

Where Did the Rhetoric of Science Go?

A Double Review of Landmark Essays on Rhetoric of Science, Case Studies and Issues and Methods, a Two Volume Edited Collection by Randy Harris¹



David R. Gruber

*University of Copenhagen
Copenhagen, Denmark*

Pamela Pietrucci

*University of Copenhagen
Copenhagen, Denmark*

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Abstract: In this review essay, we look back at the evolution of the rhetoric of science by reviewing the *Case Studies* and *Issues and Methods* volumes edited by Randy Harris. We conclude by reflecting on the past, present, and future of the discipline.

Keywords: rhetoric of science

Rethinking ARSTM's rhetorical adventure, on 'Issues and Methods'

David R. Gruber

After the Cold War, Thomas Kuhn's "The Structure of Scientific Revolutions" in 1962, and then Chaim Perelman and Lucie Olbrechts-Tyteca's 1969 "The New Rhetoric," scholars in the humanities and social sciences got the fast feeling that rhetoric can and must be applied to science and technology. The then-current scholarship questioned formalisms, rules, and unassailable logics

¹ This review essay has been co-authored by David Gruber and Pamela Pietrucci: each author has reviewed one of the volumes, as indicated in the text, and both authors collaborated in the final reflection included at the end of the essay. Contact us at gruber@hum.ku.dk and p.pietrucci@hum.ku.dk.

to put the focus on situated symbolic activities, audiences, and cultural values. For many rhetoricians, the idea was to push strongly against, as Philip Wander (1976) says, “the guarantee of knowledge and power” secured by scientific validation (p. 226). Randy Harris reminds us in his opening to the new *Landmark Essays on Rhetoric of Science: Issues and Methods* (2019, Routledge) that atomic anxieties bolstered the exigence, leading eventually to the word “technology” being added to RoS to underscore ideological forces driving scientific development and to avoid the perception that humanists wanted to denigrate individual scientists (p. 6). The belief that “science had created the problem [with the atom bomb]... and that only science could solve it,” Harris suggests, widened the door for rhetoric, since the field’s focus on deliberation took some pressure off the scientists and made efforts to avoid mutual destruction not exclusively a technical problem (p. 6). Certain enough, nobody back then imagined that a rhetorician would be able to fly in and save the world from atomic disaster; rather scientists admitted—as Harris happily highlights—rhetoric could help them to think through scientific presentation as much as answer how things are framed and positioned as kinds. The place where rhetoricians were to contribute was not around questions such as “what are bombs,” exactly, but questions like “what are we doing when we use Disneyland, for example, to tell kids about nuclear energy” (See: Mechling and Mechling, 1995)? The key contribution yet often the central controversy regarded pointing out ways that symbolic action was social action *of* specific people with socially situated ideas and logics exercised in disciplinary ways, in science as anywhere else.

As can be expected, time elapsed and rhetoricians joined philosophers of science and sociologists in arguing for the rhetorical-ness of science, writing on a wide range of topics. Yes, I am telling a little rhetoric of science story here, so bear with me—because it will be one of those laugh-cry, happy but confusing endings. A bit existential. The basic premise is that the new edited collection *Landmark Essays* shows Rhetoric of Science (RoS) as a coming-of-age story; it’s a road trip movie about a hand-full of awkward scholars setting out on a rebellious adventure. They are trying to make their way in the world. Harris’ volume tells readers all about Act I, the launch of the rhetorical adventure, and then Act II, the full development of the story, in terms of theories and methods used to get where the scholars wanted to go. But Harris’ *Landmark Essays* seems, as a retrospective, to be itself an Act III. The teenagers are all grown up. They have their own kids now—and we watch as those kids venture out. That’s us. But as always

with the kids, it's unclear whether they have the same ideas or the same concerns.

In today's (post)Trump era of anti-science social media bombast and the 2020-21 Covid-19 pandemic, the focus is not "science," or not exactly; rhetorical scholars interested in science must be today spread all over technical and political landscapes like hot butter on toast. Maybe the focus is a bit closer to the extended litany of labels now gracing conference programs: "science and technology and health and medicine." The shift toward expansion for Rhetoric of Science (RoS) started some time ago. The addition of "medicine" to the Association for the Rhetoric of Science and Technology in 2015 was another indicator. The addition suggested that health-focused rhetoricians —although studying something properly scientific in both method and scope—needed to foreground some difference, presumably to better establish how studying biomedical arenas was different enough in important ways than studying, say, forests or sea animals. One result has been that the new *Journal of the Rhetoric of Health and Medicine* has whisked some attention away from RoS in particular. And I make that statement in an absolutist way because I don't think there is any arguing the point, which is also to indicate how well the editors have done publicizing the journal. The 2019 collection *Methodologies for the Rhetoric of Health and Medicine* further defined and expanded the sub-section of the RoS sub-field, arguing for phenomenological reflection and field work in clinical settings to be added into the methodological mix. I must now note that I am published in that volume, and I also sit on the editorial board of the new journal, a fact that should seriously allay the reader's concern that this paper is an invective against those medicine people. How could it be? They are, more or less, often the same people. We know them from conferences and activities. They are us. ARSTM scholars write of public communication on polio and then turn to write about stem cells (John Lynch, I am looking at you). Stem cells make the point: Science or medicine? Health humanities perhaps? No, rhetoric!

That leads me to my post-historical-narrative opening. What I want to do with this review of *Landmark Essays* is to interrogate the Venn Diagram of our growing sub-field, now endowed with the extended moniker: "The Rhetoric of Science, Technology, Health, and Medicine" (RSTHM). I mean to discuss how Harris' edited collection on RoS points us toward a present not always very harmonious with the history showcased in that volume. And then I wonder how we should feel about that. I argue

for a future that will make labelling areas in RoS totally impractical and infeasible.

