

Book Reviews

C. A. Taylor (1996), *Defining Science. A Rhetoric of Demarcation*. Madison, Wisconsin: University of Wisconsin Press.

The publication of Charles Alan Taylor's book, bringing the clear light of rhetoric to a protracted philosophical muddle, should mark the coming of age of rhetorical investigations into science. It doesn't; or, if it does, the *toga virilis* is less fetching on rhetoric of science than many of us hoped it would be.

We have several promising first-generation monographs in the field (Bazerman; Gross, 1990, 1997; Moss, Prelli, and especially Myers). But, for all their virtues, kairos made them largely programmatic. We have many, many essays in the field, some extremely rewarding. But, for all their scattered insights, the articles continue mostly to pile up, rather than to stack up (as Gross, 1993, has complained; though see Gross and Keith, Harris, and Selzer, for collections which attempt various stacking techniques). The time is surely here, if rhetoric of science is to develop beyond promises and scattered insights, if rhetoric is to legitimate the role it has adopted as commentator on science, for distinctly focussed, solidly rhetorical, theoretically mature investigations of scientific discourse. Enter Taylor's *Defining Science: A Rhetoric of Demarcation*, a second-generation monograph. It is focussed, and it is rhetorical.

The focus, as Taylor's title nicely communicates, is on the question of circumscribing science, and on the question of motive for such circumscription, – bounding science off from other pursuits with overlapping goals, or methods, or even practitioners. The question is not an innocuous one; demarcation exercises in and around science, though ostensibly about the meat and potatoes of method, are really about who gets the gravy, the epistemic prestige, institutional glory, and filthy lucre that comes with being on the right side of boundary. The question is also intensely ripe for rhetorical plucking. Demarcation consumes scientists in some of their most prototypically suasive moments, their major clashes with one another or with competing ideologies. Indeed, almost the only use to which scientists ever put the immense philosophical literature on their pursuits is demarcational, – drawing definitional lines between their own work and that of their opponents, in order to reserve all the significant attributes of true science for their side.

Demarcation is an issue that has worn many prior pencils to the nub, and Taylor begins his study by surveying them from the perspective that definitions of science “proceed not from ontological foundations but from symbolic inducements” (15). He is concerned chiefly with philosophers and sociologists, with a nod at historians, but (despite they're having had little

to say directly about boundary issues in science) Taylor also examines some representative rhetoricians through this lens. In part, this simply allows him to bring the rhetoric-of-science literature into his survey; in larger part, it allows him to stake himself out with respect to other scholars in the field. (He also folds the somewhat related spheres-of-discourse literature into this discussion.)

Rhetoric of science, as Halloran advised early on, is a critical enterprise, and therefore must moor in “the particular case” (70). Taylor’s moorage, in fact, is in two particular cases, both of which gained prominence in the 1980s: the creationist biology dispute, and the cold fusion controversy. He does justice to both, and the strength of his book is in its thorough charting of the various sides’ convenient definitions of science. The creationist debates exemplify how

Scientists, consciously or otherwise, rhetorically construct operative definitions of science which serve to exclude what they take to be nonsciences or pseudosciences, in order to enhance their relative cognitive authority and to maintain a variety of professional re-/sources, such as limited funding or control of school curricula. (222–223)

The cold-fusion dust-up underscores how

demarcation is also accomplished when competing research communities within traditional science construct working definitions of *appropriate* science in order to advance proprietary interests over particular research domains and/or control of limited material resources (223)

The book, again, is distinctly focused and it is solidly rhetorical. It is not, however, theoretically very mature. Almost all of the lengthy survey material, for the most glaring instance, is shallow and opportunistic, and, although Taylor is charmingly frank about his shallow opportunism, glibness can rarely sustain a book. It wears especially thin here during his dealings with other rhetoricians, ignoring much of the best work and using demarcation primarily as a stick with which to cudgel those he does take up. But, also, his decidedly partial treatment of other fields often seems merely a substitute for understanding.

Take *Sociology of Scientific Knowledge* (SSK). Taylor apparently admires its depth and sophistication. But, while he précis SSK rather ably, he seems not to have learned much from it. Several scholars in the field, for instance, have dealt very sensitively with the issue of truth in the discourses they probe, coming to the compelling position (one with a Protagorean pedigree that SSKers don’t seem to notice, though Taylor might have) that a truly revealing analysis must be agnostic as to where truth, virtue, and righteousness lie. Taylor blows by these matters with barely a backward glance, and then, in his case studies, repeatedly aligns himself with the scientific winners, treating the creationists and cold-fusion researchers with consistent disdain. When he is obliged to acknowledge a successful argument from one of those camps, he promptly insists that his acknowledgement doesn’t signal any level of agreement with those losers.

His attachment to the received views is unseemly to the point of obsequiousness.

