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Review of S. Jasanoff (2005) Designs on Nature. Science and Democracy in Europe and the United States. Princeton University Press. ISBN: 0-691-11811-6

The last decades of the twentieth century have witnessed quite a number of debates about developments in biotechnology. Controversies have been raised over issues as diverse as the acceptability of research on human stem cells, procedures to produce so-called designer babies and the safety and desirability of genetically modified crops and their use in food products. Even though controversies about similar issues have arisen in different countries, they have been remarkably different, and resulted in a variety of policy outcomes in each of these countries as well. In her book *Designs on Nature. Science and Democracy in Europe and the United States* Sheila Jasanoff, professor of Science and Technology Studies (STS) at Harvard University and long-standing expert on the relation between science and policy, delves into the question why these differences occur. Her specific interest in this book is how science and democracy relate and how this relation can produce such different outcomes in each of the countries she studies. She claims that a revaluation of the concept of "political culture" can help her in this respect.

Her analysis spreads across two comparative axes. First, it contains a comparison between three countries that are sufficiently similar yet different. These are three industrialized western democracies, each with their own specific characteristics; the U.S., Britain and Germany (discussing the role of the European Union as well). Second, the comparison also covers most of the broad areas a topic such as 'biotechnology' covers. Biotechnology is politically interesting because both great promises and threats are perceived in it, both fighting for a place in the spotlight. Apart from that, biotechnology covers a vast amount of fields, both in terms of scientific disciplines and of political domains. Thus Jasanoff's chapters include case studies ranging from discussions and policies concerning GM food and assisted reproduction to patenting of biotechnological innovations and the rise of professional bioethics as a tool in policy making.

In order to track down the "political culture" in these debates, and to enable "a kind of story-telling that does justice to the ambiguity of […] experiences, and to their richness (p. 11)" Jasanoff is looking for, the approach chosen to compare the three countries is based on a conceptual language reflecting Jasanoff's background in STS. The aspects of the debates she thus specifically focuses on are they way in which issues are framed in order to present them as *political* issues (or not), the way boundaries are formed between what counts as science, politics or other domains, the discourses and reasoning presented by relevant institutions and the roles and identities of relevant actors. This approach allows the author to understand (the meaning of the term here is based on Max Weber's concept of *verstehen*) the differences between the approaches these countries take to biotechnological developments, without trying to explain them in reductionist terms referring to an essence of each of these countries.

For example, Jasanoff most clearly analyses the way biotechnology is framed in the first of the empirical chapters, showing how court cases in the U.S. used existing patent law and were mostly concerned with the products resulting from biotechnology, rather than the process from which these products resulted. In Britain, on the other hand, partially because of the BSE crisis attention was much more directed towards the process, and in Germany biotechnology was understood in terms of a program in which the state played a significant role. The BSE crisis again played a role in the debate on GM foods in the UK, yet this debate was also influenced by a statement of the Prince Charles asking ten important questions on GM food, which was followed by a broader involvement of the British public in a large debate named GM Nation. In the U.S. GM Foods were judged to be safe by scientists and allowed onto the market. Protests after problems with GM food occurred were framed in a similar way; safety, health and the good life based on the consumption of organic food. Germany, finally, had no public debate and GM food was controlled through both European and national rules and regulations. In the end, Jasanoff argues, the debates about GM food were not only about safe foods, but as well about the question whether citizens should have the right to intervene in technological development.

A third example of the elaborate case studies figuring in the book is the way these countries deal with developments in technologically assisted human reproduction and embryo research. In this field several new natural entities occurred and were accepted through different routes. In Britain a distinction was made between an embryo and what was called a pre-embryo, meaning an embryo in its first fourteen days of gestation. Until the fourteenth

day, it was argued, the cells would not yet have specific functions, and therefore up until that moment an embryo could be seen simply as a clod of matter. This solution was then given authority in a scientific, political and religious sense by invoking support from authoritative figures in the House of Lords who spoke out in favour of the embryology act based on the idea of a pre-embryo. Likewise, the debate in Germany resulted in a ban on embryo research, with an important role for another entity, the supernumerary embryo. These would be embryos that were left after IVF, which were considered to need protection from ending up in a grey zone where protection of human life could be under pressure. In the U.S. there is no federal legislation on assisted reproduction and disputes concerning it were thus regulated through court decisions. Social considerations could be presented as natural ones, as can be seen in the *Johnson v. Calvert* case. In this case two couples claimed parenthood over a child. One of the couples were the genetic parents of the child, whereas the woman of the other couple was a surrogate mother, thus carrying the child to term. In the end the judges decided that one couple's wish to have a child of their own genes presented their urge to procreate, and therefore they were the 'natural' parents. Another aspect of this case, however, Jasanoff points out, is that this outcome does not only define what is natural motherhood, but aligns this with the fact that genetic parents tend to be higher on the social ladder than surrogate mothers. What is seen as natural is thus linked to socio-economic status.

In the debates on assisted reproduction there are four main actors (the state, science, women and the unborn child), but non of them are considered to be equally important in each of these countries. In Britain, science, the unborn and the state influence the debate, which is explicitly not about women's rights. In Germany, the state, the unborn and women are included and the freedom of scientific enquiry is left out. In the U.S. the debate was mainly between women and the state, with pro-life activist groups trying to include the rights of the unborn. Jasanoff elaborates these four 'corners' in three figures (p. 169, partially these are based on debates about abortion included in the same chapter). These, then, are representations of how political culture works, how preceding debates, the role of actors in these debates, their discourses and framing all influence current debates about biotechnology, and the role of science in these debates. This role of science in public debates, which is Jasanoff's main theoretical interest, should therefore not be analysed in terms of traditional ideas about the public understanding of science, focusing on how much 'good' science the public knows. Rather, science's role in public debates is very much shaped and pushed in a

certain direction through what Jasanoff calls *civic epistemologies*. These are a conceptual tool pointing out that scientific knowledge and the way it is presented will have to adhere to its social context; civic epistemology is a "public way of knowing". Science in public debates thus is just as much a social affair as the other aspects of such a debate.

This claim is an important one in understanding the role of science in present day policy-making. If science is understood in this way it cannot be the panacea for public controversies it is sometimes considered to be. Scientific claims are claims like any others, heavily depending on their ability to perform a credible role in the specific staging of a debate. But the idea of civic epistemology does not only provide a better understanding of science's role in public debates, when understood in a broader sense it can have great value for comparative studies as well. The concept of civic epistemology describes how culture, when not understood in static terms, is more than just context. Different elements of a culture interact in a given situation, and shape – yet never determine – the outcomes of a debate. The concept provides a useful alternative for comparisons based on certain markers, or in terms of styles, regimes or pathways through its ability to account for how a culture can influence new developments, without losing sights of some of its contrastive ironies. Especially the attention for these ironies makes *Designs on Nature* an entertaining just as much as an informative read.