To get started, we must briefly consider the extended name RSTHM for the sake of the discussion. It's a long name. Holding a presumption of internal relations among those terms is the only reason why it makes any sense. Few may admit acceptability to a name of similar length like "Rhetoric of Science, Digital Media, Culture, and Nationalism." But the relations there are largely the same, we must admit. Culture and Nationalism relate in a similar way as Health and Medicine, in as much as one fits inside the other and often establishes and motivates the other, etc. Science and Digital Media could in today's computational world almost just replace "Technology," except we'd be missing the bubbling beakers (I was gonna write "and telescopes" but those, too, are digital now). So, one wonders if there is much sense—and I am not sure, but you can tell me what you think at the next A-R-S-T-H-M conference—in having lists of area-specific terms that are not so specific. Or, is it the case that if rhetoric, now applied to so many areas, irregardless of how "sciency," should just be content to say "it's rhetoric"?

The *Landmark Essays* volume on "issues and methods" shows the reader how much work went into getting scholars to this point. The collection is extremely valuable history for that reason. RoS was once shocking. Adding T-H-M is the long tail. It's not so shocking any more. But the texts in Harris' collection do generate some feelings of tension, for me anyhow, with the current RSTHM scholarship if simply for RoS being so specific and exclusively discussed. I do not here intend to denigrate founding sources focusing only on "science" or "technology"; rather, I want to suggest that naming RoS at all was an intervention at that time. But today, in contrast, the rhetoric of this and that and that and this is starting to be a bit embarrassing. Do you feel it too?

A look at *Landmark Essays* helps us sort through what, precisely, RoS intended to be at its start. When we read these "landmark" essays today, we can also see what was not included in those first days and then have the opportunity to explore what the sub-field (or unified set of sub-fields) have done since. The answer is a lot. So we should consider how to move forward and whether further naming interventions will not do much other than further falsify the diversity of rhetorical events.

From Act III to Part II, Another Generation Out On Rhetorical Adventure

Scanning the pages of Harris' updated 2019 edition of *Landmark Essays on Rhetoric of Science: Issues and Methods*, what we find are important founding texts interspersed with several new ones making theoretical additions. Together, the collection can be characterized as theories for grappling with culture, media, politics, and nationalism in the disciplinary realms of science. I phrase it this way to stress the applicability of the articles to all areas of rhetorical scholarship but also to highlight the fact that the collection itself shows that science stands never isolated.

For instance, the newest article in book wrestles with digital media and culture, namely, Ashley Mehlenbacher and Kate Maddalena's 2016 "Networks, genres and complex wholes: Citizen science and how we act together through typified text." In that piece, we see rhetoric tied to "how we act," retaining the core concern even as the article extends genre analysis to material entities. Another of the newer pieces is Kenny Walker and Lynda Walsh's 2013 discussion about "spheres of argument" and scientific ethos where political authority is questioned and power dynamics interrogated. We also find a few explicitly philosophical reflections, such as Nathan Crick's 2014 piece on Alan Gross' turn toward "truth" in relationship to rhetoric in his later writings. So RoS is positioned, from its origins, we are compelled to understand, as being about the investigation of culture's proclivity to assign institutions with truth-making capacities and to create special and specialized domains of knowledge-making, which nevertheless rely upon selection, deflection, interpersonal conversation, and practices of representation, etc.

Yet, when reviewing the collection, I had the unshakable feeling that RoS is also shown to be quite small. Crick's piece, for example, risks drawing more attention to the fact that Alan Gross is included twice in the volume already, out of twenty-one total essays. No one doubts that Gross contributed much, yet it is difficult to examine the volume without seeing how narrow the field's marching band has been and how specific its concerns became.

The previous line implies that something is missing. So what is it?

The question raises an immediate complication for any such a volume: the reader is tempted to say both “not a lot” and “a lot.” In other words, for any collective purporting to display “the best” of a field or sub-field, the editor must make inclusions and offer defenses. Harris does this well, telling us that the collection is “artificial” in so far as he divides out “case studies” from “theory” since case studies in his estimation are always a demonstration of theory, and he also says that he hopes to offer a book showing the “main lines of development” in RoS (p. 3). He does this. And we note that at 350-plus pages, the book is long enough that another collection on “case studies” is indeed prudent. Nevertheless, if a field area is going to be important enough to have a “landmark” volume published in the first place, then surely it has multiple works that could never be included. This was always going to be a sticking point. There’s just a lot to consider. In kind, the effort will also likely suffer from a tendency to showcase the field’s narrowed vision.

Returning to the first concern—i.e. how the volume could never include all of the important pieces—it is worth noticing that the book defines the field and sticks to science, mostly, not to technology or health or medicine. That choice makes the collection feel historical. As noted, the field only later adopted “Technology” and then much later “Health and Medicine.” *Landmark Essays* takes up the starting position, focusing in 17 of 21 pieces, by my estimation, on the theoretical foundations to RoS. The inclusions raise the Venn Diagram discussion again—one about how we are changing.

In today’s living ecology of rhetorical scholarship, RoS could well entail anything published otherwise as “Environmental Humanities,” “Medical Humanities,” or just “The Rhetoric of Health and Medicine,” since those areas all rely broadly on science; however, the area termed RHM need not include any RoS that is not related to Health and Medicine. So RoS suffers, on the face of it. Indeed, RoS is not an umbrella if we take *Landmark Essays* as a guide-point. Nothing in the collection suggests that the field has anything to do with health or medicine, despite being published in 2019. I find this curious. It is not a critique of the collection, given the historical focus, but it is a curiosity to the extent that I never imagined “Science” not to be in “Medicine” and, to be honest, to not be always everywhere, somehow.

