

Michael Crichton, Narrative Critique, and the Boundary-Work of Scientific Expertise

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Now I observe that when we are met together in the Assembly, and the matter at hand relates to building, the builders are summoned as advisers; when the question is one of shipbuilding, then the shipwrights; and the like of other arts which they think capable of being taught and learned. And if some person offers to give them advice who is not supposed by them to be an expert craftsman, even though he be good-looking and rich and noble, they will not listen to him, but laugh and hoot at him... . But when the question concerns an affair of state, then everybody is free to get up and give advice. (Plato 17)

Peter Evans, attorney and all-around good guy, returned to his apartment in Los Angeles after identifying a billionaire client's dead body. He was exhausted. In the past week, he had been stricken by frostbite in the Antarctic, attacked by man-made lightning storms in Arizona and California, swept up in a flash flood, suspected of murder, and nearly fired from his firm. All he wanted was a shower and a little rest, but he was instead conked on the head and dragged into the living room by three masked men who pinned him down and placed a very small, very angry, very poisonous Australian octopus under his arm. Within minutes, he lay paralyzed, his mind racing, convinced that his life was about to end (Crichton 241-432). But unknown to Evans, he could not die, not at least within the pages of Michael Crichton's 2004 techno-thriller *State of Fear*, for what good is a science fiction novel with a dead hero?

Crichton's fourteenth novel contains all of the essential elements that would catapult it onto the bestseller list: fast-paced action, a cast

of attractive and intelligent heroes and heroines, and truly villainous evil-doers who need to be thwarted by the intrepid Evans. But it also contains a surplus of surprises, such as footnotes, graphs, an "author's message," a twenty-one page annotated bibliography, and an essay titled "Why Politicized Science Is Dangerous." Why would Crichton embellish his novel with theoretical scientific claims supported by research and presented with the apparatus of scholarship? Crichton's not-so-subtle attempts to show the "fact" behind his fiction is required because his antagonists are well-meaning environmentalists and his message is that global warming is a conspiracy perpetrated by the "politico-legal-media complex." The aura of scholarship Crichton creates is anticipated by historian Richard Hofstadter, who points out the tendency of political paranoids to use the mechanics of scholarship in marshaling cases whose fanciful conclusions do not satisfy the rigorous norms of scholarship (35-37). Therefore, one might expect Evans to provide such arguments and evidence. But, in this case, it is not Crichton's hero who is substantiating his conclusions, but Crichton himself.

Few read Crichton's book as anything other than a work of science fiction; however, the attention the novel received positioned Crichton to become the subject of a heated debate about scientific expertise. Alan Miller, in his review of the book for *Issues in Science and Technology*, notes that *State of Fear* made it to bookstore shelves just months after the debut of *The Day After Tomorrow*, a movie depicting the potential impacts of abrupt climate change: "The film generated a few fundraising events for environmental groups, but there was little if any effort to present *The Day After Tomorrow* as a serious scientific statement. In contrast, Crichton has been treated as if he actually possessed a deep understanding of climate science" (94). Crichton's success as a science fiction writer garnered him speaking invitations at a number of unlikely places: he was the subject of a 20/20 news segment, an interviewed guest of Charlie Rose on PBS, a featured speaker at the American Enterprise Institute and California Institute of Technology, and, perhaps most surprising, a witness before the U.S. Senate Committee on Environment and Public Works in 2005, for which the committee

chairperson, Senator James Inhofe (R-OK), made the novel required reading (Janofsky 94). Members of the Committee on Environment and Public Works were divided in their assessments of Crichton's ability to testify about real scientific issues and processes, but the media spectacle surrounding Crichton's work provided the potential for broad political and public influence. Sam Leith of *The Daily Telegraph* notes: "Michael Crichton will do more to popularize contrarian views of ecology than Bjørn Lomborg, as a popular scientist, could ever manage" (7). Crichton, a licensed but non-practicing medical doctor turned successful science fiction writer, was thus transformed into an expert voice of scientific skepticism.

