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Book Review: The Perpetual Quest: Science and the Search for Authority  
Lab Coats in Hollywood: Science, Scientists, and Cinema  
Cold War University: Madison and the  
New Left in the Sixties  
Engineers for Change: Competing Visions of Technology in 1960s  
America  
Competing with the Soviets: Science, Technology, and the State in Cold War America  
by David A. Kirby; Matthew Levin; Matthew Wisnioski; Audra J. Wolfe

Review by: David K. Hecht

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## The Perpetual Quest: Science and the Search for Authority

BY DAVID K. HECHT\*

DAVID A. KIRBY. *Lab Coats in Hollywood: Science, Scientists, and Cinema*. Cambridge, MA: MIT Press, 2011. xiv + 265 pp., illus., index. ISBN: 978-0-262-51870-3. \$16.95 (paper).

MATTHEW LEVIN. *Cold War University: Madison and the New Left in the Sixties*. Madison: University of Wisconsin Press, 2013. vii + 224 pp., illus., index. ISBN: 978-0-299-29284-3. \$26.95 (paper).

MATTHEW WISNOSKI. *Engineers for Change: Competing Visions of Technology in 1960s America*. Cambridge, MA: MIT Press, 2012. xvii + 286 pp., illus., index. ISBN: 978-0-262-01826-5. \$35.00 (hardcover).

AUDRA J. WOLFE. *Competing with the Soviets: Science, Technology, and the State in Cold War America*. Baltimore, MD: Johns Hopkins University Press, 2013. viii + 166 pp., illus., index. ISBN: 978-1-4214-0771-5. \$19.95 (paper).

In the consumer-driven, technologically advanced world of the contemporary United States, specific scientific findings or perspectives may come under attack—but “science” as an abstract notion usually commands respect. Yet establishing the authority of science has never been an easy proposition. Even if the scientific community spoke with one voice—an impossibility—it would still encounter a complex set of competing values and agendas in the world outside the laboratory. These voices differ considerably in how congenial they are to science. Moreover, an appreciation for expert commentary in one context does not necessarily translate to valuing it in all circumstances. This makes for a challenging situation for scholars: how are we to understand the efforts of

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*Historical Studies in the Natural Sciences*, Vol. 44, Number 3, pp. 277–284. ISSN 1939-1811, electronic ISSN 1939-182X. © 2014 by the Regents of the University of California. All rights reserved. Please direct all requests for permission to photocopy or reproduce article content through the University of California Press’s Rights and Permissions website, <http://www.ucpressjournals.com/reprintinfo.asp>. DOI: 10.1525/hsns.2014.44.3.277.

scientists to claim intellectual and cultural authority? If we focus only on the question of rhetoric, it seems clear that science commands a fair amount of authority. Michael D. Gordin has made this point in his recent work on pseudo-science: “fringe theories proliferate,” he writes, “because the status of science is high and is something worthy of imitating.”<sup>1</sup> Gordin thus makes the counterintuitive but compelling argument that the presence of pseudo-science may well indicate the simultaneous existence of a healthy and well-respected scientific enterprise. Scholars who have examined skepticism of science come to similar conclusions: political actors who depart from scientific consensus generally do so with at least rhetorical deference to the methods and critical thinking of science.<sup>2</sup>

Beyond the question of rhetoric, the situation becomes murkier. Teasing out the nature of the authority that has been actually granted to scientists turns out to be quite difficult. Many instances of apparent deference to scientists and scientific institutions are better understood as grants of approval to particular political arrangements. Early Cold War Americans, for example, may have accepted the cultural dominance of science less due to their natural affinity for it and more because they agreed with their leaders about the proper response to the Soviet threat. This resulted in substantial largesse for scientific institutions and prestige for scientists. But supporting science for national security reasons says very little about genuine attitudes toward the special authority of scientists. The four books under review here shed light on questions about how—and whether—scientists were able to establish authority in the post-WWII United States.

