

Book reviews

Sheila Jasanoff:

**Designs on Nature: Science and Democracy in Europe and the United States
Princeton University Press: Princeton N.J. 2005. 374 pages.**

The transatlantic rift that is often cited in the governance of biotechnology is, upon a closer look, transnational as well. The cultural and democratic contexts of individual nations seem to shape their political treatment of biotechnology to a much greater extent than do mere technical or safety questions. Analyzing the recent history of biotechnology, Sheila Jasanoff presents in *Designs on Nature* a comparative analysis of biotechnology governance that considers science and politics as closely linked, interacting fields. By comparing Germany, the United Kingdom, the United States, and, at a supranational level, the European Union, she demonstrates how intensively connected the politics of science and technology are to democratic cultures. In addition, she illustrates the ways and to what extent policies concerning the life sciences have become involved in national identity-building processes. By interlinking political culture and contemporary democratic politics, Jasanoff contributes to a deeper understanding of the national logics of regulating the life sciences.

Starting with Germany and its politics of embryonic stem cell research, Jasanoff observes a profound connection with national identity-building processes. The legacy of Nazi eugenics practiced

during the Holocaust has shaped the national governance of biotechnology as much as have discussions about the freedom to conduct genetic research. Also in the United Kingdom, questions of national identity are closely interconnected with the governance of biotechnology. Against a background of modernizing and democratizing institutions in the post-Thatcher era, uncertainty about not only the significance of scientific risk assessment, but also the social, ethical, legal, environmental, and economic benefits of agricultural biotechnology has led to controversy.

In the European Union (EU) too, questions of political identity and institutional legitimacy became closely connected to questions related to biotechnology policy. Both the handling of diversity under the enlargement of its borders and competition challenges from the United States played a particularly important role in EU politics. In the United States, finally, deregulation and the nations' leading role in research and development led to a conjunction of resistance to biotechnology and America's imperial power.

The value of Jasanoff's analysis of the politics of biotechnology is not in its novelty. It provides little new historical material, and rarely engages previously

unconsidered political aspects of biotechnology. Some aspects even remain unmentioned. For instance, the author fails to note that both the development and use of the atomic bomb, and the anti-Vietnam War movement, played an important role in the early recombinant DNA controversies in the United States. What makes the book worthwhile reading is, instead, its diverse, comparative, and analytical viewpoint, elaborately and deeply embedded in an STS context.

A key aspect of *Designs on Nature* is the ramification of the national governance cultures of biotechnology. Jasanoff employs her previously defined concepts of product-, process-, and program-oriented regulation. In the United States, the product-oriented approach offered the opportunity for similar products – regardless of manufacturing process or technology – to be treated similarly. This approach also allowed reliance on existing legislation and regulatory agencies to ensure that products introduced into the environment were safe. The system chosen in the United States also stresses the primacy of “science-based” decision-making, in which scientific advisors rather than other social actors are involved in the risk assessment process. The United Kingdom also started with a voluntary system for research, based on the Asilomar guidelines. However, already in 1974 Britain moved to a regulation-based system with a process-oriented approach. This means that in regulating GMOs, the focus was on the production process rather than on the notion of substance equivalence. Furthermore, decision-making processes in Britain were mainly based on judgments of boards of experts consisting of a range of social stake-

holders, not just scientists.

Germany took a similar approach, but it was applied in a different political and cultural environment. Jasanoff identifies risk-based bureaucratic procedures and public consultations as being the core instruments in German decision-making processes, for which she uses the term program-orientation. However, this classification and its demarcation from the process-orientation approach, which was central in Germany as well, remain rather unclear.

Another important theme of Jasanoff’s work is the impact of bioethics on regulatory processes. Analyzing the role of bioethics as a discourse for policy-making, she claims that agendas of politics shaped the use of bioethics more than the reverse. Furthermore, she argues that the concordance of bioethics’ missions and limits in the three countries are more prominently visible than its national characteristics. Referring to the cloning and stem cell debates, she illustrates how bioethics often functions as a consequentialist discourse. Mainly reacting to novelties put forward in the first instance through science and technology, bioethics seems to suffer from a lack of deliberative reflections.

The relationship between science, the public, and decision-making is yet another important aspect of this book. Judging public perception as an integral element of political culture in contemporary knowledge societies, Jasanoff critically analyzes and challenges the normative concept of “public understanding of science” (PUS). She particularly criticizes the underlying assumptions of the survey-based PUS activities that acceptance is a knowledge problem. According to Jasanoff, the PUS approach

is doomed to fail in its objective to create a scientifically enlightened public, the reason being a lack of proper understanding of the social and cultural embeddedness of science and technology. In order to provide a richer analytic frame, Jasanoff applies the concept of “civic epistemologies”, which refers to culturally specific, historically and politically grounded, public knowledge-ways.

Designs on Nature provides in-depth insights not only for STS scholars, but for scientists and policy makers as well. Social scientists will benefit from excellent comparative studies with disciplinary embedding in STS, while natural scientists and policy makers will profit from a compelling introduction to the politics of science and technology and their contexts. Neither explicating phenomena

nor presenting a model for best practice in scientific governance, the book’s core quality lies in a rich elaboration of the complex issues around the politics of science and technology and its interaction with cultural contexts. Jasanoff’s particular ability to establish comprehensive ties and link multiple levels and sites of science, technology, politics, and culture using strong argumentation might elevate *Designs on Nature* to a classic.

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Lynn E. Foster:
Nanotechnology: Science, Innovation and Opportunity.
Prentice Hall: Upper Saddle River, NJ, USA, 2005. 283 pages.

Any book with the word “nanotechnology” in the title is likely to attract attention in 2006. Interest in nanotechnology has been growing since the word became common among physicists in the 1970s. The initial interest in nanotechnology was centred on the belief that it would be possible to produce technology on a smaller scale than ever seen before and the early literature on

the subject is almost entirely devoted to guessing future applications of the technology. The availability of affordable instruments and advanced microscopes during the 1980s allowed scientists and engineers to see, feel and actually manipulate matter at the nanoscale. Present day interest appears to be less preoccupied with the size of the technology and more interested in the poten-