

Nations at Ease with Radical Knowledge: On Consensus, Consensusing and False Consensusness

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Abstract: In response to the recent troubled history of risk-related technological development in Europe, one institutional reaction has been to advocate public deliberation as a means of achieving broad societal consensus over socio-scientific futures. We focus on 'consensusing' and the expectation of consensus, and consider both their roots and their performative consequences. We argue that consensus should be seen not simply as the absence of disagreement but as a particular political and ideological formation. We consider and explore the Danish model based on the *folkelig* concept of the common good, before turning to the wider European movement towards consensus-building. As presented here, consensusing becomes a focus for political contestation but also for nation- and institution-building. Rather than evaluating deliberation solely in terms of its short-term instrumental effects, consensusing should also be understood as performative of national and inter-national identity.

Keywords: Governance of science and technology, Consensus, Consensus conferences, Grundtvig, Public engagement and deliberation

In 2004, two of the UK's leading scientific institutions, the Royal Society (RS) and the Royal Academy of Engineering (RAE), jointly published a report on the development and future use of nanoscience and nanotechnologies. In keeping with the 'new' mode of scientific governance (Irwin, 2006), authorship of the report extended beyond technical and industrial experts so as to incorporate an environmentalist, a social scientist and a consumer champion. The report itself stressed the need for 'stakeholder and public dialogue' and highlighted the 'key requirements that any dialogue process ... must meet and which we recommend' (RS/RAE, 2004: 65). Many of these requirements are very familiar within discussions of European scientific governance: the necessity for early dialogue and engagement, a call for clarity about debate objectives, commitment that the outcomes will be taken seriously, integration with other processes of technology development, and proper resourcing. The report specifically argued that 'the upstream nature of most nanotechnologies means that there is an opportunity to generate a

constructive and proactive debate about the future of the technology now, before deeply entrenched or polarized positions appear' (RS/RAE, 2004: 67).

At the core of this paper is an analytical and empirical focus on the assumption that dialogue will in some way minimize social division and controversy. This assumption can be identified within various policy initiatives dealing with nanotechnology (US Congress, 2003; Kearnes et al. 2006; Wilsdon & Willis, 2004) but also topics such as stem cell research (Bhattachary, 2008; see also Horst, 2008), genetically modified foods (AEBC, 2003) civil nuclear power (NWMO, 2009) and synthetic biology (Balmer & Martin, 2008). More specifically, this British nano report illustrates how the widespread enthusiasm for deliberation and public dialogue is closely coupled to an expectation that consensus – or something similar – about the future development of science and technology will follow. The EU-funded STAGE network researching scientific governance in Europe identified this instrumental expectation within many contemporary policy-statements (Hagendijk et al. 2005; Hagendijk & Irwin, 2006; Horst et al. 2007). STAGE research also illustrated how the 'deliberation leading to consensus' formulation is usually built upon an awareness of public scepticism or unease with specific areas of scientific and/or technological development. This public reaction is presented as a negative characteristic – as a problem, a potential resistance, a barrier or an impediment. Public deliberation and engagement are then advocated as a way of changing (or fixing) this perceived scepticism. Inspired by criticism of the deficit-model and more positive notions of 'upstream engagement', deliberation and public involvement have thus come to be defined within Western Europe in particular as a (possibly *the*) solution to anticipated controversy and divisiveness.

Just as Marx famously devoted many more words to the self-destructive character of capitalism than to the nature of communism, policy documents about public engagement in the governance of science and technology typically say little (and certainly nothing in detail) about their preferred socio-scientific vision of the future. Rather, they characteristically provide a negative definition – that is, a description of what they wish to avoid (often by explicit or implicit reference to what has gone before: animal rights activism, societal reactions to GM foods, anti-nuclear protests). They advocate public deliberation and engagement as a tool for avoiding or fixing controversies, but do not describe how this mechanism is supposed to work or define the consensual social climate which is supposed to be the outcome of deliberation. Tony Blair may have been precise when, in a speech to the Royal Society in 2002, he stated that the intention was 'to be a nation at ease with radical knowledge' (Blair, 2002). For Blair, this would involve a 'pragmatic, evidence-based approach to new opportunities' sharply contrasted with 'a path of timidity in the face of the unknown'. In a wider sense, 'ease' might be presented, variously, as an absence of conflict, an acceptance that there is little point in resistance, a general subscription to the ways things are going, or even a full-blown national agreement about a current issue. In this paper, however, we are less interested in pinning down consensus as a concept – or in either proclaiming or condemning it – than in exploring it as a phenomenon in itself and a source of performativity (Law & Urry, 2004). In order to

capture this sense of process and construction, we will refer to the goal of ‘being at ease’ as operating in the realm of consensus-thinking, which we present as one element within the wider phenomenon of ‘consensusing’ - the active process of seeking and expecting societal consensus.

On this basis, we aim to question contemporary ‘consensusing’ with regard to scientific and technologically-related futures – but not necessarily to reject it. We are more interested in asking: what does ‘consensusing’ do? Where does it lead us – in practical as well as theoretical terms? By considering it as a specific ideological formation, we aim to explore both the contemporary appeal of consensusing with regard to science and technology and also its special relationship to deliberation and engagement. As part of this discussion, we shall argue that engagement exercises should not be judged solely in terms of their policy impact, nor in terms of whether they change the immediate agenda or construct new areas of agreement. Instead, we are interested in exploring the wider performative character of such forms of talk and action: what they bring into being and how they are productive (but also reflective) of social and institutional arrangements.

In order to explore both the performativity of consensus and the roots of consensusing, we will consider Denmark as an often-proclaimed (indeed paradigmatic) case of this mode of thought and action. Certainly, Denmark – and especially its development of ‘consensus conferences’ – features prominently (and positively) in the Science and Technology Studies (STS) literature on deliberation and engagement. The point of the upcoming Danish excursion, however, is not (as is usually the case) to present an inspirational ideal-type. Instead, we will consider consensusing in its socio-political context and the close historical relationship between consensus-seeking and nation-building. We will also present consensusing as involving substantially more than the absence of antagonism. In the latter sections of this paper, we consider some of the wider consequences of our analysis. Our intention here is not to document, or provide concrete evidence for, the wider impacts and implications of the Danish model. Nor are we interested in developing a ‘Denmark conquers the world’ scenario. Instead, we have the more modest aim of exploring some examples of consensusing at a wider European level and considering the questions this raises for democratic debate within scientific governance.

A Brief Introduction to Consensusing

It is impossible in this paper to do justice to the rich academic history of consensus and consensus-thinking, but we can sketch a few positions that constitute a general conceptual landscape. In the following, we will pay special attention to the implications for STS scholarship. It must nevertheless be acknowledged that the dominant academic approach to consensusing has developed in political philosophy around the idea that it is possible to elicit or identify a general set of norms or values to which a given community will unanimously subscribe. As a prominent example, Jürgen Habermas’s notion of

communicative action rests upon the ideal that if all participants in a speech situation act according to a communicative rationality, then the better argument will be able to provide robust solutions to common problems (Habermas, 1991, 1984). Habermas, however, should not be seen in intellectual isolation, as his work represents one strand within wider discussions of reinvigorating democracy through deliberative engagement (see notably Rawls, 1993; Elster, 1998; and Dryzek, 2006).