In *Competing with the Soviets*, Audra J. Wolfe provides an excellent overview of Cold War science. She accomplishes the difficult task of synthesizing a massive amount of both history and historiography into a highly readable narrative. The book opens with three chapters that tell a classic story of Cold War science, from the onset of the atomic age through the growth of the national security state, with its emphasis on military needs and “big science” projects. Wolfe then turns her attention to other ways that science became relevant to the Cold War cause. These ranged from displays of technological prowess to

1. Michael D. Gordin, *The Pseudo-Science Wars: Immanuel Velikovsky and the Birth of the Modern Fringe* (Chicago: University of Chicago Press, 2012), 210.

2. See, for example, Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (New York: Bloomsbury Press, 2010); Dan M. Kahan, Hank Jenkins-Smith, and Donald Braman, “Cultural Cognition of Scientific Consensus,” *Journal of Risk Research* 14, no. 2 (2011): 147–74.

the prominence of the social sciences in analyzing domestic problems and in providing models for international development. Her chapter on the Apollo program is particularly compelling, as she deftly conveys the irony that what remains perhaps the most iconic technological achievement of the Cold War—the moon landing—was accomplished against the backdrop of a rapidly fraying consensus about the possibilities of science and technology. The book's final chapters cover the emergence of more voluble dissent about the military-industrial complex during and after the Vietnam War, as well as the brief but consequential resurgence of the Cold War during the Reagan years. It is a testament to Wolfe's command of the subject that she manages to tell the story succinctly—the text itself is 139 pages—while still providing ample illustrative detail.

*Competing with the Soviets* is designed as an introductory text, and this is no doubt its primary utility. But professional historians of science can still read it with profit. For one thing, Cold War science is a complex and well-studied subject, and much of the value of Wolfe's work is how she enables readers to reflect on themes with which they may be less familiar. She writes—to name only a few such examples—of the role of instrumentation in dictating intellectual trajectories (41), the emergence of a discourse of objectivity in social science research (88), and the (limited) changes in the role of experts that accompanied debates over a nuclear test ban (111). There is scholarly value, not simply pedagogical utility, in juxtaposing such a variety of themes. What emerges is a picture of Cold War science as a whole, which Wolfe argues was marked by “both the faith that postwar Americans placed in state-sponsored science and the doubts that simmered just below the surface of this consensus” (2). Virtually every episode she recounts can be seen through this lens, of a general faith marked by nagging doubts. At only one moment—the breakup of the Cold War consensus prompted in large measure by the Vietnam War—did these simmering doubts reach full boil. But the image of a dominant, state-sponsored science constantly needing to tamp down such doubts is a compelling presentation of the politics of Cold War science. And a generation after the end of the conflict, it provides us with a framework for understanding what now seems a very atypical era, one in which the state-science relationship received remarkably little scrutiny given the amount of money being spent.

However, diminished scrutiny does not mean a total lack of critical assessment. Both Matthew Wisnioski and Matthew Levin ask how and why significant groups of Americans began to mobilize against what they perceived as

dangerous tendencies in the science-state partnership. Wisnioski's book, *Engineers for Change*, focuses on critiques from within the scientific establishment. As Wisnioski points out, there was perhaps no profession that embodied that establishment more than engineering, making the very "notion of radical engineers [a] counterintuitive, even contradictory" idea (8). But this counter intuitiveness makes for a revealing case study. Some of the engineers whom Wisnioski discusses were indeed radical, but few of them abandoned their discipline in favor of anti-establishment activism. Instead, they sought creative ways to reconcile their professional identities with their skepticism that technological progress would inevitably promote the common good. In so doing, Wisnioski argues, they engaged with cultural commentators such as Lewis Mumford and Jacques Ellul, theorists whose critiques of "the technological society" focused on the need for social and cultural change (128).

*Engineers for Change* joins a literature that seeks to tell the story of scientists' engagement with politics during the Cold War.<sup>3</sup> Wisnioski is particularly good at exploring the diverse ways that engineers wrestled with doubts about the direction of their chosen field. He writes, for example, of the Volunteers for International Technical Assistance (VITA). This was a group that sought to use technical expertise and donated time on engineering projects—such as the ultimately unsuccessful "solar cooker"—that were targeted to serve identifiable humanitarian needs (135). He also includes accounts of the attempts by engineers to influence activities within established organizations, such as the American Society of Mechanical Engineers (ASME) and the Institute of Electrical and Electronics Engineers (IEEE). Similarly, a number of academic engineers tried to include questions about ethics and social responsibility in their curricula. Out of this rather wide range of efforts, some were successful, such as attempts to revise textbooks (169). Others, such as the solar cooker, were less so. It would be a mistake, however, to link the story Wisnioski tells to the question of how successful his actors were at influencing broader change. He has provided a rich intellectual history, exploring how engineers articulated political (and moral) concerns in the language of disciplinary crisis. Like all good intellectual history, much of the reward is in the details of how specific visions were constructed: as motivations for rethinking a discipline, for example,

