Essay Review: The Politics of *Writing Biology**

VASSILIKI BETTY SMOCOVITIS

Program in History of Science
Stanford University
Stanford, California 94305

The title of this important new book is especially revelatory. In choosing the present-participle-plus-object form for his title, Greg Myers intentionally echoes other successful recent works in the human sciences: *Writing Culture, Reading Woman, Constructing Quarks,* and *Making Sex* — works that focus on the process of knowledge-production rather than on a fixed and ready-made subject. Like culture, gender, and physics, in Greg Myers's view, biology is not "there before the writing," with the writing serving only to "dress it up," but is constructed through social processes into written texts intended for both esoteric audiences (the core or local group) and exoteric audiences (the wider community). It is through the socially negotiated writing practices of drafting and revising research proposals, experimental reports, textbooks, and popular articles that scientific facts are constructed. As Myers succintly puts his argument: "writing *produces* biology."

The view that writing practices are important features of scientific practice is hardly new. American sociologists of science in the tradition of Robert Merton and Harriet Zuckerman long ago pioneered literary studies of science using citation practices and content analysis of various genres of scientific writing. Myers's view of writing practice as determinant of scientific practice does not belong to this sociological tradition, however, for he makes much stronger claims about the socially constructed nature of knowledge. For theoretical grounding, he draws on the now-rich body of science studies literature to place *Writing Biology* squarely within the work of Bruno Latour, Trevor Pinch, Michael Mulkay, and Nigel Gilbert, as well as Steven Shapin, Simon Schaffer, and others.[1]

* Greg Myers, *Writing Biology: Texts in the Social Construction of Scientific Knowledge* (Madison: University of Wisconsin Press, 1990).

1. For a useful synopsis of science studies literature see Steve Woolgar, *Science: The Very idea* (London: Tavistock, 1988). Much of the science studies

Journal of the History of Biology, vol. 24, no. 3 (Fall 1991), pp. 521–527.

Instead of focusing on the laboratory conversations and experiences popular with some ethnomethodologists, Myers analyzes written texts because they have certain advantages. For one thing, texts "hold still"; this means that the researcher can read and reread the material as needed. Another advantage is that texts are "portable," which means that the researcher can exchange exactly the same written material with others, and can work readily with word processors, photocopy machines, and books. There is a certain irony to the claims that texts hold still and are portable, when it is precisely the unstable meanings in changing contexts that leads Myers to think that knowledge is socially constructed; but it is precisely this irony or paradox that Myers uses to call attention to the active interpretation involved in the production of knowledge.

After the preface, which serves as an introduction to both his book and himself, Myers introduces the reader to the pertinent literature in a chapter entitled "Controversies about Scientific Texts." Here, he draws on the extensive literature on controversies, a perennial favorite of science studies, and uses current controversies about texts as a method to make explicit the assumptions that underlie his own and his predecessors' textual practices. Having situated himself within this literature, he then takes the reader through a "stylized cycle" of research, from the early drafts of grant proposals, through the published articles in scientific journals, to published reports in popular magazines. In the first example, he analyzes the detailed drafts of two biologists' research proposals. That grant proposals are the outcome of a process of social negotiation should surprise few readers, since grant proposals are the most transparently rhetorical genre. What Myers's fine-grained analysis reveals here is how the textual practices of changes in vocabulary and tone, as well as overall argument, are made to work to establish the authority of the claims and the authority of the scientists within the context of the small esoteric community of the reviewers.

In the most convincing case of social construction, Myers begins with an article published in *Proceedings of the National Academy of Science*, under the title "'Sexual' Behavior in Parthenogenetic Lizards (*Cnemidophorus*)," which described a novel

---

literature is concerned with the practice of science. For the most recent review of the "practice industry" see Jan Golinski, "The Theory of Practice and the Practice of Theory: Sociological Approaches in the History of Science," *Isis, 81* (1990), 492—505. See also Timothy Lenoir, "Practice, Reason, Context: The Dialogue between Theory and Experiment," *Sci. Context, 2* (1988), 3—22.

