Minerva (2011) 49:349–354
DOI 10.1007/s11024-011-9179-x

BOOK REVIEW

Mark B. Brown, *Science in Democracy. Expertise, Institutions, and Representation*

MIT Press, Cambridge, MA., and London, 2009

Robert Hoppe

Published online: 9 August 2011

In January 2011, German science policy advisers at federal level, the 2008 appointed German National Academy of Sciences Leopoldina, produced a cautious but positive review of pre-implantation genetic screening (http://www.leopoldina.org/en/policy-advice/recommendations-and-statements/national-recommendations/praeimplantationsdiagnostik-pid.html - accessed 21 April, 2011). Immediately, the advice was attacked as an example of politics-contaminated, instead of value-free science. But simultaneously, many seasoned science policy advisers came to the rescue and defended an advice that clearly spoke to the present political debate; and thus also addressed normative and pragmatic issues. The response to keep science 'value-free' is the typical tradition of science politics under high modernity in a political system of representative democracy. Scientific experts are seen as 'delegates' of citizens' best judgment on the issue; and the delegation occurs under public accountability of elected legislative bodies or an executive accountable to such bodies. But at present, democratization of expertise, public engagement or direct public participation in science is the more popular and dominant response. This is partly rooted in social and political theories arguing a shift from government to governance. If the state is unable to represent all public concerns and questions involving the uses of science and technology of a fragmented and inchoate 'protopublic' (Dewey), more directly participatory and deliberative routes for (individual) citizen influence become attractive. Therefore, an unlikely alliance of egalitarian STS scholars, radical analysts of science, democratic theorists, and promoters of science-driven industrial innovation and some state bureaucrats have come to effectively promote more public engagement and participation in science (Caswill 2010; Wesselink and Hoppe 2011). In a sentence: science is to become more democratic, and democracy more scientific (In 't Veld 2010).

R. Hoppe (✉)
University of Twente, Enschede, The Netherlands
e-mail: r.hoppe@utwente.nl

In *Science in Democracy* Brown takes a broad and hard look at the relationship between politics and science in democratic theory and, to a lesser extent, practice. Contrary to the dominant participatory frame, he scrutinizes this relationship through the lens of 'representation' as a conceptual walking bridge between politics and science: "Representative democracy is not merely an expedient for coping with the size and complexity of modern states. …Just as scientific representations of nature are mediated by several social practices and laboratory instruments, political representation involves more than a simple transmission or 'making present' of constituent ideas, interests and identities" (xi-xii).

Science in Democracy purports to demonstrate the shortcomings of both "common responses to the politicization of science – expelling politics from science; advocating the democratization of expertise and public engagement – as relying both on mistaken 'correspondence views of representation', namely, for the technocrats (scientists, rh): the impossibility of science as "mirror of nature", and for the moralists (politicians and policymakers, rh) the impossibility of participatory or deliberative politics as "mirror of the people's will/interest or common sense" (17-18). Brown sets out to develop "an alternative account of both scientific and political representation as practices of mediation that transform what they represent" (viii). Key statement here is that *representation requires work*, and this always involves uncertainty and transformation of the represented. (R)epresentation shapes both the represented and the representer: scientists transform non-human entities through laboratory work in reliable information or facts; politicians transform the many different, enraged or stifled voices of their constituents into a single voice (177-8).

Brown's concentration on 'representation' is an important and welcome contribution as not many STS and political science scholars pay sufficient attention to the political institutional landscape of representative democracy when discussing citizen participation and/in the science/politic nexus (cf. Hoppe 2010a, b; Caswill 2010); post-normal science being one good illustration of the tendency (Wesselink and Hoppe 2011). However, rather than presenting a clear-cut theory, Brown offers a series of preliminary conceptual meditations, 'prolegomena', of the science-democracy nexus. This results from Brown's inspiration by and, in a way, even 'imitation' of Hanna Pitkin's (1967) classical political science treatise on 'representation'. She analyzed concepts of representation as used by political thinkers like Hobbes, Burke, Mill and Bentham; and tried to connect them to more everyday political usage in the 20th century. Brown's basic idea is to compare Pitkin's findings on political representation with traditional thinking on scientific 'representation'. After all, both politics and science deal with representations – one of 'people', the other of 'nature'. So, Brown basically re-reads and interprets classical political philosophers and modern democratic theory through an STS-lens. Using STS-theory, he shows how particular ideas and key notions about representation in science also lie 'hidden' in classical and modern political thought.

