 understand 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 recently read, "Science is real" / "Climate change is real" / Have Polio? No? Thanks, Science!" and yet, on the other hand, dismiss scientific processes as less useful or dangerous methods for rhetorical scholars. 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, and study their craft, and critique their art, without painting, sculptors without sculpting, farmers without farming, scientists without sciencing.

I will be blunter yet: *you* **misunderstand** RoS specifically, rhetoric more generally. Its domain is symbols and semiosis, which means texts.

*(GRUBER grunts audibly and releases a SIGH.)

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 can adopt scientific experimentation in RoS and still call it RoS. 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 cannon, nor does every question have 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, as inessential, in contrast to Burke's view that is it compensatory to a pre-existing division, sits unresolved; 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, which have since been complicated and re-theorized in the neurosciences; 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 and clarify what, exactly, Davis or anyone else might mean by this now fuzzy term 'identification.' I don't think she needs to wait for neuroscience to confirm or deny her idea. So I want to argue for embracing scientific processes and methodologies—not merely critiquing those processes—and to do so, I think we'll need to overcome historical/philosophical resistance that remains.

Harris: I'm all for embracing scientific processes and technologies. I'm currently engaged in projects knowledge-engineering rhetorical figures and exploring the role of the neurocognitive principles underlying style in the language breakdowns characteristic of dementias. 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. Compuational linguists are researching irony in the twittersphere, chiasmus detection in the Europarl corpus, 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. (As an aside, this work would be much richer if the researchers bothered to talk to rhetoricians, and I encourage an interedisciplinarity 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: ….. In a recent book chapter in *Methodologies of Rhetoric of Health and Medicine* (edited by Blake Scott and Lisa Melancon), I suggest that there are at least four reasons why rhetorical scholars resist scientific experimentation.

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 to communicate with the public.
3. Marxism's historical tie to place and personal experience—and rhetoric's historical affinity with critical-cultural approaches—embraces/forwards the notion that the social and political mystifications of life are not best elucidated in a laboratory but in the streets.
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 dong 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/gastroenterological/physical scientific processes and finding ways to do science in a 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 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 but 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, has currently implemented a three-year basic-income project, giving 4,000 people a guaranteed income to measure the impact of such a plan.
4. You got me there: it's more work, and it's messy

GRUBER: To sum up, then, RoS is historically **understudied,** currently **misunderstood** as a discursive discipline whose usefulness is in being a service to scientists' PR efforts, and has a future path 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, so 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. Longtitudinal 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 push 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 just resist new stuff just because it's new. But, goddamn it, this new stuff is crazy and wrong!" I'll leave the moral of this fable to you, and to the audience.