The notion that consensual solutions can be achieved through dialogue has been highly influential in debates about the need for deliberative procedures within the governance of science and technology (see, for example, Joss & Durant, 1995; Einsiedel et al, 2001; Fischer, 1999; Joss, 2002). However, the merits of such an ideal in the face of complex and controversial topics have also been discussed extensively. As Holt argues in a stimulating reflection on risk management, the solutions are heavily dependent on the perception of the problem:

Culturally, tame problems enjoy consensus: everybody pretty well agrees why something needs to be done and the right way to go about doing it. There are countless examples of tame problems, and solving them has been the great forte of science for several hundred years. Owing in large part to such successes, they remain the ideal for many social scientists as well as for managers and administrators. (Holt, 2004: 258)

In Holt's terminology, the general difficulty for consensus-building arises when problems which initially appear 'tame' to those seeking to manage risks become messes, wicked problems or even wicked messes – and when 'linear, self-referential dialogue' must give way to a sense that both the epistemology and ontology of a problem are variable. Thus, it might be possible to build a consensus around GM foods if the problem were well-defined (perhaps as a matter of establishing an acceptable level of risk), the analytical methods agreed (environmental risk assessment), the solutions clear (tight regulation, control and oversight) and all stakeholders shared a single perspective (based for example on unproblematic scientific evidence). But what if there are multiple problem definitions, the methods are open to contention and the solutions are variable and disputed? What if there are 'unknown unknowns' that suggest 'chronic conditions of *ignorance* and *lack of capacity to imagine* future eventualities ("scientific" or "social") that may arise from a given technology' (Grove-White, 2001: 471)?

This is not necessarily a critique of the notion of a communicative rationality. But it does emphasise that it is difficult (or even impossible) to establish in practice the precise conditions of consensusing as specified in normative political philosophy (see also Bora & Hausendorf, 2006; Lezaun & Soneryd, 2007). Despite these problems, we can identify in Habermasian political philosophy a type of consensus-thinking which aims to build on the pervasive power of the 'better argument'. This way of thinking has certainly been highly influential in the propagation of deliberation and engagement found in certain policy-

oriented parts of the STS literature (Sclove, 1995; Fischer, 2000, Durant, 1999; Joss & Brownlea, 1999). STS studies have often encouraged the idea that deliberation will lead to policy decisions that are both better and more widely accepted in society. In this, some STS scholars seem to be reflecting the classic enlightenment notion that, if only we could think things through openly, properly and thoroughly, then a rational solution will be found. Meanwhile, other strands within STS thinking offer a perhaps more sophisticated perspective on notions of consensus: 'the idea that consensus is central to participatory exercises – as expressed in consensus conferences – should be rejected. Indeed, we should ask why consensus should be a better input for policy making than identifying the central areas where authentic disagreement, or even dislocation remain' (Felt & Wynne, 2007: 61).

In reaction to the politico-philosophical ideal of consensus, but also to the widespread use of consensus talk in government reports and statements, Chantal Mouffe (1993, 2000) has adopted a critical perspective on the nature of dialogue, challenging notions of deliberative democracy and related attempts to negate what she presents as the inherently conflictual nature of democratic politics. Sceptical of moves to establish a 'consensus of the centre' which counterposes itself to the 'forces of conservatism' (a contrast which is closely paralleled by Blair's presentation of a 'nation at ease with radical knowledge' under challenge from anti-science), Mouffe calls instead for an 'agonistic pluralism' which acknowledges the unavailability of antagonism and the unattainability of conflict resolution.

In a related line of argument, Brian Wynne, one of the social scientists most often associated with the idea of upstream engagement, has criticized the 'otherwise admirable' nanotechnologies report discussed briefly above in order to argue that the nature of the move upstream has 'frequently been misunderstood'. Thus, the RS/RAE (2004) report 'describes the potential role of upstream engagement in anticipating sensitive issues, despite our emphasis that upstream forms of public engagement are emphatically not about earlier *prediction* (and subsequent management) of impacts' (Wynne, 2006: 73). For Wynne, upstream engagement is less an instrumental method of avoiding subsequent conflict than a means of problematising and challenging what he terms 'unacknowledged social and cultural dimensions of scientific knowledge' (p. 72).

Both Mouffe and Wynne, therefore, point to what they see as the inherent dangers of consensusing leading to the development of reductionist and instrumentally-oriented frameworks. Rather than 'opening-up' (Stirling, 1999) the more complex and multi-layered character of public and institutional meanings, identities and understandings, consensusing can lead to the creation of uni-dimensional or 'false' consensus. We could describe this (with apologies to Marx) as the creation of '*false consensusness*', or, to be more consistent, forms of consensusing which are inauthentic or overtly ideological in character. While Mouffe appears to suggest that all consensusing in the current social structure leads to a false consensus, an alternative, generally implicit, position within STS

points to specific forms of false consensus but holds open the possibility of ‘true’ consensus — if only the stakeholders are properly engaged, the experts appropriately reflexive, the policy makers sufficiently open to alternative value frameworks, and the like.

Other traditions within STS suggest alternative approaches to consensus formation. One of the most important of these develops upon the study of boundary work, which is not primarily focused on consensus as such, but on the mediation, negotiation and management of boundaries or entities (Gieryn, 1995; Kelly 2003). In this vein, Habermasian ideals and accusations of false consensusing are replaced with the more neutral and empirically-oriented language of ‘closure’. Closure represents a point of stabilisation in the political process where, typically, certain arguments and forms of evidence are ruled ‘in’ and others ‘out’. Often, as demonstrated in the work of Sheila Jasanoff (2005), what gets defined ‘out’ are wider social and ethical commentaries, while a narrower form of technical expertise gets defined ‘in’. In this way, the definition of good science can also represent the dividing line between legitimate and illegitimate claims. Closure designates a situation in which there is no explicit challenging of policy goals and instruments. Oppositional groups are ‘at ease’ in the very particular sense that their arguments and concerns can no longer gain traction within the public sphere, even if this also leads to the kinds of criticisms and accusations which are so characteristic of engagement exercises.

The concept of boundary work is a stimulus to empirical exploration and as such represents an important move away from the normative debate sparked by the idea of deliberative democracy. Our approach in this paper draws on the empirical imperative, but focuses on the very *expectation of consensus* as a legitimate policy goal. We therefore do not focus on how consensus or closure is or is not achieved in a specific area of innovation, but rather on *consensusing as an expectation and ideal with practical consequences*.

In making this analytical move, it is important to stress that all the above perspectives add to the understanding of what it would mean to be ‘a nation at ease’. The point of this paper is not to decide in favour of either consensus as the outcome of the ‘power of the better argument’ or as a manifestation of false consensus, but rather to open consensusing itself up to critical scrutiny. We will present the pursuit of consensus as a specific ideological and cultural formation, and as an expectation. This expectation (and the thinking behind it) can therefore be productive and performative even if the outcomes of deliberative engagements are often deemed disappointing. In order to make these general points we turn now to Denmark – a nation where consensusing has taken a very particular form and meaning.