Science feels all-pervasive today. Was it this affectively resonant in the old days back when the RoS founders met together

in conference hotel lobbies in the 1970s? Probably not. Today, the pandemic life, life on virus lockdown, life in a mask, life desperate for a vaccine, heck, life after the advent of genomics and cognitive neuroscience, or heck, life proceeding from what Roberto Simanowski (2018) calls “data love” and algorithmic obsession, rushes science to our attention at every turn. RoS, seems to me, has been and was always going to be a rhetoric of health, of culture, of politics, of media, as much as of the everyday. Yet, we can also play devil’s advocate: the works included in *Landmark Essays* are not at all curious when the book is understood as setting out to define what it is about rhetoricians engaging science that was difficult—but there again, the difficultness was something already spanning numerous cultural arenas and concerns. Even so, a collection showing an important cross-section of theoretical issues stirring up the sub-field’s founding makes *Landmark Essays* invaluable for graduate students and scholars new to the area.

With respect to the second concern—i.e. how any such a volume will always bring attention to the field’s narrowed vision—it is easy to notice the lack of racial, cultural, and ethnic diversity in the volume. Harris includes Xiaosui Xiao’s interesting essay advocating for cross-cultural studies, but my critique is not about Harris’ choices. Knowing him, I know that he understands the field’s need for greater diversity. Rather, he represents in the volume the sub-field’s history, as narrow as it might be. It is the larger problem that I reference, or as Wanzer-Serrano (2019) says, rhetoric’s “race(ist) problem” and “a field problem” wherein looking back at a field’s development means that we keep talking about white, predominantly North American scholars (p. 466-467).

Wanzer-Serrano (2019) argues that rhetorical scholars in general have not historically taken steps to think beyond whiteness nor dealt with diversity. Given the overall history of Communication Studies adopting review practices and legitimization exercises that have perpetuated rhetoric as a “white space” and served as gatekeeping mechanisms, it is worth recognizing that a landmark collection risks emphasizing what Helene Shugart (2003) says should be a concern, namely, “in order for one’s work to be legitimized, recognized as scholarship, one must conform to the scholarly tradition” (p. 281). Wanzer-Serrano also uses that quote but adds that this “includes its norms of citationality and what ‘counts’ as appropriate sources. When that’s

the norm, however, the dominant views, scholars, and epistemic frameworks are reproduced” (p. 466). Thus, we can now wonder how rhetorical scholars can teach a field’s history and share long-held theoretical concerns while encouraging diversification. I do not have easy answers, but I can suggest that *Landmark Essays* serves a purpose beyond historical assertion: to be a useful reference book for locating points of strategic resistance. Adopting the volume to make queer the conforming impulses and to change the relevant topics and to question implied hierarchies seems to me to be just as viable as adopting it for reiteration. The critical rebellion also resonates with the point of starting RoS to begin with. I am confident that Harris would agree. One of the ideas of the volume, he says, is to show the field’s points of tension and to spur on-going discussion (p. 4-6).

We can now point out that displaying founding texts is one thing while offering a supposedly “best of the best” another. The title *Landmark Essays* seems to lay claim to both, but the volume is mostly interested in illuminating the tough road of the road-trip movie. If it has a weakness, then it is that it provides readers with a small pop of the new while donning a title that does not fully admit to its aim to educate readers about why rhetoric entering scientific realms was so controversial. The sections dividing the volume tell the story. The first is “The Very Idea” (read: founding sources); the second is “Through Thick and Thin” (read: founding problems and controversies); the third is “Neoclassical” (read: early connections in RoS with Ancient Greeks); and the final is “Neomodern” (read: later connections to theoretical issues). At this point, we feel again how much more could be and will surely be included one day.

To be specific, I see two excluded areas worth highlighting because, as Philip Wander (1983) says, to understand “the established order”—or the foundations of RoS, in this case—we must try to see what is not appearing (p. 375). First, I note that Rhetoric of Health and Medicine is largely absent. I will return to that in a minute. Second, the collection does not yet reach forward to the point where it can include futures not “neomodern,” as Harris calls them, and not because they prefer to navigate without ancient terminologies but because they are advancing the non-modern project of “New Materialism” more broadly. New(er) RoS theories injecting what Scott Graham and Carl Herndl call “the post-plural” and what Nathan Stormer (2016) calls “rhetoric’s diverse materiality” deserve to be included in the next update. A few other essays stand out, for the least because they strive to

overcome the nature-culture, mind-body, whole-part, and real-ideal dualisms in a way unaddressed in any past attempts.

What might I be thinking of? Articles like Diane Keeling and colleagues '(2020) "The recalcitrance and resilience of scientific function," for one, or perhaps Scott Graham and Lynda Walsh's 2019 "There's no such thing as a scientific controversy." Debra Hawhee's work on "Rhetoric's sensorium" or her other piece titled "Language as sensuous action" seems sufficiently theoretical and bodily— Is it science? I want to say yes and question where science ends, how it seethes and spills across descriptions. But to avoid wandering too far astray, for the moment, I simply want to assert that those articles are all insightful products of exhaustion with science-as-more-real or rhetoric-as-more-real discussions, which should be presented to anyone newly surveying the field. Those texts also assert that RoS scholars are able to affirm materiality and materialisms while staying focused on symbolic activity and situated circumstances because these are not separate territories; they are, rather, bio-social blends and melding milieus.