Most seriously, the integration of Taylor's analyses and his conceptual musings (*theory*, muddy as that word is, would still be too precise) fails almost completely. We get the surveys, the case studies, and a very anemic postscript. They are all unified by the focus on both demarcation and the general background of discourse as fundamentally suasive, but not by any coherent programme.

Which brings me to the most admirable aspect of the book, and also the most disappointing, Taylor's proclaimed presiding metaphor: science as ecosystem. It is brilliant, illuminating, extremely suggestive. Here's Taylor's epitome:

[The notion of] an ecosystem recognizes the primacy of certain species within their ecological niches. That primacy, however, comes not as a function of one species' isolation from others, but from the ecosystem's profound interconnectedness. Just as American upper-class taste for ivory accessories was tied inextricably to the near extinction of entire species of elephants in the nineteenth century, so decisions of congressional committees to make possible (or impossible) particular research ventures are tied to eventual judgments regarding the potential facticity of the phenomena under investigation.

. . . For example, the recent identification of the so-called breast cancer gene might be read as one particularly fortuitous interaction of research scientists, federal granting agencies, pharmaceutical industry concerns, and women's health advocates, constrained as well by individual rivalries and institutional alliances within biomedical research communities. (7–8)

The very unfortunate side to this wonderful metaphor is that it plays a minor role at best in the analyses and arguments Taylor marshals in his examination of demarcation issues.

REFERENCES

- Bazerman, Charles: 1988, *Shaping Written Knowledge: The Genre and Activity of the Experimental Article in Science*, University of Wisconsin Press, Madison.
- Halloran, S. Michael: 1984, "The Birth of Molecular Biology: An Essay in the Rhetorical Criticism of Scientific Discourse", *Rhetoric Review* 3, 70–83, Reprinted in Harris.
- Gross, Alan G.: 1992, "Forum: Response to Harris", *Rhetoric Society Quarterly* 22.
- Gross, Alan G.: 1990, *The Rhetoric of Science*, Harvard University Press, Cambridge.
- Gross, Alan G.: 1996, *The Rhetoric of Science*, Second ed. Harvard University Press, Cambridge.
- Gross, Alan G. and William Keith (eds.): 1997s, *Rhetorical Hermeneutics: Invention and Interpretation in the Age of Science*, SUNY series in speech communication, State University of New York Press, Albany.
- Harris, R. Allen (ed.): 1997, *Landmark essays in Rhetoric of Science: Case Studies*, Lawrence Erlbaum and Associates, Mahwah, NJ.
- Moss, Jean Dietz: 1993, *Novelties in the Heavens: Rhetoric and Science in the Copernican Controversy*, University of Chicago Press, Chicago.
- Myers, Greg: 1991, *Writing Biology*, University of Wisconsin Press, Madison.

- Prelli, Lawrence: 1990, *A Rhetoric of Science*, University of South Carolina Press, Carbondale.
- Selzer, Jack (ed.): 1993, *Understanding Scientific Prose*, Rhetoric and the Human Sciences, University of Wisconsin, Madison.

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Leo A. Groarke, Christopher W. Tindale, and Linda Fisher, *Good Reasoning Matters! A constructive approach to critical thinking* (1997). Toronto, New York, Oxford: Oxford University Press. xvii + 362 pages. ISBN 0195412S57. Listed for \$27.50 at amazon.com.

In the U.S.A. this textbook would be considered for the one-semester course at freshman level introducing critical thinking, sometimes labeled a course on informal logic. It falls into the general category of argument-analysis texts, like Stephen Thomas' *Practical Reasoning in Natural Language*, and contrasts with those organized around informal logical fallacies like Ralph H. Johnson and J. Anthony Blair's *Logical Self-Defense*. Arrow diagrams are employed to portray argument structure, but only to distinguish linked from convergent. Serial structure is not treated in Chapter Two, where analysis by diagramming is introduced, nor is it employed elsewhere in the text. Chapter One treats bias and slanting, while Three deals with using words carefully.

The subtitle promises a constructive approach, and the text delivers in two distinct ways: an emphasis on students constructing their own arguments, and in presenting informal fallacies as good reasoning gone astray. The initial chapter (Four) on constructing arguments does not set the student the challenge of stating and defending a position on a controversial question like abortion. This is rightly reserved for the final chapter (Thirteen), for it draws on skills a student should develop during the course, and (depending on the level of precision demanded) can be quite challenging. Instead Chapter Four focuses on finding unstated premises or conclusions of given arguments, and constructing simple arguments related to the conclusion or premises of given arguments. Simple arguments are those with one final and no intermediate conclusions, and learning to construct them seems a helpful preparatory exercise.

Chapter Five on evaluating arguments is divided into general evaluative criteria for acceptable premises and formal validity. The formal portion deals with the syllogism, and the principles of identity, non-contradiction, and excluded middle, as laws of thought. Consideration of formal validity leads in Chapters Six through Nine to the application of techniques of formal logic to arguments in natural language. I'll return to this shortly.