Crichton's global climate change testimony and the discourse surrounding it serves as an important case study concerning the narrative construction of scientific expertise. More specifically, Crichton engaged in what science studies scholar Thomas F. Gieryn has called rhetorical "boundary-work" (Gieryn; Gieryn, Bevins, and Zehr). By positioning himself as a celebrity science writer with knowledge of scientific principles and methods by virtue of his medical training, a position he advances through the use of narrative, Crichton attempts to dissociate climate scientists from "real" scientists. Crichton argues climate scientists are not scientists at all. How Crichton does this is worthy of attention because, as public policy scholars Frank Fischer and John Forrester have argued, "As massive environmental problems loom before us, political talk will become more and not less important" (13). Based on the critical role narrative plays in influencing public understanding of environmental problems, how experts manage to marshal narratives while speaking about subjects on which they are not traditionally trained becomes all the more salient for those who genuinely seek the best outcomes from political hearings and democratic processes (Hajer; Kaplan). This essay provides an overview of the rhetoric of science literature informing our analysis, explores the rhetorical construction of Crichton's testimony, and notes the implications for scholarly understanding of the link between narrative and boundary-work as well as climate change communication.

Scientific Expertise and the Rhetoric of Boundary-Work

Philosophers and sociologists of science have long debated about the “problem of demarcation” (Taylor; Popper). What counts as science? And what counts as pseudo-science or non-science? In essence, the demarcation problem is one concerned with identifying “unique and essential characteristics of science that distinguish it from other kinds of intellectual activities” (Gieryn 781). Gieryn has argued that one way to conceptualize how scientists separate science from non-science is accomplished by using “boundary-work.” By boundary-work, Gieryn means scientists’ general “attribution of selected characteristics to the institution of science (i.e., to its practitioners, methods, stock of knowledge, values and work organization) for purposes of constructing a social boundary that distinguishes some intellectual activities as ‘non-science’” (782). Scientific boundaries, thus, are rhetorically constructed and open to ideological debate.

One common issue related to boundary-work involves the notion of “independent verification” as an essential component of the scientific method. Karl Popper, in *The Logic of Scientific Discovery*, for example, comments on how philosophers of science see verification as one way of testing scientific theories: “[I]f the singular conclusions turn out to be acceptable, or *verified*, then the theory has, for the time being, passed its test” (33). Ultimately, Popper argues that *falsification*, rather than *verification*, is the proper criterion of demarcation (40). Clearly, the very idea of independent verification as an essential component of the scientific method is a rhetorical and narrative construction. There is no one, single scientific method, as Feyerabend also notes. Feyerabend insists on “independent verification” as a key element in the scientific method is part of only one possible scientific/rhetorical assemblage. For Feyerabend, “the events, procedures and results that constitute the sciences have no common structure; there are no elements that occur in every scientific investigation” (1). However, this is not to say that appeals to scientific verification have lost their persuasive potency. As Crichton’s testimony illustrates, these rhetorical constructions are as popular today as ever.

If concepts such as independent verification and scientific method can be appropriated rhetorically by public policymakers, then using experts and expertise to advance particular causes and values is a real possibility. On this count, Frederick Frankena’s observations are insightful:

Scientists and technicians are seldom called upon to find or apply scientific facts to the exclusion of social value judgments. Studies of technical controversies, particularly environmental controversies, have demonstrated that experts and expertise are often employed to mask political choices. Studies have also revealed that, in response, counter expertise is utilized in an attempt to open the decision-making process. Indeed, experts and expertise have become a political resource, not simply the wellspring of scientific truth or new technology. (31)

Boundary-work is one way scientists can and do privilege one view of science over others. When used in deliberative settings, boundary-work likewise serves particular political interests and values. How one constructs what “counts” as science has far-reaching implications for important questions of public policy. Boundary-work, and the stories employed by those engaging in this work, not only help clarify what is or is not science, but they also help clarify who can and cannot be considered a scientist.