Denmark: Land of Consensus

When the British House of Lords Select Committee on Science and Technology assigned itself the task of producing a report on '*Science and Society*' (House of Lords, 2000) there were two overseas locations worth visiting. The first – the United States – was hardly unexpected given the scale of that nation's investment in science and technology. The second would be a surprise to anyone unfamiliar with contemporary initiatives in science and democracy, including many in Denmark. However, and as the eventual report summarised the visit:

Denmark... has evolved institutions to give effect to a society whose political philosophy is to seek consensus rather than confrontation... Denmark's bodies such as the Danish Board of Technology, the Danish Council of Ethics, and the Central Scientific and Ethical Committee offer reassurance and, to some extent, involvement to a public which tends to be suspicious of both government and experts, including scientists. (House of Lords, 2000: 82)

These Danish institutions were established on the basis of widespread discussion and controversy in the 1980s surrounding the development of bio- and information technology. In 1986, the internationally renowned (almost talismanic for those committed to science and democracy) Danish Board of Technology was founded (See <www.tekno.dk>). The Board is not an expert panel. Instead, it is designed to create and stimulate different processes of technology assessment, including what is referred to in Denmark as 'broad public debate'. The Board employs a variety of methods, but is best known internationally for its participatory forms – and especially participatory consensus conferences. In such a conference, a panel of lay people solicits expert opinions on a particular topic of technological controversy (Andersen & Jæger, 1999; Blok, 2007; Jensen, 2005). On this basis, it formulates a consensus report on how society should or should not proceed with the regulation and exploitation of the technology in question.

The second institution mentioned above, the Council of Ethics, was established in 1987 as an advisory body in relation to new health-care technologies (see <www.etiskraad.dk>). This body is designed as an expert committee, which should aim to deliver consensus-based policy advice, but it is explicitly stated in its legislative foundation that the Council also has an obligation to generate public debate. Throughout its history, the Council has arranged numerous open meetings, conferences, web-forums and other engagement activities to elicit public debate and opinion formation about new biotechnologies. Certainly, the Council's members have participated regularly in public meetings and mass mediated debate. The third body, the Central Scientific and Ethical Committee, serves to oversee ethical standards in the use of human subjects in scientific research projects. In 1992 this body was changed from a professional and voluntary to a legal and statutory organisation, but it has not been as publically visible as the other two.

Both the Board of Technology and the Council of Ethics have been regularly called upon for input to various policy-processes. The Lords Select Committee has not been alone in offering praise to the Danish governance of science and technology. Internationally, consensus conferences have attracted substantial scholarly attention as a key example of deliberative democracy in the governance of science and technology (see, for example, Joss & Durant, 1995; Dryzek & Tucker, 2008). In terms of external influence, one US website (Loka Institute, n.d.) lists 18 countries as having engaged in 'Danish-style, citizen-based deliberative "consensus conferences" on science and technology policy worldwide'. More widely, deliberative democracy in Denmark has attracted numerous positive international evaluations: 'in the "consensus conferences" held in Denmark, findings are incorporated into parliamentary discussion as a matter of routine...they have directly influenced parliamentary decisions' (Giddens, 2007: 193).

Nevertheless, looking more closely at Danish practice, it is quite difficult to point to any explicit influence of these engagement activities on actual decision-making in Denmark. Despite external commentaries, it is very hard to find examples of consensus conference recommendations which have made their way directly into public policy.¹ Simultaneously, the Council of Ethics has struggled to fulfil the ideal of consensus-expectation. Contrary to its explicit goal, it has turned out to be very challenging for Council members to reach consensus on controversial issues and many of their policy recommendations have highlighted areas of dissent as well as agreement. Even when the Council members have been able to reach agreement on policy recommendations, these have most commonly been disregarded by policy makers in the legislative process (Koch & Horst, 2007).

Furthermore, both the Board of Technology and the Council of Ethics have suffered substantial funding cuts over the past ten years. They also consider that their activities have received diminished attention with regard to policy formulation and public debate. Indeed, the Board of Technology was threatened with closure in 2002. Although it managed to survive, its funding has been reduced. At the time of writing, the most recent consensus conference organised by the Board took place in 2005, and was part of a larger, externally-funded European initiative. Although the Board has continued to work with a sophisticated catalogue of techniques suitable for different kinds of consultation with both experts and publics, currently there are no plans for new consensus conferences.

Given this rather gloomy context for deliberation, it is tempting to conclude that the widespread praise of the Danish model of governance is based on nothing more than a myth or fairy tale. We would argue firmly *against* this proposition – and for reasons which take us to the heart of our discussion of consensusing. The significance of these institutions should not be solely found in their specific input to policy processes, but also in the fact that they embody an important ideal that has played a central role in the shaping of Danish national identity and the functioning of Danish society.

The Roots of Consensus Thinking

In making its point about the pursuit of consensus rather than confrontation, the House of Lords committee was broadly in keeping with one common observation about Danish culture – an observation that retains persuasive power despite more recent divisive political discussions (notably, around issues of immigration and what has become known as ‘Cartoongate’).² As Knud Jespersen has loosely characterized this outsider’s view of the country, ‘Denmark is a small, insignificant, comfortable country, peopled by a homogeneous tribe whose members more or less all know each other, and even the most controversial political issues are resolved peaceably with the tacit understanding that we will still all be here afterwards’ (Jespersen, 2004: 7).

To understand this consensus-oriented view of Danish culture, it is necessary to glance back to the formation of the small Danish nation-state in the nineteenth century, and particularly to the teachings of priest, poet and politician N.F.S. Grundtvig (1783-1872). Before we continue the argument, it should be emphasised that we present Grundtvig here as a convenient device for summarizing a huge network of influences, rather than as a figure who literally changed the course of an entire country. Drawing broadly on one of the most important lessons from STS scholarship, we do not mean to imply that Grundtvigian ideas have, in isolation, determined the course of Danish culture and political institutions. Rather, we would point to a ‘co-evolution’ (or ‘co-production’: Jasanoff, 2004) of this political philosophy and the Danish nation state.

Although the Grundtvigian influence is broad, we have chosen to concentrate on his advocacy of a *folkelig* democracy and the close relationship between this and the Danish notion of consensus politics. The term *folkelig* is hard to translate, but the dictionary suggests a range of terms including ‘popular’, ‘national’, ‘simple’, ‘unassuming’, ‘common’ and ‘folksy’. Grundtvig was an active proponent of the creation of a nation state in which the Danish people would be united in a common history and a common mother tongue (Korsgaard, 2004). ‘The people’, however, were not simply the masses of Danish peasants and workers. Instead, the Danes had to be shaped as a people through enlightenment and self-reflexivity. For this purpose, he devised a completely new institution, the ‘folk high schools’, whose task was education in national knowledge about practical human life. Grundtvig envisioned the folk high schools as a ‘school for life’ in contrast to the universities which he described as focused on ‘dead’ knowledge and the individual rather than the greater collectivity (Knudsen, 2001:99-105). He was fiercely opposed to narrowly didactic or one-way teaching, and envisioned folk high schools as open and anti-authoritarian institutions dedicated to the achievement of educational dialogue and the power of ‘the living word’ (Korsgaard, 2004:225-27).