3. See, for example, Kelly Moore, *Disrupting Science: Social Movements, American Scientists, and the Politics of the Military, 1945–1975* (Princeton, NJ: Princeton University Press, 2008); Jon Agar, "What Happened in the Sixties," *British Journal for the History of Science* 41, no. 4 (2008): 567–600.

commitments to professionalism and concerns about social inequality are different things. Wisnioski focuses on actions taken by scientific insiders, yet ones who were directly engaged with critiques stemming from outside the scientific establishment.

In *Cold War University*, Matthew Levin tells what is in many ways a parallel story. His subject is the origins and activities of the New Left in and around the University of Wisconsin during the 1960s. And his actors, generally speaking, are not scientists. While Wisnioski writes of scientific insiders, Levin considers those who confronted the military-industrial complex as students, consumers, and concerned citizens. He writes of activists, the campus culture they helped to create, and the institutional response. He also explores the role of faculty, and the History Department emerges as a key player—thanks to the activities of William Appleman Williams, among others. One of the many excellent features of Levin's study is that he locates the history of Madison's New Left within a specific institutional framework and regional context. The University of Wisconsin had a strong commitment to honoring dissent, and the state itself possessed a robust progressive tradition. This enables Levin to provide a complex narrative, in which the local authorities are neither wholly heroic nor easily cast as villains. In fact, when considered in comparison to how other institutions dealt with dissenting voices during and after the McCarthy era, Levin argues, the University of Wisconsin appears in a fairly positive light. His story is nicely complex in other ways as well. Levin never loses sight of the reality that New Left activists were always a minority of the students on campus, as well as the fact that their counterparts on the political right were never silent and in many ways have commanded a fuller and more consequential legacy.

Levin's book differs from those by Wolfe and Wisnioski in at least one critical respect: instead of focusing on scientists, he explores the effect of the Cold War on the politics and culture of the university. But since so much of that effect derived from the military-industrial complex and the special place of scientists in securing funding and prestige, his study makes for an interesting juxtaposition with their books. Levin is not simply interested in the history and politics of the New Left, but also in the connection between that activism and the Cold War. He sees them as part of the same story: New Left activism was in many respects a natural outgrowth of the changes that massive, defense-oriented financial largesse prompted in American higher education. Levin weaves together local and national history impressively, never letting his attention (or ours) wander away from the fact that neither story can be understood

separately. He maintains an excellent sense of what is typical about his case study (the impact of the Cold War on higher education) and what is less so (the relative tolerance this particular institution demonstrated toward political dissent). Like Wisnioski, he illuminates Vietnam-era doubts about the cozy relationship among science, the state, and the military. Both studies suggest that deference to scientific authority proved persistent even in an era of rising doubt. Wisnioski's engineers generally remained optimistic that technology could play a salutary social role, even if serious reforms were needed. And Levin's activists succeeded in changing cultural discourse, but failed to convince large numbers of their peers to do much more than pause and reflect.

Wolfe, Wisnioski, and Levin tell stories in which the Cold War is central. David A. Kirby does not. *Lab Coats in Hollywood* examines negotiations between filmmakers and scientific consultants in the production processes for a number of recent movies. One could certainly frame this subject to explore the legacy of the Cold War, but this is not Kirby's focus. Instead, he is interested in cinema as an arena that mediates science between specialist and nonspecialist audiences. He explores scientists' work on a number of feature films, including *Jurassic Park*, *Armageddon*, *Hulk*, *Contact*, *Outbreak*, *Minority Report*, and *The Day After Tomorrow*. This lets him explore questions about how scientific authority operates within an institutional sphere that is not dominated by Cold War politics. He asks about the identities of the scientists hired as consultants for major Hollywood productions. What were their responsibilities? What did the two professional groups involved—scientists and filmmakers—see as the benefits of their collaboration? And how did they negotiate their differing agendas and professional cultures? To address these questions, Kirby de-emphasizes textual analysis in favor of interviews and other means of getting at the experience of scientist-consultants in the production process. The result is a fascinating book that challenges many assumptions that readers might bring to the subject. For example, Kirby argues that fact-checking has been a relatively minor part of scientific consulting. Helping to create plausible narrative scenarios has been more important, along with conveying accurate visual images of how scientists act and how scientific spaces look. He reaches the perhaps surprising conclusion that the collaboration between scientists and their employers in the entertainment industry, generally speaking, has been a mutually beneficial one.