Likewise, one expects that cross-disciplinary articles focused on affects and bodies, such as Leo R. Chavez and colleague's (2019) exploration of Mexican-origin youth psychologies could be considered in the future due to the insistence on words directly altering bodies. Harris 'own work on Cognitive Rhetorics should be included for that same reason. Along similar lines, one would expect to find Pamela Pietrucci's (2020) discussion of "Blasting for science" where Italian researchers became activists when confronted with fake news, wielding rhetoric's more obnoxious and destructive tendencies in defense of vaccine science. I choose all of these particular examples since they are published more or less contiguous with *Landmark Essays* and, thus, were unable to be included in it. But they do help to make a point.

They help to make two points, actually. The first is that a landmark collection of the future will not be able to cordon off RoS from related work in the Rhetoric of Health and Medicine. The two are not historically divided nor different enough to constitute meaningful division in a theory book, even if they perhaps could be divided in a case studies collection. As Harris notes, even then, case studies are theoretical demonstrations, and it seems likely that ARSTM theories will not be so specific as to be invisible in RoS, RoM, RoT, etc. The amount of new health and medicine material, however, does challenge ARSTM scholars to look to areas of science not covered there—geology, meteorology, astronomy,

physics, etc.—and asks whether they want to grow their defined side of the sciences as much as the health and medicine people have grown their side.

But the second point is the sharper one: *Landmark Essays* showcases how field's history changes and how it needs to change. Reading through most of the collection is, of course, going to be necessary for students entering the field, but the question is how it will be used. Since it may not be able to be much more elaborate or diverse as a history, it can be taught as a way to stir the present pot. That is, the future will bring revisions and extensions—and it seems to me that a RoS will never again be so singular, so whole, so defined. If rhetoric is going anywhere in the future, it is ever on the course of the outward, which means that RoS scholars will be doing field work, cross-disciplinary projects, health and medicine phenomenologies, media and biotech investigations, computational analyses of algorithmic characterizations of subgroups across the globe while thinking through various indigenous, black, and queer critical theories. Rhetoricians could, of course, keep adding term after term after term, but at some stage, RoS becomes a designation of the past, as does ARSTM. What the future offers, in my view, is rhetoric. We see it now as diverse in its eventful materiality, as Nathan Stormer (2016) says, but we also hope to see it as diverse in every conceivable way.

I do not mourn expansion or integration nor denounce scholars who publish in philosophy, science studies, media studies, cultural studies, and rhetoric. I celebrate it. I myself advocate for wily expansions of experimental play and invention (Gruber, 2017) as much as for revising a history of “rhetorical identification” divorced from bodies that feel many kinds of identifications, layered, variable, and unpredictable (Gruber, 2020). So I am not your new DP Gaonkar, nor do I intend, as he did back in 1993, to craft a pointed retort to the field's expansions. I rather want to say that the issues and methods volume of *Landmark Essays* is a well composed book when the idea is to show what RoS has been. Yet, at the same time, it should challenge us all to think what RoS can be—and what we, as rhetoric scholars, can do right now to pursue collective scholarly diversification.

In fifty years from now, there may well still be an ARSTM, but I doubt that there will be any editor able to stitch together a “landmarks” volume of today's work under any such title. That is to assert that I think we should rebuff any impulses wanting rhetorical scholarship not to be too philosophical, too computational, too interdisciplinary, too much in the field, or too dedicated to cognitive experimentation but should find these

moves invigorating, even if it means that we have to dissolve the entire project as it was originally intended. But fear not: if the RoS project was not really about talking about science, per se, but actually designed to undercut culture's strongest power dynamics and to question reductionist applications to the human and to wonder freely about institutional hierarchies, then the project is secure, even if it goes by another name, or forty different but very similar names. If turning toward science was at first considered "too far" for rhetoric in those early days, as Harris reminds us in the introduction (p. 3), then going "too far" today would be the perfect redux, a Part II movie—one that goes way "too far." Part II, like all Part II films, needs to be more dramatic and eventful. It risks not being as neat as the first nor as celebrated by the megafans of Part I, but a solid Part II could still win hearts and minds when addressing the most contemporary issues.

***Landmark Essays on Rhetoric of Science: Case Studies* by Randy A. Harris and a meditation on the past, present, and future of RoS in the public sphere**

Pamela Pietrucci

As we shift to discuss the earlier Landmark volume edited by Randy A. Harris, the second edition on RoS Case Studies from 2018, I will go back once again to reflect on the history of the field, adding to David's comments at the outset of this double review essay. Here I rewind again to the late 70s to go back to that eventful moment in time when rhetoric of science was just emerging as a controversial and new approach. Now, before I do that, I need a disclaimer: I have been asked to write this review because I often write about rhetoric of science and, like Randy Harris suggested, because having someone highly opinionated and from the latest generation of scholars interested in rhetoric and science could be a productive way to look back on the second edition of the Case Studies with a fresh perspective. I agreed because I thought that I could do just what Randy asked: I am an ARSTM member and someone interested in the various disciplinary conversations of the association. I am also definitely opinionated regarding disciplinary issues in rhetoric and rhetoric of science, so I assessed my fitness for this task positively. For example, when we talk about our shared work on the ethos and civic responsibility of scientists in their public communication (Pietrucci and Ceccarelli, 2019), I often remind Leah Ceccarelli that I never primarily identified as a rhetorician of science. I did

not consider my work as RoS as a student of one of those scholars that appears not once, but twice in the landmark volumes at stake in this review (looking at you, Leah!), and I still do not fully convincingly identify as one today. Yet, note that I am still here writing about rhetoric and science, collaborating with other rhetoricians of science, and so on... alright, I am sure this disclaimer is not the best *captatio benevolentiae* for our readers here, but I include it because it is significant to understand the argument I will be advancing as I look back at the “Landmark Essays on Rhetoric of Science: Case Studies.” With this disclaimer out the way, time to delve deeper into our short history lesson on the emergence of the very idea of a rhetoric of science.