The point of educational enlightenment was not to create self-serving or competitive individuals, but rather a *folkelig* society through a common understanding of the shared human life of the nation. Grundtvig had an explicitly anti-elitist perception of the national

community (Knudsen, 2001:104). In one of his songs an often-cited line reads: 'And the sun rises with the farmer, not at all with the learned' (Grundtvig, 1839).³ Ordinary folk (and in particular farmers) were seen as better connected with the knowledge of practical life than learned people in universities. For Grundtvig, common deliberation was the locus of a shared understanding of mutual history, and a shared sense of the common good.

It is usually argued that the concept of *folkelig* has been hugely influential in the formation of Danish democracy and within Danish political culture more generally (see for example Korsgaard, 2004). The concept in turn builds upon a particular construction of the Danish people as united around key notions of 'tolerance, openness and liberal-mindedness' with enlightenment and committed dialogue presented as the means to achieving those ideals (Jespersen, 2004: 110). As Jespersen (2004: 105) describes it: 'the intent was no less than to transform the inarticulate masses into responsible and articulate citizens in the new democratic society which was slowly taking shape.' Ove Kaj Pedersen has made a similar point in rather different terms: 'Being a small land with a long history of lost wars and territories creating a sense of national vulnerability explains why the national identity has developed to become relatively homogeneous and the political system has evolved to be based on a culture of negotiation and compromise rather than competition and conflict' (Pedersen, 2006: 234).

Put in crude summary form, the Danish 'consensual' approach can be expressed as an obligation to involve all members of society in national decision-making and to view the 'popular' not in derogatory or patronising terms (as in the British meaning of 'popular culture' or 'popular opinion'), but as a positive mixture of 'popularity, popular democracy, folksiness, simplicity, unassuming warmth and ease and so on!' (Jespersen, 2004: 108). In that way, what the Lords committee was translating as a Danish propensity to 'seek consensus rather than confrontation' may more accurately be seen as an ideal about pursuing the common good: the perspective of the whole rather than narrow self-interest or individual idiosyncrasy. In this pursuit, the layperson has a very particular role as the locus of 'living' knowledge about the community. Any 'true' consensus should therefore build upon contributions from the laypeople.

The *folkelig* notion was to be crucial in the anti-authoritarian, left-wing critique of science and technology which developed in Denmark from the late 1960s. A large part of these oppositional arguments drew upon a challenge to modernity, industrialisation, capitalist exploitation and – not least – hierarchical antagonism. As one writer of the time put it: 'Grundtvig's fight for the people against any form of hierarchy made him establish "forskning for folket" [research for the people]. His most important scientific discovery [sic.] is "the living word", which he never tired of repeating. It is on dialogue that a public community, in opposition to thousands of years of hierarchical class society, can be built and developed' (Larsen, 1983: 93). Scientific hierarchies were described as propagating one-dimensional knowledge and therefore as cut off from the practical knowledge of how to live together in a community (Auken, 1983; Lauth, 1985; Meyer, 1985; Wilhjelm, 1984).

Against the one-dimensional bias of experts, many critics proposed the ‘common person’ as the locus for viable solutions in the community (Lund & Horst, 1999). Lay people were thus presented as the only unbiased actors within discussions of science and technology. Only they could adopt the perspective of Danish society as a whole (Horst, 2003).

It is within this discursive framework that the *folkelig* institutions of science and technology governance in Denmark were devised. They embody the notion of public debate as a crucial vehicle for the creation of legitimate and viable solutions to technological and social controversies. Rather than being simple means of consensus-creation (or institutional fixes for perceived societal problems), they might be viewed as manifestations and illustrations of how the notion of consensus has been influential in forming national identity in Denmark. Following from this, we would suggest that the most important function of these institutions is not the specific production of consensus-statements nor other inputs to the policy-process, but their embodiment and performance of an important nation-forming political ideal. Denmark is the land of *folkelig* debate where decisions are taken in common from a perspective of the common good. Danes dare question expertise and believe that ordinary (lay) people are the best to make decisions about the life to live in common.

This argument, however, also points us to one of the more problematic or challenging aspects of the Danish participatory governance of science and technology. The 2002 near-closure of the Board of Technology came after an (in)famous New Year’s speech by the prime minister, Anders Fogh Rasmussen, in charge of the recently elected right-wing (conservative and neo-liberal) government. Rasmussen called for a ‘confrontation [or showdown] with the arbiters of taste’ and said the new government intended to close a number of expert committees across a broad range of policy advice areas.

Many of them have evolved into state authorised arbiters of taste, who decide what is good and right in different areas. There are tendencies towards a tyranny of experts, which threatens to oppress the free *folkelig* debate. The public should not have to submit to raised fingers from so-called experts who think they know best. (Rasmussen, 2002)

The prime-minister’s speech turned out to launch an extended effort to reduce the influence of ‘experts’ in political decision-making, and a list of committees to be closed was released three weeks later. Surprisingly, this list originally included the Board of Technology. Thus, even a Board that defined itself as being anti-elite and pro-citizen could find itself vulnerable to the accusation that it was getting in the way of free and ‘folkelig’ discussion. In general, this political move resonated well with the strong sense of anti-elitism which is an immanent part of Grundtvigian ideals, although the Board was an unexpected target for this attack. Subsequent developments in Danish politics have demonstrated the strength of this anti-elitist aspect of Danish culture. The ‘other side’ of the strong deliberative culture is therefore a willingness to question scientific expertise and an explicit tendency to disregard expert advice – a tendency that has not diminished in

recent years. In an egalitarian culture like Denmark's, nobody should think they are 'anything special',⁴ and experts in particular are routinely reminded that they should not think their arguments are more important than anybody else's. This point applies just as much to 'experts in deliberation' as it does to scientific and humanistic expertise.

On the basis of the Danish case, we now seek to broaden the discussion in two ways. First, we will consider some immediate aspects of consensusing in the Danish setting. Second, we will tentatively place consensusing in a wider European context.

Consensusing as Political Ideal

A number of important points about the nature of consensus and consensusing can be drawn from this brief discussion of the Danish case. The first, and perhaps clearest, of these is that 'the expectation of consensus' is not – at least in this influential example – simply the absence of politics, denial of disagreement, avoidance of polarised points of view or the governmental putting of the nation 'at ease'. Instead, and as the short excursion into Grundtvig's social philosophy demonstrates, consensus in this case reflects a very particular set of political ideals. Importantly for the current discussion, and for the comparison with developments in other countries, these ideals incorporate a scepticism concerning 'elite' knowledge, including scientific and technological knowledges. Other elements include a faith in both the 'common good' and the 'common person', a commitment to a shared national culture, and a willingness to engage in open and critical debate. However attractive (or otherwise) these ideals might be, they reflect an ideological orientation and a corresponding set of values that together constitute a very particular setting for the formation of consensus.