Crichton’s Narrative Critique:

From Writing Science Fiction to Challenging Scientific Method

Invited by well-known climate skeptic Senator James Inhofe (R-OK), then chair of the U.S. Senate Committee on Environment and Public Works, Michael Crichton testified before a star-struck audience on September 28, 2005, and the experience contained elements of the politically surreal. According to journalist Jamie Wilson, Republican senators “rushed to shake the author by the hand yesterday as he arrived in the oak-paneled committee room” (1). Crichton’s imposing physical stature added to the mood as reporters noted his unusual height with estimates ranging from 6-foot-7-inches to a staggering “6-foot-9-inch frame” (Wilson 1; Janofsky E1), as if his size would

intensify his points. Crichton opponents were also out in full force. Fliers from the Natural Resources Defense Council noted Crichton was “more silly than scary,” while the Union of Concerned Scientists claimed Crichton’s testimony would not “reflect scientific fact” (Janofsky E1). Although the spectacle surrounding Crichton’s appearance is itself possibly worthy of analysis, his testimony, the stories he told, holds most narratological relevance.

As is standard practice in Congressional hearings, Crichton circulated his prepared documents to committee members well before speaking. His fidelity to his written words is evident in the way he chose to deliver the speech: while it appears he attempted to extemporize slightly, Crichton was tied to his manuscript and presumably Crichton departed very little from his initial thoughts. The introduction of Crichton’s address followed the conventions of Senate expert testimony. After thanking the Chair and the members of the committee, a seated Crichton quickly set about advancing his argument concerning “the important subject of politicization of research.” From the outset, Crichton made it clear to his audience that he would not be regurgitating the conspiracy theory fiction found in his newest best-seller. Instead, he wanted to address the importance of having “independent verification” in science. Surely Crichton realized the reasons he had been invited to give testimony were potentially at odds with establishing his credibility as a scientist.

In his testimony, Crichton established himself firmly among philosophers of science, explaining how he subscribes to a view of science that relies on the use of a fixed method:

[S]cience is nothing more than a method of inquiry. The method says an assertion is valid — and merits universal acceptance — only if it can be independently verified. The impersonal rigor of the method means it is utterly apolitical. A truth in science is verifiable whether you are black or white, male or female, old or young. It’s verifiable whether you like the results of a study, or you don’t.

The key point in Crichton’s opening comments is not about the existence of a material truth, but in how one creates epistemic claims

using the scientific method. For Crichton, the acid test of scientific validity is independent verification. According to Crichton’s simplified formulation, it is *only* through verification that “the scientific method can transcend politics.” However, he also foreshadows his later critique of climate scientists by noting that not adhering to independent verification means science may be “overwhelmed by competing interests.” But what counts as verification? Crichton realizes the burden he has created for himself, and offers one possible way of understanding the scientific method.

Crichton understands that “verification may take several forms.” However, Crichton tendentiously maintains that the “gold standard” of verification can be found in the field of medicine, an area of scientific practice with which he is familiar. This decision to look to medicine as a means of understanding how science should function allows Crichton to narrate his way past a number of rhetorical constraints. First, this perspectival shift preempted arguments from politicians who were concerned about Crichton’s credentials as a fiction writer. For example, Senator Barbara Boxer (D-CA) pointedly noted the committee needed to “focus on facts, not fiction” (Janofsky E1). However, Crichton rejects the boundaries Boxer would establish for his testimony. Crichton anchors his expertise in medicine, a field where his credentials would be difficult to challenge given his medical education at Harvard. Thus, Crichton deflects accusations that he was unqualified to testify about scientific issues because he made his living as a novelist. Second, Crichton’s use of medicine as a means to understand the scientific method gave him rhetorical traction with those who were likely to see the field of medicine as a long established scientific discipline. Medical testing, Crichton argued, is as scientific as a scientific field can be, especially with its “randomized double-blind study” of virtually all subjects within its purview.