Only in the final three chapters, on how science becomes political, elements of democratic representation and institutionalizing democratic representation in science politics, Brown comes on his own as theoretician of political democracy and the sociology of science, technology and society (STS). In essence, Brown

builds a new facet-design like theory, inspired by Hanna Pitkin's five dimensions of representation:

- as authorization, procedurally of office holders, substantively as experts;
- as accountability, as *ex post* counterpart to authorization;
- as participation, as venue of active engagement between citizens and representatives;
- as deliberation, as fitting the cognitive side of democracy and knowledge-based, speech-based, decentered forums and debates on 'good governance';
- as resemblance, or a certain kind of (statistical) likeness or similarity between constituents and their representatives.

The distribution of these five dimensions of representation over institutions and venues in an entire political regime constitutes the 'level of representative democracy' of that regime; and so also determines how science is represented in the political arena. All this Brown argues on a very conceptual level, with sparse, but well-chosen real-life examples; so his theory remains rather much a formal framework to be filled in with empirical detail (and thereby tested on validity and usefulness) only later.

Limitations of space preclude an exhaustive treatment of Brown's theory of science-democracy relationships. Here only two salient aspects are mentioned. Brown sees three possibilities of how societies may respond to the politics of science:

- *displacement*: e.g. liberals displace the politics of science and technology frequently to market mechanisms – e.g. public-private partnerships in genomics and life sciences (Bijker et al. 2009). Unfortunately, Brown hardly treats this issue any further in his book. If he had, he might have been more able to forcefully speak to the tribe of STI scholars and analysts as preachers of the innovation gospel; and, at the same time, to speak more positively about the political necessity of hybrid forum to correct for the overflows/ externalities of a basically contractual society (Callon et al. 2009).
- *suppression*: avoid or stifle dissemination of scientific knowledge to a wider audience when it conflicts with a group's interests or strong convictions (e.g. evolution theory, gender relations in Islam, or causal connections between smoking and cancer)
- *institutionalization*: this is what Brown (following Machiavelli, Dewey and Latour) advocates in this book.

Before discussing the how and what of institutionalization, Brown professes his belief in representative democracy as the best form of democracy (193). Following Pitkin's lead, instead of arguing that deliberative and participatory forms of democracy may (or ought to) complement representative democracy, he chooses to 'stretch' the concept of 'representation' to include practices and procedures of democracy that other authors would classify as 'participatory' or 'deliberative'. From this position, Brown warns that, by treating politicians and politics as just on other "stakeholder" and "interest" among many, STS-scholars overstress the symmetry principle; thereby unnecessarily and un-empirically(!) flattening the

institutional landscape and neglecting or denying the fact that politics and policy have a distinctive role in shaping science and technology.

1. science and politics have different centers of institutional gravity: science is an institutional space where mistakes are tolerated; politicians are held much more accountable for their mistakes (193-4);
2. science and politics have different 'timescapes': science is slow and technology builds on the past; politics has to take into account present needs and desires of constituents (194) and is under constant pressure to decide (195);
3. in spite of much talk about non-state politics and network governance and issue- or technology-based (Feenberg, xxx) rather the territorial constituencies, the state (having resources available like the legitimate use of force, taxation, legislation) remains the center of institutional gravity for equal power, equal human rights and intergovernmental (EU) and global governance regimes (like IMF, WTO, WHO, IFCC, CITES, etc.) (195-6).
4. politics generates an institutional and legal context for science; a political framework for science – and not *vice versa*.

Concluding and summarizing, Brown argues that instead of hiding between science or politics, and thereby 'politicizing' science or 'scientizing/depoliticizing politics', *a better response is to embed scientific representation in a framework of political representation*. (259) In order to realize this, the five dimensions of representation require different types of institutions (parliaments, bureaucracies, deliberative – hybrid – forums, interest groups, etc.) to facilitate them. "The degree to which citizens enjoy democratic representation…should be judged with respect to the ecology of institutions to which they have access, rather than with respect to any single institution. …" (237). "Not all institutions need to represent their constituents in the same way, … What is important is that citizens in a representative democracy have access to diverse modes of representation, such that their respective attributes (= authorization, accountability, participation, deliberation and resemblance) balance each other out" (255). E.g., deliberative forums (consensus conferences, citizen juries) are strong in resemblance; but they are weak in authorization and accountability; elected representatives are strong in exactly these two dimensions; interest groups are strong in non-deliberative mobilization and participation but weak in reflection.