Consensusing as a way of thinking and acting is deeply intermingled and embedded in the general political culture and context in Denmark. It cannot, therefore, be evaluated simply according to its ability to achieve short-term political results. Instead, the Danish case demonstrates how consensusing as process in itself should be considered an important substance of political culture. This has broad implications for the wider external enthusiasm for deliberation and engagement in science and technology policy. It cautions us especially against expecting that deliberation can be used instrumentally as a tool to establish an immediate policy-relevant consensus. In fact, over-rigid expectations might lead to disappointment of the very sort we are seeing right now among policy-makers and others in countries when the instrumental goal is not delivered (for discussion, see Wynne 2005; Felt & Wynne, 2007).

One further implication of our case study is that 'cross-cultural borrowing' of this governance framework (or elements thereof) is likely to raise many new questions and challenges. This point seems especially relevant when nations with a separate political culture attempt to graft consensusing onto their existing processes of scientific

governance. The Danish development of consensus conferences reflects a much broader political and social philosophy embracing many areas of national activity. This includes business and commerce, where there has been much discussion of a 'Danish model' based on flat management structures, high levels of taxation, financial security and flexible employment (what has become known as the 'flexicurity' model: see, for example, MacCarthy & Schmidt, 2006). The enthusiasm in other countries for the consensual/cooperative approach has characteristically been much more restricted in scope – and typically views the 'consensus conference' as an entity (or social technology) in itself rather than one component within a larger frame of governing. This is not to say that consensus conferences cannot be meaningfully organised outside Denmark, but that they should not simply be understood as a bounded technology (or part of the governance toolkit), to be imported with as little contextualisation as possible.

It is especially relevant to consider the construction of the 'layperson' within societal debate and policy formation. In the Grundtvigian context, the 'layperson' is specifically defined and given specific standing. Assisted by dialogical enlightenment in the 'school for life', the layperson can tap into a wider sense of community and collective well-being than the narrower experts. The layperson therefore has unique access to a perspective of the common good, which the expert, *qua* her allegiance to a specific field of knowledge, can never embody. In this way, 'laypeople' are not viewed as *tabulae rasae*, as disinterested or 'innocent' of the issues (Irwin, 2001), but as the very embodiment of knowledge about the practical world. The sense of belonging to a nation-state is – at least in the Grundtvigian model – an important precondition for this construction since it builds on a sense of shared culture and language which enacts a 'we' that can be drawn upon in deliberation, rather than a 'we' that would have to be constructed from scratch within the process of deliberation. This observation suggests the difficulty of bringing in the 'layperson' in conditions where no shared identity or shared purpose is on offer. Put more analytically, the crucial issue might be how a shared 'we' is constructed within different forms of deliberative encounter, a point which applies in the Danish context, but equally elsewhere.

Our next point follows closely from this construction of the layperson. Equality in the distribution of knowledges provides a foundation for deliberation in the Grundtvigian model. Within one standard representation of the consensus conference, there is a fundamental assumption that laypeople have something important to contribute to consensus formation. In particular, they offer a common or holistic perspective. However, these notions can in turn be closely linked to an anti-elitism that poses a potential threat to scientific and expert authority, challenging (and even dismissing) such expertise as partial and based on possibly illegitimate interests. The point here is that deliberation is often advocated internationally without any sensitivity or even consideration over what should count as legitimate knowledge or 'standing' within such encounters (Collins & Evans, 2002). Put differently, Danish-style deliberation is not without its problems for those committed to both the democratization of science and technology, and also the maintenance of some scientific foundation for public decision-making. In another version of

this observation, we have seen that ‘democratic’ institutions such as the Board of Technology can themselves come under fire for their alleged elitist and expert status.

Our final point in this section is that, even in the Danish context, these notions of consensus, compromise and negotiation are now under severe scrutiny and challenge, partly as a consequence of globalising forces within Denmark. Thus, the notion of consensusing based on a shared and homogeneous understanding can appear defensive, exclusionary and even reactionary when viewed from other cultural and ethnic perspectives. Even in the specific case of consensus conferences, pervasive doubts have been expressed about the value of such exercises – and especially in terms of their policy relevance and impact (Seifert, 2006). These criticisms serve to reinforce the wider observation that the enactment of consensual principles depends not simply on appropriate institutional mechanisms but also on the larger political and ideological setting. It has to be recognised, too, that issues of science and technology governance do not currently hold a prominent place on the Danish political agenda; they have been replaced (perhaps temporarily) by other concerns over national identity, such as the societal consequences of globalisation in general, and immigration from non-Western countries in particular.

Consensus in Wider Context

We have so far presented consensusing as a broad phenomenon which is both performed within certain frameworks of meaning and *performative* in terms of generating shared identities and understandings (especially in relation to conceptions of ‘the nation’). As we have suggested, this analysis appears appropriate to the Danish case where Grundtvigian ideals of nation-building have played an important role in the establishment and practice of bodies such as the Danish Board of Technology. The question that now arises is whether Denmark is entirely unique in this relationship between consensusing and political culture. Can we identify other, perhaps very different, forms of identity formation in different national and international settings?

Certainly, deliberation and engagement have become part of the standard vocabulary in policy documents dealing with the governance of science and technology in many European countries, as well as in the European Union itself (Felt & Wynne, 2007). If we return to Tony Blair’s evocation of a nation at ease with radical knowledge, it is not hard to identify a very particular sense of national identity being created: a nation which has not ‘gone soft’ on science, a nation that can still lead the world (despite the threat from fast-developing nations such as India), a nation which can still be ‘pragmatic’ and ‘evidence-based’ without losing confidence and faith ‘in the face of the unknown’. British expectations were more recently restated in a consultation document, ‘A vision for science and society’: ‘The benefit of dialogue is that it allows the scientific community to be open to a continuous discussion of values and purposes, and is sensitive to these when

developing avenues of investigation. There is now a strong consensus in support of this approach as an important beneficial style of public engagement' (DIUS, 2008: 11).

Although the intellectual foundations of this broad approach are significantly less coherent -- and certainly less historically-specific -- than in the Danish context, we would argue that they are nevertheless significant and worthy of further exploration. It is especially relevant to consider how the instrumentalist notion that dialogue will facilitate scientific progress is being brought together with the nation-building ideal that this will unite British society in a progressive vision of the future. However, the important point must immediately be made that instrumentalism is a form of identity-building and not simply its opposite: presented in that way, instrumentality is also an enactment of political culture. The point here is not to dismiss British efforts because they fail to match Grundtvigian expectations. Rather, and perhaps inspired by the discussion of one small nation, we need to explore the manner in which British approaches to dialogue and consensus are simultaneously a performance and embodiment of specific future imaginations. Of course, as in all such comparative discussions, we need to beware the obvious dangers of presenting, Denmark, Britain or any other nation as being homogeneous and singular in its activities.

Viewed in policy terms, it is certainly relevant to ask whether a managed approach to societal attitudes to innovation is likely to succeed even in its own terms. The British RS/RAE working group on nanotechnology appears to have been positive about the principle of enhanced engagement but understandably reluctant to endorse any particular course of practical action. The notion that even the most successful upstream engagement will serve to dampen subsequent social controversy seems questionable. However, rather than letting these observations lead us along the road to accusations of 'false consensus' (or suggesting that Grundtvigian ideals offer a route to 'true' consensusing), we would argue that it is more fruitful to observe and explore the performativity of *all* these calls for dialogue.