In what follows, after recalling Wander’s foundational conceptualization of what a rhetoric of science could be/do, I will reflect on the inclusions and exclusions of significant scholarship in the Landmark Case Studies to show how the volume represents mostly the road most travelled by rhetoricians of science between the very beginning and until the 2000s. I will then conclude with an assessment of the Case Studies and a reflection about the state of the field today, pondering whether or not it is productive to continue to justify and identify our disciplinary subfields in rhetoric with increasingly precise labels that might be aptly descriptive, but not necessarily ontologically sound anymore. As I start this historical reflection from my particular scholarly standpoint, I feel compelled to say that regardless of our sense of belonging to one or the other disciplinary subfield, and regardless of how interdisciplinary we have become, there is one thing that we can justify for sure: it’s all rhetoric. Rhetoric has expanded so much in its theoretical and methodological approaches, in its historical roots and traditions, in its objects of inquiry, in its intersections with other scholarly disciplines, that it is useful to look back and rediscover how we got here, how the field was expanded and how the feasibility of those bold expansions has been justified and debated by previous generations of trailblazing rhetoricians. However, I want to also continue asking, with David, whether the complex exigencies of our current time—and I am thinking about this seriously as I write while we are in the middle of global pandemic and climate crises, while we witness publics, politicians, and scientists debating global health and invisible risk in the public sphere, and so on—can be better addressed with scholarly orientations that tend to reinforce disciplinary borders and scholarly traditions, or with an approach that acknowledges our disciplinary evolution but is instead oriented towards going beyond disciplinary barriers. My sense, looking at contemporary scholars in ARSTM, is that we are productively stepping beyond

those barriers. My hope, as a self-professed semi-outsider that keeps being inevitably drawn into RoS or ARSTM disciplinary conversations, is that we keep imagining ourselves beyond those barriers—for the sake of rhetoric, intended in the broadest possible sense.

In 1976, Philip Wander wrote one of the defining essays of the turn towards a rhetoric of science. In Wander's seminal essay, described by Harris in his introduction to the *Landmark Essays on Rhetoric of Science-Issues and Methods* as "manifesto-flavored, field-denominating" and "the advance guard of an emerging movement" (2020, p.10), we are presented with a compelling argument about the necessity of studying science from a rhetorical perspective, potentially in a least two different ways. Wander started his reflection in "Rhetoric of Science" by claiming that science's centrality in public-policy deliberation "obliges the critic to concern him or herself with science: how it is used in debate; how it relates to other sources of information; what occurs when there is conflicting scientific evidence" (in Harris 2020, p.62). The first way in which Wander argued for the necessity and potential of the development of the rhetoric of science is related to science's significance and power in influencing public debate. With the growing social and political impact of the discourses of expertise in deliberative issues of public policy in the 70s, Wander saw science as standing "at the center of our civilization" (p.68). The first case for the justification of the study of science from a rhetorical perspective, thus, concerned the idea that it is key to understand the relationships *between the discourse of science and its public reception and impact*. In Wander's words this approach entailed understanding how "science, scientists, and the vocabulary of science shape the debate" (p.62). The science-public-policy debate, that is, or how science becomes consequential in the public sphere. On the other side, of equal value, is the idea that rhetoricians should also study how scientists persuade one another in the technical sphere, or the rhetoric *of scientists*, in particular. Wander's exploration "of the ambience between rhetoric and science" (p.63) indicated two different paths to follow for rhetoricians interested in taking science as their object of inquiry: the study of the "external" rhetoric of science, or how science contributes to shape public discourse, deliberation, and policy—or simply how science is taken up by its multiple publics—and the study of the "internal" rhetoric of science—or how scientists argue with one another within their technical/scientific/academic sphere. The rhetoric of science as a field, thus, included the study of the arguments of scientists, but also the uptake of scientific discourse in the public sphere, and the various relationships

among science, public, and policy discourses (including the public understanding or public representation of science, for instance). However, as Ceccarelli pointed out in her landmark essay “Rhetorical Criticism and the Rhetoric of Science” (2001), in the years and decades following Wander’s article, both approaches grew, but the internal approach grew a lot faster than the external approach, and the rhetoric of *scientists* became the standard and dominant type of text in the work of rhetoricians in this sub-field (in Harris 2020, p.85).

Now, reviewing these foundational RoS essays, enabled by the excellent collection of “Landmark Essays on Rhetoric of Science—Issues and Methods,” shaped the way I re-read Harris’s second edition of “Landmark Essays on Rhetoric of Science: Case Studies,” published in 2018 with a few essays added to the original version. Harris curated a disciplinary history of RoS case studies that, like David said earlier, is an essential read for anyone new to the field and a useful representation of the field crystallized in the time when it first emerged and started to grow. However, when reading the two Landmark Essays volumes side to side, one notable gap becomes obvious, especially if one approaches the “Issues and Methods” volume first and then moves back to the “Case Studies”: despite the inclusion of a whole section (Part 3) on “Public Science,” the “Case Studies” volume does not do enough in representing the external approach to RoS. It is a fact that this external approach has developed more slowly and has generally received less attention among rhetoricians interested in studying science, yet it has become increasingly important in the contemporary milieu of rhetoric of science, technology, and medicine. Undoubtedly, the focus on external communication has been present throughout, so it would have been positive to lend it more attention in the landmark RoS Case Studies.