Crichton offered policymakers a telling anecdote that uses medicine as a way of highlighting what it means to have independent verification in science. In 1991, Crichton was returning on a plane from a trip to Germany when he encountered a sobbing man. This man was a

doctor involved in a multi-year, multi-million dollar double-blind study testing the effectiveness of a new drug who “had been sitting in the Frankfurt airport, innocently chatting with another man, when they discovered to their mutual horror they [were] on two different teams studying the same drug. They were required to report their encounter to the FDA.” The story illustrated dramatically the “gold standard” of independent verification. Should there be any chance of contamination in the study, the contamination should be immediately reported and the study considered invalid because this is what it means to live up to a high “degree of rigor in research.” Here was a convincing example—what Kenneth Burke calls a “representative anecdote”—of how ironic misfortune should not be permitted to derail sound scientific practice.

Crichton’s subsequent attacks against climate scientists were scathing. He argued that unlike medical researchers, climate scientists, especially climate modelers, were prone to make mistakes that compromised the integrity of the scientific method. Unlike the careful control in medical research, climate science follows its own methods, as Crichton posits:

[I]t’s permissible for raw data to be “touched,” or modified, by many hands. Gaps in temperature and proxy records are filled in. Suspect values are deleted because a scientist deems them erroneous. A researcher may elect to use parts of existing records, ignoring other parts... But the fact that the data has been modified in so many ways inevitably raises the question of whether the results of a given study are wholly or partially caused by the modifications themselves.

In other words, Crichton summarizes, “What is at issue is whether the methodology of climate science is sufficiently rigorous to yield a reliable result.” Could climate scientists say their methods meet the rigorous standards of independent verification, given all of the manipulation and tampering? For Crichton, the answer was a resounding “no.” However, to support this interpretation Crichton needed to illustrate that climate scientists were guilty of “touching” their data. He needed to make climate scientists appear as bungling incompetents in his narrative.

Crichton was not the only person making news by arguing against the faith many had about the status of climate change science. Only two years earlier the well-known “hockey-stick” graph of climate temperatures was also being extensively reported by journalists. Taking the hockey-stick study written by Dr. Michael Mann and his colleagues as a representative anecdote of scientific rigor in climate change studies, Crichton argued that climate scientists had often failed to use independent verification when conducting their research; therefore, later attempts to replicate the research could not substantiate it:

But real fireworks began when two Canadian researchers, McIntyre and McKittrick, attempted to replicate Mann’s study. They found grave errors in the work, which they detailed in 2003: calculation errors, data used twice, data filled in, and a computer program that generated a hockeystick out of any data fed to it — even random data. Mann’s work has since been dismissed as “phony” and “rubbish” by scientists around the world who subscribe to global warming.

While Crichton’s claim that Mann’s work has been “dismissed” is perhaps overstated, his use of the controversy provides yet another powerful indictment against climate scientists. Ultimately, Crichton argues, organizations such as the Intergovernmental Panel on Climate Change (IPCC) accepted Mann’s work because the IPCC is “under no obligation” to perform independent verification.

With Mann’s work, however, at least it was possible to argue the results had been verified, although clearly Crichton disagrees (Besel). Crichton’s critique of Mann’s work was pointed, but his harshest criticism was directed toward climate modelers. With the use of climate models, independent verification is virtually impossible, yet climate models are one of the key tools used by policymakers in making decisions on an array of issues. For Crichton, climate models are scientifically useless:

But if independent verification is the heart of science, what should policymakers do with research that is unverifiable? For example, the U.N. Third Assessment Report defines general circulation climate models as unverifiable. If that’s true, are their predictions of any use to

policymakers? Arguably not. Senator Boxer has said we need more science fact. I agree—but a prediction is never a fact.

With this passage, Crichton's critique of the climate change "science"—not just the politically skewed predictions of some doomsdayers—was complete. After establishing what he believed was the gold standard of scientific practice, a reliance on independent verification, Crichton attempted to illustrate where climate change "science" failed to live up to the scientific community's standard.