Finally, a word on the strengths and weaknesses of Brown's book. No doubt, bringing STS and political philosophy together is its greatest strength. Doing so by using the concept of 'representation' as a walking bridge is innovative and politically relevant for STS-scholars who have too uncritically embraced models of participatory democracy and civic engagement as remedy for expertocratic science and STI policy. For political scientists, looking at politics through an STS-lens has the benefit of bringing into sharp focus the problem of representing 'protopublics' (Dewey) or 'reassembling the social' (Latour) under modern conditions. In addition, STS may teach political scientists to no longer view scientific inputs in politics and policymaking as a sort of '*deus ex machina*', but as the outcome of empirically researchable civic epistemologies. The concept of 'civic epistemology' is potentially much richer than standard political and policy science views of the

science-politics nexus encapsulated in conceptual frameworks of evidence-based policy, knowledge utilization and information asymmetries in rational choice theories.

This said, it is a pity that Brown limits himself to political philosophy and conceptual work in STS. In this way, he overlooks modern empirical work in political science on citizenship and modern forms of political participation (Bang 2003; Dalton 2008). Regarding advisory bodies and the elite-initiated character of many participatory and civic engagement exercises, he misses opportunities to empirically flesh out their embeddedness in bureaucratic politics and public policymaking processes (Hoppe 2010a, b) and their typical ways of knowledge utilization or boundary work arrangements and configurations (Weiss 1999; Nutley et al. 2007; Halffman 2003; Hoppe 2005). Most importantly, the idea to apply all dimensions of representation to all the venues of a political system to determine its 'representative quality' for citizens sounds wonderful, but leaves the empirical researcher empty-handed. It would be nice if Brown wrote another book in which he systematically maps what research and conceptual work still needs to be done for building a more complete, empirically grounded theory of science-politics interaction in systems of representative democracy and capitalist economies.

References

Bang, H.P. 2003. *Who will represent reflexive individuals?* Paper presented to the workshop Political Representation. University of Edinburgh: ECPR.

Bijker, Wiebe, F. Brom, Robert Hoppe, A. Nelis, A. Schipaanboord, and E. Terpstra (2009). Social Aspects, in C. Laane and K. Westerman (eds.), *Partners in the Polder. A vision for the life sciences in the Netherlands and the role of public-private partnerships*, Ecodrukkers, Nieuwkoop, 244–261 (ISBN 9789080735774).

Callon, Michel, Pierre Lascoumes, and Yannick Barthe. 2009. *Acting in an uncertain world. An essay on technical democracy*. Cambridge, MA.: MIT Press.

Caswill, C., 2010. Democratic participation in science governance: delegation and representation on rough ground, Paper presented at a Jean Monet seminar in the Department of Politics at the University of Exeter, December 8, 2010.

Dalton, R.J. 2008. *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies*, 5th ed. Washington, D.C.: CQ Press.

Halffman, Willem. 2003. *Boundaries of regulatory science*. Amsterdam: University of Amsterdam. (diss.).

Hoppe, Robert. 2005. Rethinking the science-policy nexus: from knowledge utilization and science technology studies to types of boundary arrangements. *Poiesis and Praxis: International Journal of Technology Assessment and Ethics of Science* 3(3): 199–215.

Hoppe, Robert. 2010a. *The Governance of Problems. Puzzling, Powering, and Participation*. Bristol: Policy Press.

Hoppe, Robert. 2010b. Institutional constraints and practical problems in deliberative and participatory policy making, in *Policy & Politics*, on-line. doi:10.1332/030557310X519650, 19 August 2010.

In 't Veld, Roeland. 2010. *Knowledge Democracy. Consequences for Science, Politics and Media*. Heidelberg: Springer.

Nutley, Sandra M., Isabel Walter, and Huw Davies. 2007. *Using evidence: How research can inform public services*. Bristol: The Policy Press.

Pitkin, Hanna. 1967. *The Concept of Representation*. Berkeley: University of California Press.
Weiss, C.H., 1999. The Interface between Evaluation and Public Policy. *Evaluation* 5(4): 468–486.
Wesselink, Anne, and Robert Hoppe. 2011. If Post-normal Science is the Solution, What Is the Problem? *Science*. *Technology and Human Values* 36(3): 389–412.

Author Biography

Robert Hoppe is professor of Policy Studies and Knowledge of Twente University's Faculty of Management and Governance after previous affiliations with the Radboud University, Nijmegen, the Free University, Amsterdam, the University of Amsterdam, and Rutgers University, Newark, since 1997. In September 2005, he joined and helped create the Department for Science, Technology, and Policy Studies (STePS). Fields of research interest are long term **policy dynamics** and innovation, esp. the **role of technology**; methodological and institutional implications of **deliberative policy analysis**; and the **governance of expertise**. His most recent publications are *The Governance of Problems. Puzzling, Powering, and Participation,* Policy Press, Bristol, 2010; and (with Hal K. Colebatch, and Mirko Noordegraaf, eds.), 2010, *Working for Policy*, Chicago University Press and Amsterdam University Press, Chicago/Amsterdam.