Such an analysis is especially appropriate at the European level where it is possible to discern an institutional construction of Europe as a place where science and consensusing come together in a powerful vision of the future. One significant example is the 2002 Science and Society Action Plan in which the European Commission called for a 'new partnership' between science and society, stating that 'Science activities need to centre around the needs and aspirations of Europe's citizens to a greater degree than at present' (CEC, 2002: 7) and that '[a] true dialogue must therefore be instituted between science and society' (p. 14). Subsequently, the Action Plan has led to a number of activities, including the launch of a European Commission Science and Society portal. According to this official webpage:

The European Commission has a duty to create the conditions for structured dialogue on science-related matters. The aim is to anticipate and clarify people's hopes and concerns. With an informed and engaged Public, science

can fully play its crucial role in boosting competitiveness, enhancing our quality of life and ensuring a sustainable future (EC Science and Society portal, 2007).

Building upon our discussion of Grundtvig in nineteenth century Denmark, we can hypothesize that the contemporary search for consensus around social, scientific and technological futures represents a form of institution- and nation-building across Western Europe. Both the European Commission and the UK Department of Innovation, Universities and Skills seem to share Grundtvig's expectation of a new political identity built through consensus. While this new European identity may at times suggest a decidedly passive and centrally-managed representation of the scientific citizen, it also offers a powerful representation of the nation and the Europe of the future as a place in which scientific and technological innovation is intricately linked with 'people's hopes and concerns' in order to generate industrial competitiveness, a dynamic social order and widespread prosperity.

Whilst this vision is generally offered in positive terms, it can also be found in a more negative, and indeed more threatening, form. Thus, one report from 2006 offered the picture of a Europe steadily slipping into decline unless it could embrace the globalised future: 'Europe must break out of structures and expectations established in the post-WW2 era which leave it today living a moderately comfortable life on slowly declining capital. This society, averse to risk and reluctant to change, is in itself alarming but it is also unsustainable in the face of rising competition from other parts of the world' (European Commission, 2006: 1). Just as the Danish model of consensusing was built both upon a positive nation-building philosophy and a sense of threat to national integrity, Europe also needs to find new ways of imagining its future if it is to prosper and, indeed, survive.

It can plausibly be argued (Hagendijk et al. 2005) that a 'market' discourse is currently gaining strength within the governance of science and technology in Europe (including in Denmark), but we do not think that this should be interpreted simply as a power struggle between an innovation agenda and a deliberative agenda. As was also observed in the STAGE research programme (Horst et al. 2007), we would rather suggest that there is something distinctly European about the simultaneous institutionalisation of the discourses of innovation and deliberation. Following this, and from the point of view of the performativity of consensusing, we could suggest that the innovation agenda and the deliberative agenda, rather than being opposed to one another, might instead be closely interlinked in this emergent formulation: innovation can only function fully when it is based upon people's hopes and concerns, and the public itself benefits from being enlightened about science and technological innovation. As a 2009 European report on the 'Global Governance of Science' put this: 'Instead of seeing Europe's progress towards a more democratic governance of science as a barrier to our success in the global knowledge

economy, we should consider how it might become a different form of advantage, opening up new opportunities for innovation' (European Commission, 2009: 38).

Although the current European enthusiasm for shared identity-building is not restricted to matters of science and technology, there does seem to have been a particular emphasis on consensusing across European scientific and policy institutions. Put more hypothetically, the paradigm of enlightenment through science and deliberation can be seen to foster an immanent anticipation that agreement or consensus will follow. The presented link between science, informed debate and rationality thereby offers a potentially solid foundation for consensus-expectation within science policy. On this basis also, Europe becomes the place where societal consensus provides a platform for social and technological innovation – a place of enlightenment in both scientific and political terms.

Grundtvig's Marxist critics were eager to point out that notions of *folkelig* democracy and civic responsibility took little account of the changing economic and industrial structure of Danish society. A similar observation can be made with regard to talk of consensusing in contemporary Europe. There is certainly something striking about the recurrent notion of a science-society partnership in which 'science' and 'the public' are the main two contributors (with policy-makers apparently taking the role of scene-setter and arbitrator). Talk of partnership therefore is also significant in terms of who (and what) gets constituted as a partner – with the role and influence of industrial organisations, although very present within the innovation agenda, largely absent within discourses and performances of consensus.

Far from indicating the absence of politics, therefore, consensusing might be in demand within contemporary Europe due to its very capacity for shaping the political future. In so doing, it promises a more inclusionary form of governance. Simultaneously, it offers a challenge to experts and expertise – opening up who can count as experts, and the evaluative standards for judging expertise. Nevertheless, and as Mouffe would point out, it also excludes. For Wynne, talk of consensus characteristically obfuscates more fundamental cultural, political and epistemological questions. We would suggest that as a topic for social analysis we should investigate the performativity of consensus governance in a way that is less about endpoints than it is about process and less about making explicit policies based on consensus than about identity-formation in a broader political context. When exploring the nature of consensus, the central issue thus shifts from who controls what resources to who participates in the process, and on what terms. In this, adversarial and consensual politics may have more similarities than differences. Meanwhile, the point must be made that consensusing functions both as a democratic ideal and as a mode of problem solving.

Conclusion

Our discussion has attempted to present consensus-expectation in new perspective. We argued that the ideals and expectations of consensusing can be more important than the final product, and that they need to be evaluated as such. We linked consensusing to aspirations of nation-building in Denmark and suggested that a similar analysis at the European level would be fruitful. The double commitment to innovation and deliberation may be what makes current European governance of science and technology distinctive (even if also problematic). We also emphasized the contextual character of consensusing so that the internationally applauded 'Danish-style' consensus conferences are generally quite remote from the current (and previous) practice in Denmark itself.

Our perspective implies that the international export of one form of consensusing is likely to create fresh hybridities and performativities – not simply 'false' consensusing, but new forms of identity-creation with their own roots and aspirations. We have seen in the Danish case that consensusing can be fragile and open to accusations of betraying *folkelig* ideals. However, we would also suggest that such accusations of false consensusing represent a resource and a means of breathing life into consensual ideals (even if the short-term consequences may be politically unpalatable). Once again, consensus is presented not as an outcome but as a process: not, in Grundtvig's terms, as 'dead' knowledge but as a living entity. We have suggested, too, that *folkelig* ideals raise special challenges for knowledge and expertise – including the knowledge and expertise possessed by those who seek to democratize science and technology. These challenges are rarely discussed directly by scientific institutions eager to establish consensus as a foundation for innovation.

Being 'at ease' may be desirable from certain institutional viewpoints but carries obvious political risks. However, the provocation in this paper is less to particular forms of consensusing (false or otherwise), than to the wider consensus ideal when employed as a means of closing down complexity, building collective identity and reducing social opposition. Certainly, consensusing carries special dangers once it becomes removed from contestation, impervious to shifting knowledges and understandings, and sheltered from creative destruction. Given the close link between consensusing and nation-building, the normative question leads us to the kinds of nations we wish to build and the political and ideological roots on which we seek to draw.