Conclusion

Given his constraints, Crichton cleverly maneuvered his way out of a potential credibility problem. Crichton did not rely on the fiction found in his bestseller, nor did he attempt to position himself as a climate change expert, nor did he position himself as someone concerned with selling novels. Instead, he chose to anchor his narrative critique in a general understanding of scientific method supported by his knowledge of medical practice in anticipation of what he believed audience members would think of his intentions. In other words, Crichton managed the appearance of his intentions, a rhetorical choice similar to what Lisa Zunshine has noted in her work on "levels of intentionality." Although this inventional decision did not directly lead to the passage of legislation, the success of his rhetoric allowed Crichton to gain the praises of many senators who were skeptical of climate change studies. In addition, Crichton remains an important name in contemporary climate change discussions. In terms of adjusting his rhetoric to his given situation, Crichton's decisions illustrate why many have viewed him with a sense of respect approaching reverence. However, this is not to say Crichton's position is the correct one.

Although Crichton should be given credit for his careful narrative navigation of politically dangerous terrain, we must remember that boundary-work is a rhetorical process that, to invoke Burke, involves both selection and deflection (59). For example, while it is true that Michael Mann and his colleagues were questioned about their scientific procedures, one could argue their hockey-stick study held up

surprisingly well (Besel). In 2003, Mann even testified before a House committee that studies conducted by him and other independent researchers supported the findings of the original 1998 study, thus providing evidence the hockey-stick study was independently verified. Of course, if Crichton were to mention these alternative readings of the scientific literature, his narrative would lose what rhetorician Walter Fisher would call its "sense of coherence" (299).

On a more theoretical level, Crichton's testimony also illustrates how narrative and boundary-work function together. As a *locus* of argumentation, boundary-work is what Chaim Perelman and L. Olbrechts-Tyteca would call an "associate/dissociative" strategy (190-91). Where one rhetorically places a field's boundaries determines who belongs in the in-group and who does not. However, Crichton's testimony brings into sharp focus the details of how one can dissociate an entire group of people from the classification of "scientist" through the selective use of narrative. A scientific analogy helps with this explanation. The narrative logic of Crichton's testimony relies on a structural understanding of the relationship between science as an abstract concept and its specific practice analogous to the relationship that exists between a genus and a variety of species. For Crichton, science (genus) must have independent verification. Medicine is one field (species) that illustrates this notion. Attacking climate science (species) by noting the ways it may lack independent verification, Crichton attempts to sever the associative relationship that connects climate studies to science more generally. In other words, climate sciences, such as climate modeling, do not really belong to the genus. By extension, climate scientists are not really scientists.

Although this case study illuminates the complex relationships between scientific expertise, narrative, and boundary-work, the genus-species logic that informs Crichton's boundary-work is not unique to his testimony. Instead, this rhetorical technique is often employed within skeptical climate change discourse and other areas of narrative contestation where one group is told they no longer belong. Indeed, cases such as game show host Bob Barker testifying about

the Captive Elephant Accident Prevention Act, actor Kevin Costner testifying about offshore oil spills, and Backstreet Boys band member Kevin Richardson testifying about mountaintop removal all point to the ubiquitous nature of celebrity presence in Congressional hearings. Given recent celebrity testimonies, it is difficult to disagree with Neil Postman's sweeping observation that we no longer argue with propositions exclusively, but instead have come to rely more on "good looks, celebrities, and commercials" (93) over evidence of the scientific method. It's no wonder that newspaper accounts of Crichton's testimony to Congress emphasized his imposing stature—his celebrity status—more so than the content of his objections. According to rhetorical scholars Christopher R. Darr and Harry C. Strine, at least 400 celebrity witnesses have testified before Senate and House hearings. Such celebrities potentially bring media focus to hearings that might otherwise remain obscure, each participant having his or her own reasons to take the media spotlight with them to dark-paneled hearing rooms. As politicians hope that celebrities will publicize hearings, celebrities hope, in turn, that participation in a Congressional hearing will impart an air of gravitas to them or their chosen causes. And, of course, the appearance of someone such as Crichton gives ample opportunity for media speculation about the nature of his motivations, which makes the appearance yet more newsworthy. In all, it is theater at many levels—perhaps even what Guy Debord would call part of "the society of the spectacle"—both by design and by perception: Crichton ambiguously speaking disinterestedly on behalf of the public good, or promoting a new book, or advancing his own celebrity. The uneasy tension among these interactions and perceptions makes for spectacular performance and teaches a lesson on narrative boundary-work to the entire nation.

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