observation of mounting behavior between parthenogenetic lizards that the authors interpreted as sexual behavior. The published claims engendered controversy with a second group of *Cnemidophorus* workers, who contested the interpretative claims made by the first group. In the course of the controversy and the textual exchanges that took place between the two groups, the original claim was rewritten and reinterpreted. The process eventually produced two published articles in the more popular journal *Scientific American*, both groups having modified their original claims without mention of the previous controversy and how consensus was reached. The report from *PNAS* was also picked up by the still more popular magazine *Time*, which titled the account "Leapin Lizards! Lesbian reptiles act like males" and presented the report in their regular section, "The Sexes." None of the controversy leading to this report was presented in the *Time* article, as the now "aberrant" sexual behavior, clearly viewed in human terms, became reified to fact. The jump from the claims made in the original report, to the *Time* article, removed the controversy and the consensus-making apparatus that had given rise to the initial report. While the actual authority of the researchers was called in to question by the controversy their initial report engendered, the authority of the original claims *and* that of its makers were made into tacit, unarticulated knowledge for the reader of the *Time* article. The removal of the work and rework that went into the making of the claims in the *Time* article, as Myers puts it, "cuts us off from the social process behind the PNAS article, the process through which the fact was made." This was not a result of sloppy journalism in the service of sensationalism, but an inevitable outcome of appropriating, relocating, or recontextualizing the original claim in a different — here, wider — context of the exoteric community. The same process of translation led to the modification of the original claims in the two *Scientific American* articles.

Another example of how popular science articles construct facts different from professional articles is demonstrated by yet another fine-grained analysis in a highly imaginative chapter entitled "The Social Construction of Popular Science." By examining articles in *Science* and *Evolution*, Myers shows how writing for the esoteric community creates what he terms a "narrative of science." This is achieved by closely following the argument of the scientist, by structuring time in such a manner as to support the argument, and by using disciplinary discourse in a way that stresses the conceptual nature or internality of the discipline. Instead of such a narrative of science, popular articles like those

in *New Scientist* or *Scientific American* present a "narrative of nature." In a narrative of nature, the subject of study is the plant or animal, not the scientific activity, so that the externality of nature is disengaged from the scientific practice. The narrative of science and the narrative of nature, Myers concludes, support two very different views of science, each designed and crafted for its respective audience.

The final and most complex case study is an examination of the writing of the sociobiology controversy in the public forum. What makes sociobiology so persuasive to both esoteric and exoteric audiences, in Myers's view, is "not the facts, not arguments, but the narrative." What he refers to here is E. O. Wilson's skillful weaving, transformation and stripping of existing narratives of adaptation to create one grand narrative of evolutionary adaptation. Myers looks closely at how various dissenting groups, many with clear political agendas, interpreted Wilson's narrative and then reinterpreted the narrative in an ironic mode. After a thorough demonstration of the intrepretation process, he concludes that the sociobiology controversy will never be resolved as the various groups continue their own lines of work without addressing each other.

These examples of writing biology are skillfully selected from evolutionary biology — a category that, Myers recognizes, may not form a "unified program or self-defined discipline." Evolutionary biology is especially amenable to literary studies, since the narrative structure of evolution is more readily apparent than that of biological disciplines like endocrinology (the case study for *Laboratory Life*[2]), which employ material technology more heavily. The case studies are even more interesting since they offer accounts of animal sexual and reproductive behavior and therefore expose the subjective and *active* role of the interpreter/observer of "nature." Especially well chosen is the recent sociobiology debate to study controversy as it is written in the public forum — there is no more visible or acrimonious debate in the recent history of biology.

The end result is an imaginative book, chock-full of interesting observations and suggestions that will generate lively discussion for many different audiences. Historians of biology, historians, and students of literature and communication will find much to

2. Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton: Princeton University Press, 1986). Interestingly enough, the earlier Sage edition has a longer title: *Laboratory Life: The Social Construction of Scientific Facts*; the postscript to the second edition explains the reasons for the title change.

think about. Especially tantalizing are the occasional hints of self-reflexivity. Myers's own rhetorical strategy is worthy of study in itself. His theoretical and methodological introduction, followed by the well-ordered case studies; the inclusion of the final most provocative and prescriptive chapter; the appendix; and his marshaling of photographs, diagrams, graphs, and heavy science studies citations are instrumental to persuading the reader of Myers's own authority. Those readers who hunger for more on the practice of writing can refer to Charles Bazerman's more general and more cautious *Shaping Written Knowledge*[3]; *Writing Biology* follows closely on the heels of Bazerman's book.