This important theme received limited attention even in the recent expansion of the volume, which opened up some space for more recent essays to be included. I highlight this despite knowing the difficulty of putting together a landmark anthology. The work of selecting and putting in important conversations and field-defining essays across decades is a tough job that is made even harder by space and page constraints, because the Landmarks are collected in a physical book and not just in a reading list. Assembling anthologies like the Landmark Essays, thus, is a difficult but also very influential work. These types of volumes do not just tell younger scholars the academic stories that we did not have the chance to witness or take a picture of what a field used to be: rather, they actively shape our understanding of that field, as well as the future directions of inquiry. Graduate students in

rhetoric programs often learn the field's foundations from these collections, and they quite literally build on the shoulders of the giants that we see included in these anthologies. A crystallized picture of what rhetoric of science used to be between the mid-70s and the 2000s is not just a neutral representation of the field's history: it is a dynamic narration that provides a frame for current research, linking past cases, issues, and methods to future objects, theories, and modes of inquiry within the discipline. We learn to carry out research in rhetoric, as graduate students and as new rhetoricians of science by reading anthologies like the *Landmark Essays* during our coursework. We are examined on topical reading lists often sourced from collections like this one, which offer us a selection of the "best among the best" essays that shape our scholarly life. Most rhetoricians of my generation will remember "Contemporary Rhetorical Theory: A Reader" edited by Condit and Lucaites, or "The Rhetorical Tradition" edited by Bizzell and Hertzberg, or "Visual Rhetoric: A Reader in Communication and American Culture" edited by Olson, Finnegan, and Hope, or "Landmark Essays on Rhetoric of Science: Case Studies" by Harris. Raise your hand if you haven't been assigned readings from those volumes in your graduate courses, qualifying exams, or referred to them during your early dissertation work. These collections, thus, defined the current generation of rhetoricians, and they are set out to continue shaping future generations of graduate students, hence the choices of the editors are even more important than we might assume at first sight.

What is then the problem with *Case Studies*, you may ask? In my reading of the anthology, reflecting on the selections and sections, I get the nagging feeling that the story being told is, as we could expect to some degree, a mainstream story of RoS. Not that we would demand anything radically different from a collection of landmarks, because they are—precisely—landmarks...the "top hits" of our discipline, not the indie or alternative tunes that attract only of a small niche of connoisseurs. And yet, perhaps because I am that scholar that never fully identified as a rhetorician of science, looking back at the collection of *Case Studies* left me wondering: where is the RoS that has always drawn me to the discipline, namely the *external* rhetoric of science? Where are the landmarks representing exemplar case studies of how scientists communicate with the public, or how non-scientists understand and communicate scientific and technological issues? Now, that is my main concern in my RoS work, so one could say I have an axe to grind here. I will not deny it for now, but bear with me.

Let's consider closely the thematic parts in the volume. Initially, I thought that I would find some external RoS in Section 3, which is promisingly titled "Public Science." However, when I looked at the essays included in more detail, I found that the landmarks selected give a rather partial attention to the "public" part of public science, interpreting it as either the study of science policy (in the case of the classic Richard M. Weaver's essay, but also in Craig Waddell and Carol Reeves essays), or science done in the public eye. The selections still mostly deal with the rhetoric of scientists. The most recent addition to the section (the Mehlenbacher and Miller's 2017 essay on scientific and parascientific communication on the Internet) is the only landmark included that is actually addressing the intersections of public and scientific rhetoric with its charting of the development and circulation of parascientific genres online. I am pleased to see this inclusion, even though the Public Science part does not seem to do what it promises.

Another one of the new additions to the second edition of *Case Studies* is Ceccarelli's 2011 essay on manufactured scientific controversies. This essay has been curiously placed by Harris as the last one included in Part 2, about "Conflicts in Science," and it comes immediately before that Part 3 mentioned above about "Public Science." This is an interesting choice, justified by Harris in the introduction when he claims that this essay "spans these two sections beautifully" (p. 25) because it looks at fabricated controversies through three case studies, unpacking not one, but three public debates implicating science (HIV, global warming, and creationism). This justification for placing Ceccarelli's "Manufactured Controversy" in the section about "Conflicts in Science" is unconvincing, because her point revolves precisely around the idea that those controversies are not real: they did not reflect any actually existing conflict in science, rather they are situated in the public sphere, for specific public purposes. Thus, if there was no conflict in the internal rhetoric of science, as Ceccarelli clearly demonstrated in her essay, then this article does not fit so easily with the topic of Part 2. Furthermore, the most innovative finding of this essay is not so much the existing consensus within science in the three case studies, rather, it regards the careful assessment of the illusion/deceit of scientific dissensus in the public sphere, where in all cases within the technical sphere there is actually overwhelming scientific consensus about those very topics. The significance of this essay is in its focus on the public debate around AIDS dissent, global warming skepticism and intelligent design. To put it simply, this essay deals significantly with the external rhetoric of science, the

debate about science in the public sphere, the relationships (skewed, manufactured in this case) between technical and public discourse, and ultimately the public consequences of those relationships (quite concerning in this case). In my reading, this is a quintessential example of a landmark essay of case studies representing the value of studying the external rhetoric of science. I would argue that Ceccarelli's work here should have been included in the "Public Science" section. Alternatively, in a world without constraints, the landmarks could have openly dedicated a section exclusively to the external RoS (science in the public sphere, the public reception of science, or science in public debate).