Notes

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¹ This is not to suggest that the Board has been without wider influence across its large range of activities.

² In 2005 a Danish newspaper published 10 cartoons depicting the prophet Muhammed. This led to protests across the Muslim world which escalated into violence and fires in Danish embassies.

³ All quotes from Danish sources have been translated by the authors.

⁴ This particular phrasing refers to a Danish phenomenon known as 'the Jante Law'. It originates from a novel by Axel Sandemose (1994 [1933]) about the boy Jante, but has evolved into a cognitive institution, to which most Danes will make references when speaking about their culture with non-Danes. It consists of nine commandments in line with 'you should not think you are anything special, not think you are better than us, etc.'.

References

- Andersen, Ida-Elisabeth & Birgit Jæger (1999) 'Scenario Workshops and Consensus Conferences: Towards more Democratic Decision-making', *Science and Public Policy* 26(5): 331-40.
- Auken, Margrethe (1983) 'Nej Doktor, Jeg Tror Ikke Vi Ta'r Ham' (No Doctor, I Don't Think We'll Take Him), *Fønix* 1983(2): 127-35.
- Balmer, Andrew & Paul Martin (2008) *Synthetic Biology: Social and Ethical Challenges: An Independent Review Commissioned by the BBSRC* (University of Nottingham: Institute for Science and Society). Available at http://www.bbsrc.ac.uk/organisation/policies/reviews/scientific_areas/0806_synthetic_biology.pdf (accessed 18 May 2009).
- Bhattachary, Darren (2008) *Stem Cell Dialogue* (London: British Market Research Bureau). Available at http://www.bbsrc.ac.uk/society/dialogue/activities/stem_cell_dialogue.html (accessed 18 May 2009).
- Blair, Tony (2002) 'Science Matters', The Prime Minister's Office (Norwich: HMSO, 23 May). Available at <www.number-10.gov.uk/output/Page1715.asp> (accessed 23 March 2009).
- Blok, Anders (2007) 'Experts on Public Trial: on Democratizing Expertise Through a Danish Consensus Conference', *Public Understanding of Science* 16(2): 163-82.
- Bora, Alfons & Heike Hausendorf (2006) 'Participatory Science Governance Revisited: Normative Expectations versus Empirical Evidence', *Science and Public Policy* 33(7): 478-88.
- CEC (2002) *Science and Society: Action Plan. European Commission* (Luxembourg: European Communities). Available at <http://ec.europa.eu/research/science-society/pdf/ss_ap_en.pdf> (accessed 23 March 2009).
- Collins, H.M. & Robert Evans (2002) 'The Third Wave of Science Studies: Studies of Expertise and Experience', *Social Studies of Science* 32(2): 235-96
- DIUS (2008) *A Vision for Science and Society* (London: Department of Innovation, Universities and Skills). Available at <http://www.dius.gov.uk/consultations/science_and_society.aspx> (accessed 25 May 2009).
- Dryzek, John (2006) *Deliberative Global Politics: Discourse and Democracy in a Divided World* (Cambridge: Polity Press).

- Dryzek, John S. & Aviezer Tucker (2008) 'Deliberative Innovation to Different Effect: Consensus Conferences in Denmark, France, and the United States', *Public Administration Review* 68(5): 864-76.
- Durant, John (1999) 'Participatory Technology Assessment and the Democratic Model of the Public Understanding of science', *Science and Public Policy* 26 (5): 313-19.
- EC Science and Society Portal (2007) European Commission, Science in Society. Available at <<http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=344>> (accessed 23 March 2009).
- Einsiedel, Edna F., Erling Jelsøe & Thomas Breck (2001) 'Publics at the Technology Table: the Consensus Conference in Denmark, Canada, and Australia', *Public Understanding of Science* 10(1): 83-98.
- Elster, Jon (ed.) (1998) *Deliberative Democracy* (Cambridge, MA: Cambridge University Press).
- European Commission (2006) *Creating an Innovative Europe. Report of the Independent Expert Group on R & D and Innovation appointed following the Hampton Court Summit* (Luxembourg: Office for Official Publications of the European Communities).
- European Commission (2009) *Global Governance of Science. Report of the Expert Group on Global Governance of Science to the Science, Economy and Society Directorate. Directorate-General for Research, European Commission* (Luxembourg: Office for Official Publications of the European Commission).
- Felt, Ulrike & Brian Wynne (2007) *Taking European Knowledge Society Seriously: Report of the Expert Group on Science and Governance to the Science, Economy and Society Directorate, Directorate-General for Research, European Commission* (Luxembourg: Office for Official Publications of the European Communities).
- Fischer, Frank (1999) 'Technological Deliberation in a Democratic Society: the Case for Participatory Inquiry', *Science and Public Policy* 26(5): 294-302.
- Fischer, Frank (2000) *Citizens, Experts, and the Environment: The Politics of Local Knowledge* (Durham and London: Duke University Press).
- Giddens, Anthony (2007) *Over to You, Mr Brown* (Cambridge, UK & Malden, MA: Polity).
- Gieryn, Thomas F. (1995) 'Boundaries of Science', in S. Jasanoff, G.E. Markle, J.C. Petersen & T.J. Pinch (eds), *Handbook of Science and Technology Studies* (Thousand Oaks, CA: SAGE Publications): 393-443.
- AEBC (2003) *GM Nation? The Findings of the Public Debate* (London: Agriculture and Environment Biotechnology Commission). Available at www.aebc.gov.uk/reports/gm_nation_report_final.pdf (accessed at 18 May 2009).

- Grundtvig, NFS (1839) 'Er Lyset for de Lærde Blot' (Is the Light Just for the Learned?), *The Danish Folk High School Song Book*, 17. edition, song number 462 (Odense: Foreningens Forlag).
- Grove-White, Robin (2001) 'New Wine, Old Bottles? Personal Reflections on the New Biotechnology Commissions', *Political Quarterly* 72(4): 466-72.
- Habermas, Jürgen. (1984) *The Theory of Communicative Action, Volumes 1 & 2* (Boston: Beacon Press).
- Habermas, Jürgen. (1991) *The Structural Transformation of the Public Sphere - an Inquiry Into a Category of Bourgeois Society* (Cambridge: The MIT Press).
- Hagendijk, Rob, Peter Healey, Maja Horst & Alan Irwin (2005) *STAGE: Science, Technology and Governance in Europe: Challenges of Public Engagement* (European Commission: HPSE-CT2001-50003). Available at http://www.stage-research.net/STAGE/documents/STAGE_Final_Report_final.pdf (accessed 23 March 2009).
- Hagendijk, Rob & Alan Irwin (2006) 'Public Deliberation and Governance: Engaging with Science and Technology in Contemporary Europe', *Minerva*, 44(2): 167-84.
- Holt, Robin (2004) 'Risk Management: the Talking Cure', *Organization* 11(2): 251-70.
- Horst, Maja (2003) *Controversy and Collectivity - Articulations of Social and Natural Order in Mass Mediated Representations of Biotechnology* (Copenhagen Business School, Doctoral School on Knowledge and Management).
- Horst, Maja (2008) 'The Laboratory of Public Debate: Understanding the Acceptability of Stem Cell Research', *Science and Public Policy* 35(3): 197-205.
- Horst, Maja, Alan Irwin, Peter Healey & Rob Hagendijk (2007) 'European Scientific Governance in a Global Context: Resonances, Implications and Reflections', *IDS Bulletin* 38(5): 6-20.
- House of Lords (2000) *Science and Society*. Report of House of Lords Select Committee on Science and Technology (London: HMSO).
- Irwin, Alan (2001) 'Constructing the Scientific Citizen: Science and Democracy in the Biosciences', *Public Understanding of Science* 10(1): 1-18.
- Irwin, Alan (2006) 'The Politics of Talk: Coming to Terms with "New" Scientific Governance', *Social Studies of Science* 36(2): 299-322.
- Jasanoff, Sheila (ed.) (2004) *States of Knowledge: The Co-Production of Science and Social Order* (London: Routledge).
- Jasanoff, Sheila (2005) *Designs on Nature: Science and Democracy in Europe and the United States* (Princeton: Princeton University Press).

