

science advice before Nixon from advice after Nixon. Newcomers to science policy may be more taken by the tightrope walking nearly all advisers (and particularly the Congressional staffers) needed to do in their work. Hopefully, everyone will be reminded (whether they need to be or not) that the science adviser serves the President, and not the scientific community.

Given the dearth of research in this area, simply having a record of this event is a valuable addition to the literature (and hopefully to science policy practitioners, to whom most of the book is targeted). Thankfully Pielke and Klein supplemented the book with two Congressional perspectives and two efforts to place the advisers' remarks in context. Were this a more academically oriented book I could easily see the context chapters being much larger. The editors' restraint is appreciated, though some may feel the context work in the book could have been more detailed. In either case, I recommend that readers cover the chapters by Guston, and by Pielke and Klein before going to the rest of the material. It should be easier to connect those chapters to the advisers' material if read before diving into the details of science policy in six different administrations.

What (minor) complaints I have with the book are partly a function of the type of event the book is capturing. Transcripts of the interviews with Pielke are not included with all of the advisers' remarks, and transcripts of the questions and answers with students are included with even fewer chapters. This becomes important in part because the transcripts (at least those that were included in the book) provide a greater sense of how past science advisers engage with current science policy issues. Those advisers who served more recently were quicker to address current issues in their remarks, but I would like to see what those who served and have since removed from their service have to say about what's going on today. Dr David's discussion of the political angle

behind President Nixon eliminating his science adviser and advisory council led me to draw parallels with the complaints over President George W Bush's administration and how some scientists became more politically active as a response. Were these parallels drawn out in the interview or in the questions and answers? I could go to the website and see; but I'm reading and reviewing the book, not the website.

For reasons historiographers might find worthy of examination, there has been little research conducted on US Presidential science advice. This book helps fill in that gap by capturing the recollections of seven science advisers to six different Presidents. While suffering from the same challenges of any conference volume, the editors have made an effort to try and place this material in historical context. They have also offered some comparison with Congressional science policy and a firm, but gentle critique of the first-hand accounts of science policy in the trenches of government work. As the current President's science adviser and Office of Science and Technology Policy move forward into what may be a new era for Presidential science advice (there is now a chief technology officer that reports to both the President and the science adviser), this book will be a useful reference work for comparison. The absence of the kind of heated rhetoric on science advice in government that surrounded the previous President is another reason to recommend science policy practitioners and researchers add this book to their reference lists.

Notes

1. I was a regular poster to the Center's science policy blog, Prometheus, but was not involved with the events chronicled in this book.
2. Available at http://sciencepolicy.colorado.edu/science_advisors/index.html. Last accessed March 2011.

What to do with politicized science?

Jean-Baptiste Gouyon

Science in Democracy, Expertise, Institutions, and Representation, by Mark B Brown

MIT Press, Cambridge, MA and London, 2009, 368 pages, US\$28:00 (paperback), ISBN 9780262513043.

Dr Jean-Baptiste Gouyon was a post-doctoral fellow at the Max Planck Institute for History of Science, Berlin. He can be contacted at Goerzallee 82c, 12207 Berlin, Germany; Email: jbgouyon@yahoo.fr.

The difficulties met by much of the efforts to deploy scientific knowledge in democratic societies, and their relative failure to bring about effective public engagement with science, most notably in relation to such recent issue as climate change, often serve as a springboard to proponents of a reactivation of the Enlightenment project. Centred on such moral values as objectivity, rationality, and trust in the scientific method as the surest way to truth, this latter view conceives of sound expert advice to those in

power as the foundation of democracy (Oreskes and Conway, 2010). Critics have repeatedly pointed out that such an advocacy of science's independence from society might do more harm than good, and is misconceived. More than two decades ago, science students suggested that exposition and discussion of scientific knowledge in public is a necessary step in the production of knowledge, for it is the moment when uncertainty is dealt with and incontrovertible facts are constructed (Bucchi, 2008). In other words, knowledge-making does not end when expert consensus is reached: knowledge claims are stabilised in public forums. Therefore, the project of isolating knowledge-making from society, in the hope of preventing its contamination with politics, is problematic, because it enshrines instability within knowledge claims, thus paving the way for the instability of the social order (Nowotny *et al.*, 2001). The challenge, however, is to find ways to:

...institutionalize polycentric, interactive, and multipartite processes of knowledge-making within institutions that have worked for decades at keeping expert knowledge away from the vagaries of populism and politics. (Jasanoff, 2003: 235)

It is also to invent means to accommodate the multiplicity of social perspectives involved in the politics of science. Mark Brown's *Science in Democracy* takes up this challenge. Bringing forward a conception of 'democracy as an institutionally differentiated system of collective representation' (p xiii), it suggests that existing institutions should be transformed and new ones invented, to multiply the sites and modes of representation available to experts, non-experts, and politicians alike.

At the core of the debate outlined above, Brown identifies a conception of representation understood in rationalist terms. To self-appointed defenders of pure science, on the one hand, scientists produce representations which are mirror images of nature providing unmediated access to reality. Such value-free science, which does not privilege any perspective, is accordingly taken to faithfully represent the public interest. Citizens should thus simply place their trust in science, and let themselves be represented by elite experts with a privileged access to popular will and the public interest, just as scientists are an elite enjoying privileged access to the truths of nature. On the other hand, advocates of participatory democracy tend to conceive political representation as an exact reflection of popular will and common sense. In this view, representation of the people by an elite is ultimately a subversion of the democratic ideal, and lay participation is seen as the antithesis of elite rule.

In contradistinction to this juridical model of representation, which fosters irresolvable controversies, Brown theorises one of 'democratic representation'. Whereas in the juridical model, representation is

black-boxed as a synonym for substitution, in the model elaborated here it is conceived as a relationship of mediation with a transformative effect on both the representative and the represented. Representation is thus unpacked as a sophisticated composite, whose different parts are aspects of the relationship between constituents and their representatives, namely 'authorization, accountability, participation, deliberation, and resemblance' (p 206). Democratic representation is forwarded as a means of responding to politicised science through institutionalising the politics of science, in a range of institutions that would each provide citizens with access to different modes of representation (Chapters 9 and 10).

In order to work through this model, Brown looks at canonical texts in political and democratic theory (Machiavelli, Hobbes, Dewey, Madison, Rousseau) through the lens of science and technology studies (S&TS), whilst submitting important texts in the field of S&TS (most notably Bruno Latour's) to symmetrical treatment. This enactment of the principle enunciated in the preface to the book, that it is intended to examine and question the supposed boundary between science and politics, allows Brown to highlight what went into the construction of taken-for-granted ideas and institutions, in relation to the politics of science, and to suggest renewed readings of these authors. For instance, offering an exciting reading of Machiavelli, the first chapter invites us to consider him as the inventor of a rhetoric of expertise made of humility and social distance, and as the advocate of 'the institutional requirements for its successful use' (p 42), thus articulating 'distinct norms and purposes for science advisors and political actors' (p 24), which still resonate today. The other side of Brown's approach is exemplified in the important Chapter 7, where Latour's work is read as one in democratic theory. Given the centrality of the concept of representation in Latour's joint exploration of sociotechnical networks, Brown locates several themes previously identified in Machiavelli, Hobbes or Dewey, and which he himself uses when theorising democratic representation. Yet, he remarks that Latour's account of representation is stuck in the common juridical view of representation as substitution, which reduces representation to questions about the absence or presence of the represented, and prevents our understanding of the necessary institutional differentiation of representation. To Brown this shortcoming originates in Latour's generalised symmetry principle, which obscures asymmetries between science and politics, examined in the following chapter (Chapter 8), in an effort to understand the politicization of science and what it means.