What other essays could have been included in such a section about the external RoS? A few essays come to mind. I am thinking about Jeanne Fahnestock, "Accommodating Science: The Rhetorical Life of Scientific Facts," first published in 1986. Fahnestock is already included once in the landmark essays, in the section about conflict in science. However, in terms of wide contribution to the landmark collection, including "Accommodating Science" could have been prioritized over the included essay about arguing in different forums. In "Accommodating Science," Fahnestock is among the first scholars to argue for the significance of rhetorical analysis of scientific writing. At the outset of the essay, she asks what happens when scientific reports travel from expert to lay publications, and she then goes on to trace how the changes in genre, audience, and purpose that happen in the shift from technical to public sphere "inevitably affect the material and manner of representation in predictable ways" (1998, p. 1). She then explains that two concerns informed this study when it was first written: the nature of professional/technical writing and "the impact of science reporting on public deliberation," thus justifying the need for continued scholarly investigation of "the gap between the public's right to know and the public's ability to understand" (p.1). Focusing on the migration of public discourse between the technical and the public sphere, and ultimately about the impact of this transition of public deliberation is an important aspect of case studies on the external rhetorics of science. Just like in Ceccarelli's essay about manufactured controversy, the focus is not primarily on the argument of scientists in this specific genre, but it is on the public reception and understanding of science, and on the public impact of science. Another example that comes to mind is Valeria Fabj and Matthew J. Sobnosky's essay "AIDS Activism and the Rejuvenation of the Public Sphere," published in *Argumentation and Advocacy* in 1995. In that essay, they study how medical

activists, in publicizing AIDS, have demystified the authority of scientific and medical researchers and influenced the direction of AIDS research, identifying two argumentative strategies the activists used to claim the right to speak on issues surrounding AIDS research. I think about this essay because it is a productive example of a public intervention related to scientific discourse, in this case a public critique of science. Other examples of this direction of inquiry that appeared before or around the 2000s and come to mind might be found also in books, which can help support the claim that this particular perspective in RoS deserves more attention. One example is Mitchell's "Strategic Deception: Rhetoric, Science, and Politics in Missile Defense Advocacy" (2000) or Celeste Condit's, "The Meanings of the Gene" (1999) for instance.

To testify the continued relevance of this line of inquiry and the importance of studying the relationships between scientific and public discourse in their public sphere manifestations, we can fast forward to the present, within the last few years—skipping a couple of decades just to show at a glance that this orientation has continued relevance today. In this case, I am thinking about Mehelenbacher's 2019 book, "Science Communication Online: Engaging Experts and Publics on the Internet," an excellent investigation of the various ways in which science communication is constantly changing to adapt to our contemporary reality of hyper-publicity: Mehelenbacher's work (2019) demonstrates the importance of focusing on how the boundaries between experts and non-experts continue to erode, thus showcasing how publics become increasingly involved in science, especially on mediated online platforms. Similarly, but conversely, my own recent work with Leah Ceccarelli (2019) about scientist-citizens also deepens this focus on the relationships between scientists and publics, technical and public sphere. Through a case study of the infamous L'Aquila Seven trial, we encourage scientists and experts to recognize and embrace their own status of scientist-citizens in order to improve their public communication of science to concerned publics. We claim, apropos, that it is a responsibility for scientists to communicate their expertise clearly to laypeople, politicians, and to all the relevant stakeholders in the public sphere. I would and have argued that, while adopting the ethos of a scientist-citizen is a responsibility and a duty for all experts and scientists, it is also recommendable in cases of crisis like those witnessed in the last few years, to adopt the ethos of a "scientist-activist" and engage with publics directly to improve their understanding of science (Pietrucci, 2020). Other major examples about the possibilities of studying the relationships between

science and publics and science and politics could be found in the work of John Lynch about stem cells (2011, 2014); other recent trailblazing approaches to understanding the relationships between science (medicine in this case) and publics can be found in the recent work of Winderman, Mejia, and Rogers (2019) that explores how visceral publics are created by a combination of sensory and medical-etiological rhetorics that carry raced, classed, and gendered consequences. These are only some recent examples of works dealing with the external rhetoric of science as I think about the big variety of scholarship produced by ARSTM members. If I stop and think more carefully, this list could become much longer.

In this retrospective, I jumped quickly from the time frame 80s-2000s to contemporary scholarship. To continue supporting the sustained relevance over time of scholarship at the intersection between science and publicity, given my own space and page constraints here, I will refer the reader to Condit, Lynch, and Winderman's review essay on rhetorical scholarship about the public understanding of science (2012) between 1994 and 2011. The authors systematically analyze rhetorical scholarship dealing with PUS in the time frame I neglected above, starting their review from Gross' (1994) argument for an expansion of rhetorical analyses of the public understanding of science, proceeding to identify several important contributions to this direction of inquiry within RoS, and finally categorizing the various thematic approaches within the case studies analyzed. In this review, several potential candidates as landmark essays in the external rhetoric of science are presented. I do not have the space to discuss them all here, but I recommend reading the thorough review by these authors on *Public Understanding of Science* and to make up your own mind about how many of those could actually appear as landmarks. Condit, Lynch, and Winderman conclude their review stating:

Given the thorough diffusion of science and technology throughout contemporary life, and the challenges inherent to making decisions in a democratic manner in the face of the specialization required for advanced technologies, it will likely be important for achieving better human futures if more rhetoricians and members of allied disciplines participate in these efforts to understand science–public interactions, to challenge scientific rhetorics where they are problematic or unjustified, to improve scientific rhetorics where they can be improved, and to build a theoretical structure to support these efforts. (p. 397).