Some readers of the *Journal of the History Biology* will find the stronger constructivist claims in this volume unpalatable. Especially distasteful to biologists with practical knowledge of the biological world, as well as to many philosophers of biology, will be the initial encounter with what appears to be Myers's antirealist stance. Readers should think carefully about how Myers positions himself in the realist/antirealist debates. To Myers, as to Latour, the issue is not so much whether the real world exists, but how it is *made to be real.* Facts are not "there" waiting to be discovered by an astute researcher, but *come to be* by the active working and reworking of literary, social, and material technology within local contexts of activity. The interminable adjusting, tampering, or modifying that goes into the construction of a scientific fact is eventually removed as though it were a scaffolding, and the fact emerges ready-made. Facts produced in local contexts may then be coadapted and translated to other, wider contexts, the meaning of the fact having been altered, once more, in the reworking of the adoption and translation process.[4] The shift in titles from the original published report of sexual behavior in *Cnemidophorus* to the title describing the phenomenon in *Time* indicates how the process of adoption and translation leads to the construction of a different and new fact for the communities involved. The literary technology — more specifically here the writing practice — and the social technology are stressed heavily in *Writing Biology*, since the examples are drawn from evolutionary biology.[5] Those readers of the *Journal of the History of Biology* who may be taken

3. Charles Bazerman, *Shaping Written Knowledge: The Genre and Activity of the Experimental Article in Science* (Madison: University of Wisconsin Press, 1988).

4. See also Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Cambridge, Mass.: Harvard University Press, 1987).

5. For a historical exposition of how the interplay between material, literary, and social technology constructed matters of fact in the seventeenth century, see

aback by these views may find it reassuring to know that such constructivist views of knowledge-production resonate with some recent pragmatist theories of knowledge: one need not abandon the material world after all.

Other readers will express instant antipathy to the political agenda laid bare in the final chapter, "Reading Biology." Revealing the politics of *Writing Biology* (this pun *is* intended) is exactly what Myers has in mind. The intent here is not to debunk the science, or to show how the politics "gets in," but to show how *what counts* as science, here biology, arises through a process of social negotiation (what we may view as part of the social technology of fact-production). Knowledge of this permits a close reader of biological texts to become aware of how cultural authority is constructed, appropriated, and reproduced. The goal of this line of inquiry is to render opaque, or make explicit, knowledge that has become tacit and unarticulated, part of the received and already-established wisdom. This is not unlike the opening of Latourian "black boxes."

The close reading of texts may be used as a method to expose and defuse or overturn existing power structures inherent in any system. Readers may note that what can be read as a call to "subvert the system" echoes deconstructive philosophy as it emerges from French poststructuralism, as well as some schools of semiotics.[6] But Myers does not — no doubt to the relief of some of his readers — situate his work within this oftentimes abstruse and arcane body of literature. One wishes that Myers had gone further to reveal the traffic of influence between written biological science and notions of race, class, and gender, especially through the case study of sociobiology, though this would have amounted to an exceedingly ambitious project.[7] Opening the door to a wider *critical* study of biology based on cultural rather than just social construction with tools such as feminist theory may prove to be yet another contribution of this book.

Readers should be warned that this is a challenging, if not a difficult, read. Though Myers is also a teacher of writing, his own writing is awkward in syntax, and it relies heavily — devastatingly — on sociologese. This criticism is not trivial, especially if one

---

Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985).

6. For one of the most lucid introductions to literary theory see Terry Eagleton, *Literary Theory* (Minneapolis: University of Minnesota Press, 1983).

7. See Donna Haraway, *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (New York: Routledge, 1989).

buys into Myers's arguments. Nevertheless, many will find themselves compelled by Myers's fine-grained analysis, sustained argument, and clever choice of case studies. *Writing Biology* goes a long way toward persuading the reader that biological knowledge is socially constructed as it is written, with authority produced and reproduced at each step. As the very root word indicates, authority resides in the writing. The bottom line — and punch line — of *Writing Biology* resonates with what many close readers of American popular culture already know. It is this: *Question Authority.*