- Jensen, Casper Bruun (2005) 'Citizen Projects and Consensus-Building at the Danish Board of Technology: On Experiments in Democracy', *Acta Sociologica* 48(3): 221-35.
- Jespersen, Knud J.V. (2004) *A History of Denmark* (Basingstoke & New York: Palgrave Macmillan).
- Joss, Simon (2002) 'Toward the Public Sphere: Reflections on the Development of Participatory Technology Assessment', *Bulletin of Science, Technology & Society* 22(3): 220-31.
- Joss, Simon & Arthur Brownlea (1999) 'Considering the Concept of Procedural Justice for Public Policy and Decision-making in Science and Technology', *Science and Public Policy* 26 (5): 321-30.
- Joss, Simon & John Durant (eds) (1995) *Public Participation in Science* (London: Science Museum).
- Kearnes, Matthew, Phil Macnaghten & James Wilsdon (2006) *Governing at the Nanoscale* (London: Demos).
- Kelly, Susan E. (2003) 'Public Bioethics and Publics: Consensus, Boundaries, and Participation in Biomedical Science Policy', *Science, Technology and Human Values* 28(3): 339-64.
- Knudsen, Tim (2001) *Da Demokrati blev til Folkestyre: Dansk Demokratihistorie 1 (When Democracy became Folk Rule: History of Danish Democracy 1)* (Copenhagen: Akademisk Forlag A/S).
- Koch, Lene & Maja Horst (2007) 'Fra Almenhed til Pluralitet: Forestillinger om Konsensuskabelse i Det Ethiske Råds Historie (From Commonality to Plurality: Expectations about Consensus Formation in the History of the Council of Ethics)', in K. Kappel & A. Lykkeskov (eds), *Etik i Tiden: 20 år med Det Ethiske Råd* (Copenhagen: Council of Ethics): 143-66.
- Korsgaard, Ove (2004) *Kampen om Folket (The Battle about the People)* (Copenhagen: Gyldendal).
- Larsen, Ejvind (1983) *Det Levende Ord (The Living Word)* (Charlottenlund: Rosinante).
- Lauth, Oluf (1985) 'Til Britta fra CPR 090223-0157' (To Britta from Social Security Number 090223-0157), *Politiken* (5 February).
- Law, John & John Urry (2004) 'Enacting the Social', *Economy and Society* 33(3): 390-410.
- Lezaun, Javier & Linda Soneryd (2007) 'Consulting Citizens: Technologies of Elicitation and the Mobility of Publics', *Public Understanding of Science* 16(3): 279-97.

- Loka Institute (n.d.) 'Danish-style, Citizen-based Deliberative Consensus Conferences on Science & Technology Policy Worldwide' (Claremont, CA: Loka Institute). Available at <<http://www.loka.org/TrackingConsensus.html>> (accessed 23 March 2009)
- Lund, Anker Brink & Maja Horst (1999) *Den Offentlige Debat: Mål, Middel eller Mantra? (The Public Debate: Ends, Means or Mantra?)* (Copenhagen: Fremad).
- MacCarthy, Clare & Waldemar Schmidt (eds) (2006) *Denmark Limited: Global by Design* (Copenhagen: Gads Forlag A/S).
- Meyer, Niels I. (1985) 'Fremskridtets Pris og Folkestyrets' (The Price of the Future and of Democracy), *Politiken* (18 February).
- Mouffe, Chantal (1993) *The Return of the Political* (London and New York: Verso).
- Mouffe, Chantal (2000) *The Democratic Paradox* (London and New York: Verso).
- NWMO (2009) *Moving Forward Together: Designing the Process for Selecting a Site* (Toronto: Nuclear Waste Management Organization). Available at <http://www.nwmo.ca/designingasitingprocess> (accessed 18 May 2009).
- Pedersen, Ove Kaj (2006) 'The Secret behind a Negotiated Economy', in C. MacCarthy & W. Schmidt (eds) *Denmark Limited: Global by Design* (Copenhagen: Gads Forlag A/S) 234-43.
- Rasmussen, Anders Fogh (2002) 'Prime Minister's New Year's Speech' (Copenhagen, Statsministeriet). Available at www.stm.dk/Index/dokumenter.asp?o=2&n=0&h=2&t=14&d=79&s=1 (accessed 23 March 2009).
- Rawls, John (1993) *Political Liberalism* (New York: Columbia University Press).
- RS/RAE (July 2004) *Nanoscience and Nanotechnologies: Opportunities and Uncertainties* (London: Royal Society/Royal Academy of Engineering). Available at <http://www.nanotec.org.uk/finalReport.htm> (accessed 23 March 2009).
- Sandemose, Aksel (1994 [1933]) *En Flygtning Krydser sit Spor (A Refugee Crosses his Own Path)*, 7th edition (Copenhagen: Schønberg).
- Sclove, Richard E. (1995) *Democracy and Technology* (New York and London: The Guilford Press)
- Seifert, Franz (2006) 'Local Steps in an International Career: A Danish-Style Consensus Conference in Austria', *Public Understanding of Science* 15(1): 73-88.
- Stirling, Andy (1999) "'Opening Up" and "Closing Down": Power, Participation, and Pluralism in the Social Appraisal of Technology', *Science Technology and Human Values* 2008(33): 262-94.

US Congress (2003): 21st Century Nanotechnology Research and Development Act of 2003, Public Law No. 108-53.

Wilhelm, Preben (1984) 'Fremskridtets Pris?' (The Price [or Praise] of the Future?), *Højskolebladet* 44: 676-78.

Wilsdon, James & Rebecca Willis (2004) *See-through Science - Why Public Engagement Needs to Move Upstream* (London: Demos).

Wynne, Brian (2005) 'Risk as Globalizing "Democratic" Discourse? Framing Subjects and Citizens', In M. Leach, I. Scoones & B. Wynne (eds), *Science and Citizens* (London: Zed Books): 66-82.

Wynne, Brian (2006) 'Afterword', in M. Kearnes, P. Macnaghten & J. Wilsdon *Governing at the Nanoscale: People, Policies and Emerging Technologies* (London: Demos) 70-78.

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