I agree wholeheartedly with their conclusion. Looking back at Case Studies, I believe that it has an unfortunate limitation in

addition to its many merits: in its historical and pedagogical purpose of narrating the coming of age of RoS, the volume neglects an important side of the discipline that might have struggled to take hold. However, that side has been present and significant in the discipline since the very beginning, as we discover re-reading Wander's seminal essay, and deserves to be publicized and needs to be encouraged.

To those who would counter-argue that studying the public understanding of science, public discourse about science, the ways scientists engage and talk to laypeople or the science-public-policy debate—the external rhetoric of science—is not studying *the* rhetoric of science, it's just studying public discourse, I'll have to preemptively respond that, in my opinion, it's all rhetoric. And it wouldn't exist without the science. The rhetoric of scientists or the rhetoric of publics talking about science are only two sides of the same coin. As I just mentioned above, I see scientists as citizens in my scholarship and I see a big benefit in bridging the gap between technical and public sphere discourse about science in our studies. In brief, I am concerned with rhetoric, without specifications that suppress the role of science in public life and the overlap and overflow amongst arenas of practice, materiality, and discourse.

I started this review saying that I do not primarily identify as a rhetorician of science because I don't study science for science's sake, just like I don't study other rhetorical texts/phenomena because they belong to a specific genre or field. I often study the ways scientists and publics communicate because their interactions, in the many forms they can take, are tremendously consequential. They matter so much that they often entail life and death. Science, technology, or medicine rhetorics affect us and shape society in ways we cannot ignore. As we live through a global pandemic, in an age of climate crisis, we have to recognize that the consequentiality of science, its power in shaping the world, its impact on society, policy, and the planet can and should be explored through all the possible angles and lenses. This is key, not just for enriching our disciplinary orientations, but for our public life. Regardless of how we study RSTM, how we approach our inquiry, or where we come from when looking at science, at the end of the day we must admit that it's all rhetoric. We will benefit from self-representations and historical-disciplinary narratives, but we must remain open to the many possibilities we have built over time and not neglect the exigencies of the present.

An Existential Ending Absent a Neat Conclusion

Thinking together here at the conclusion, we hope to articulate how the passing of time and the blending of worlds in an affective-material-semiotic swirl change a rhetorical exigence. The exigence to investigate science as rhetorical seems to have transformed into a presumption, and the exigence to do something called “RoS” in exclusivity is difficult to sustain, we feel, amid a politics submerged in corporate oppressions of undeveloped nations, of farming policies tied to ecological degradation and animal mistreatment tied to pandemic illness tied to socioeconomic and racial discrimination practices. The exigence for the project—a place where rhetoric is applied to “science”—is lost amid digital media platforms circulating fake news and conspiracy theories as science activists seek to gather data in real time, manoeuvre around corrupt governments, some of which are keen to convince the world that there is no problem or that they were the true first great and glorious nation to solve the problem. It is also perhaps lost amid materialist revisions in philosophy with some rejecting accessible objects (Harman, 2011), others entertaining “dark” environments as embedded in social and media conglomerations (Dekeyser 2020), and others arguing for the priority of phenomenological perception in deconstructive projects (Lawlor, 2018). In other words, what feels pressing today is not RoS, but an ontological diversity that we call rhetoric. Absent a distinct and untouchable role, science can no longer with a straight face perform the line, “no rhetoric here, move along people.” What feels pressing today is not the institutional but the social, and not the social but the cultural, and not the cultural but the economic, and not the economic but the infrastructural—and there, all throughout, like veins in a glorious swirling lava flow, we see rhetoric.

We want to say something close to what Scott Graham (2020) says when he responds to fellow scholars asking him about his work with a snide, “Where’s the rhetoric?” He says it is right there. For Graham, there is “a rhetorical core” that unifies, a thread in forms of inquiry concerned with diagnosing modern obsessions with substance, with overturning unreflective claims of objectivity, with looking around at environments and practices to notice the change and recursivity (p. 2). We thus want to say, where is RoS today? Well, if it is rhetoric, then it’s right there. To the point: *Landmark Essays* certainly shows us how much work has been done to establish the field area and allow rhetorical scholars to confidently deconstruct science, yet the volume also appears right at the very moment that RoS, as itself a rhetoric, “bleeds,” as Jenny Edbauer (2005) says, across all kinds of

concerns and environments. The changing ARSTM landscape argues for the need for the *Landmark Essays* collection, but we think it also argues for a need to confront it, since the collection reveals how much more is being done now and how much more there is still to do, inside and around and outside of the bounds of RSTHM.

We return to the metaphor at the opening to David's section of this double review: we are reminded that some sequels are preferred over the originals. *Godfather Part II*, *The Empire Strikes Back*, *Mission Impossible—Fall Out*, *The Dark Knight*. We note now that those films focus on paternalistic action and struggles for domination. So the metaphor may or may not work so well, depending on one's interpretation of the function of the metaphor. But it is worth noting that most of those films are considered great because they consciously retain ties to what came before them—most of them are prequels and sequels simultaneously. Yet, they take the present as an opportunity to reshape the past and help us to imagine new futures. Of course, the movie metaphor certainly fails when we think of our work as mere entertainment. The stakes are much higher; rhetoric, we can all attest, is much more than embellishment. So if the scholarly work underlying RoS or RSTHM is to be correlated with a movie, then it should probably be with the production, a collection of humans and nonhumans, or it should be with the cast who struggle to make movies less pat and more substantial, less coherent but more thought-provoking, less uniform in exchange for the more inclusive and diverse. If Part II has an ending, then for us, it is the suspended no-end ending; nobody walks off into the sunset; everybody stands ready for the next adventure in a new world.

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