To scientists and moviegoers familiar with storylines that are speculative and often fantastic, this claim may seem odd. But Kirby makes a compelling case. The collaboration he examines is one in which “studios get expert advice and

a scientific stamp of approval while scientific organizations have the opportunity to shape their cultural image through popular films and television” (51). *Lab Coats in Hollywood* is replete with examples of cases in which a movie provided valuable exposure to a particular field of study. Kirby notes, for example, that *Armageddon* and *Deep Impact* gave exposure to the study of Near Earth Objects in a way that only dramatic storytelling can do. And on occasion, a movie can do more than provide publicity, actually serving to promote particular scientific interpretations; this was the case with *Jurassic Park*'s dramatization of the bird-dinosaur link. Kirby's study is well worth the time of anyone interested in the public life of science.

As a study of the contemporary cultural authority of science, it is similarly rewarding. Just as the books by Wolfe, Wisnioski, and Levin provide evidence both for and against such authority in the context of the Cold War, Kirby's study reveals ambiguity in the Hollywood of the late twentieth and early twenty-first centuries. On one hand, filmmakers recognize the value of having scientists on board; on the other, scientists clearly feel the need to enhance their authority by participating. However, perhaps the most interesting part of his analysis is not the light it might shed on the scope of science's cultural authority. Kirby also provides an intriguing glimpse into the mechanisms through which authority and public understanding are established. He is particularly interested in the way that Steven Shapin and Simon Schaffer's notion of “virtual witnessing” might be extended to the realm of popular culture (24–26). Drawing on the work of previous scholars, including Shapin and Schaffer themselves, Kirby argues that virtual witnessing provides a framework for understanding not simply the validation of knowledge among experts, but also its wider dissemination.<sup>4</sup> He argues that “popular cinema is particularly effective as a virtual witnessing technology because the intent of its construction is to blur the distinction between virtual witnessing and direct witnessing” (26). In other words, it is not only exposure that matters. Considerations of art and of form—such as the way that narratives inherently construct certainty—are also crucial. No wonder scientists are drawn to the movies.

4. Kirby cites, for example, Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, NJ: Princeton University Press, 1985); Steven Shapin, “Pump and Circumstance: Robert Boyle's Literary Technology,” *Social Studies of Science* 14, no. 4 (1984): 481–552; David Gooding, “‘Magnetic Curves’ and the Magnetic Field: Experimentation and Representation in the History of a Theory,” in *The Uses of Experiment: Studies in the Natural Sciences*, ed. David Gooding, Trevor Pinch, and Simon Schaffer (Cambridge: Cambridge University Press, 1989), 183–223.

Taken together, these books suggest that there are fairly significant constraints on the ability of scientists to control the public and political faces of their discipline. The limiting factor might be a Cold War regime, a controversial military action in Southeast Asia, or a production team's assessment of the importance of scientific accuracy for the marketability of a film. Recognizing the importance of such factors does not rob scientists of agency. Rather, it underscores how events outside of science can profoundly affect its authority. The line between what is inside of science and what lies outside is a blurry one. Scientists are not *just* scientists: they may also be employees (or employers), voters, activists, consumers, teachers, intellectuals, parents, and neighbors. Scientists are one set of players in cultural conversations about the proper place of technical advice. What emerges is a complex and constantly shifting interaction among diverse and not always compatible interests. Scientists' cultural authority is best thought of not as a state to be achieved, but as a continual negotiation: a framework for thinking about the relationship between the scientific enterprise and the many nonscientific worlds of which it is a part.