Overall, *Science in Democracy* is intellectually invigorating and succeeds in putting S&TS in conversation with political sciences. Scholars in both fields should profit from this useful contribution to

the literature on the relationship between experts and society. However, one is left wondering if a more comparative approach would not have contributed to enlarging the scope of the study, thus enhancing its 'power of proposition'. Despite a few hints at examples taken from the United Kingdom or Germany, it remains centred on the institutional landscape as it prevails in the United States. But this lack of a comparative perspective can also be welcomed, as an invitation to expand on the propositions made in this book.

References

- Bucchi, M 2008. Of deficits, deviations, and dialogues: theories of public communication of science. In *Handbook of Public Communication of Science and Technology*, M Bucchi and B Trench eds, pp 57–76. London and New York: Routledge.
- Jasanoff, S 2003. Technologies of humility: citizen participation in governing science. *Minerva* 41(3), 223–244.
- Nowotny, H, P Scott and M Gibbons 2001. *Re-Thinking Science: Knowledge and the Public in an Age of Uncertainty*. Cambridge, UK: Polity Press.
- Oreskes, N and E Conway 2010. *Merchants of Doubt*. New York: Bloomsbury Press.

The sociology of scientific work

Geneviève Teil

The Sociology of Scientific Work: The Fundamental Relationship Between Science and Society by D Vinck

Edward Elgar, Cheltenham, UK, 2010, 288 pages, £69.95, ISBN 9781848449640.

The title of this book is at the same time well chosen and a little misleading. Misleading because a few crucial themes in science studies such as 'truth', 'objectivity' or the difference between 'scientific' or 'profane' claims are not examined in depth. Yet, the book is dedicated entirely to the sociology of science, and even better said, the sociologies of science.

It is an ordered compilation of the thousand and one ways to analyse science. Structuring such syntheses is indeed a difficult task. The structure of the book pleasantly combines two threads: one historical and the other which covers its object from macro- to microsociology. The reader begins with institutional theories, more ancient and global, or 'macro', and finishes with ethnomethodology and the finely detailed studies of scientific activity. The transition between these currents occurs more or less within the sixth chapter. One may regret that its title, 'Society's influence on knowledge content', does not reflect the conceptual transition happening in the chapter: relinquishing the 'social influences' and the 'causal' social theories.

Indisputably, this book is a very detailed inventory of the different sociological works about science. The bibliography is thorough; it recalls

forgotten, often uncited, and unjustly unappreciated authors. The sociologies presented extend even towards a historical sociology briefly depicted in the first chapter. But the main originality of this book is its commitment to privileging exhaustiveness to the mutual critique of the different points of view presented. Conceptual criticism is reduced to a few lines here and there as the book progresses and a few pages at the end of the book. Sharply contrasting claims follow each other chapter after chapter. These cover science, its organizations, collectives, scientists, practices, instruments, and publications etc. switching from deterministic social studies to the most constructivist and pragmatic analyses.

This absence of criticism of the results presented tends to transform science into a plural social object. One may regret the resulting fuzziness of important distinctions between different constructivist views. For instance, the reader has to wait until the end of the book and an insert on page 244 to realize how the notion of 'cause' has been clearly suspended by some of the often cited authors. This absence also has another 'relativistic' effect: all points of view seem equal and necessary to account for 'science'. For Merton science and its claims are the result of power struggles and social positions. For Latour, and more 'interpretationist' and pragmatic authors, they are the unforeseeable result of the scientific activity and proofs scientists use to test nature. Is it possible to juxtapose these claims without recalling in detail why these different views have come to such opposite analyses? Which particular problems, which answerless questions lead them to invert the fundamental hypotheses of their predecessors?

Does everyone have to make his or her own choice, blindfolded so to speak? If the author withdraws from weighing the differences between scientific positions, comparing their respective worth,

Geneviève Teil is head of research at the National Institute for Agronomic Research, INRA PRAGMA, 16 rue Claude Bernard, 75005, Paris, France; Email: genevieve.teil@agroparistech.fr.