Afterword: On 'Sound Science', the Environment, and Political Authority

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The articles in this special issue of *Environmental Values* have a shared significance. In one way or another, all of them reflect contemporary concerns about issues of trust, risk, uncertainty, and the cultural shaping of science.

These are matters of mounting significance for the politics of the environment in countries like Britain, and indeed for politics more generally, as we have seen in a succession of recent controversies. The *Brent Spar* oil platform farrago (1996), the hugely costly BSE-CJD upsets (1997), the continuing uproars around genetically modified (GM) plants and foods (1998/99) – central in all of these have been challenges to the political authority of official patterns of scientifically-backed reassurance, concerning the impacts of deep and open-ended trajectories of technological transformation.

To understand what is likely to be at stake in such matters for the politics of industrial democracies in the 21st century, there is now an urgent need to develop richer pictures than those currently dominant, of the cultural and epistemological architecture on which our regulatory institutions have been coming to rely. The contributions to this special issue can be pictured as building blocks in such a process.

The present article offers a complementary perspective – one grounded in a degree of more hands-on personal experience of related matters.

I came across environmental issues in the early 1970s – as an amateur activist in defence of a home patch – and then stayed on. From the beginning, I was drawn towards the then barely-crystallising world of environmental NGOs. Out of this, a more permanent niche emerged – which in turn became fifteen years of total absorption, helping re-energise the Council for the Protection of Rural England (CPRE), seven of them as Director in the 1980s. The sequence amounted to a continuing involvement from the earliest stages in the modern phase of environmentalism in Britain. In constant interaction with the fledgling Friends of the Earth and many other bodies, I was one of a *convivium* of largely London-based activists whose preoccupations can be seen in retrospect to have constituted a vanguard for the country's environmental movement.

Folk memory, reinforced by the subsequent success of the movement, tends to picture individuals with the commitment to work zealously for minimal

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salaries in those days as having been pioneering idealists. That may have been true for some. But others were drawn to the environmental nexus for more ambiguous motives.

In my own case, a key attraction was simply *adventure* – the scope for applying a restless personal aggressiveness to the probing of intriguingly embedded differences, in a round-the-clock theatre of arguments about 'environmental' issues. *That* was the primary pull – forensic, exploratory. In contrast to the experience of individuals with 'environmentalist' beliefs of more *a priori* kinds, it was only later that a form of more 'principled' *philosophical* commitment gradually took shape – through a process of 'crystallisation', an insistent pressure to clarify and give coherence to patterns that appeared to present themselves again and again.

As in so many such cases, the personal starting point was a chance involvement in a particular local controversy. Fascination and opportunity combined, leading to a long drawn-out fight with Shell, in 1971-72. In the end the company won Parliamentary approval for a massive off-shore crude oil terminal in deep water two miles off the coast of Anglesey. But they got a run for their money – an eighteen-month guerilla campaign harnessing a succession of Parliamentary committees, and the sympathies of the national press. And later came vindication of a kind. Shell built the terminal, but within a decade they had closed it down and gone away. The advent of North Sea oil had rendered it commercially redundant (as the objectors had claimed repeatedly in Parliamentary and public inquiry fora that it would).

As I see it now, that experience was a crash course in the provisional, artefactual character of the environmental 'knowledge' dominant in public decisions at any particular moment. In environmental argument, it seemed, for almost any expert it was possible to find a counter-expert. And for any particular 'framing' of an issue, a coherent alternative could be generated. But as things stood, such alternatives could have persuasive power only to the extent that they could be articulated in terms conformable to the institutional knowledge cultures within which the arguments were being conducted.

In this way, one came rapidly to understand something important about 'fact' in the real world of environmental debate and decision. The accepted authoritative understanding of an issue at a particular moment was generally the outcome of dominant forces working within a regulatory knowledge-framework they themselves had helped create and sustain. 'Scientific fact' was available to be shaped and harnessed in the creation of such frameworks, but only insofar as it was compatible with the issues broadly as framed by the dominant forces.

To all appearances, in the environmental arguments of the 1970s and 1980s, unambiguous victories for NGOs were few and far between. But paradoxically, when seen from inside the 'movement', even to lose was to win. Whether the issue was the official commitment to nuclear power in an increasingly electrified society, the casually prodigal patterns of society's escalating energy consump-

tion, the burgeoning motorways programme, the deliberately fostered patterns of ever-mounting water and minerals 'demand', or the accumulating impacts of intensive agriculture, it became increasingly obvious that the broad patterns were the same. Trends continued because the governing knowledge-frameworks within which specific arguments were being conducted were predisposed in that direction. Indeed, again and again, a major industrial lobby, embedded in a 'policy community' reflecting its own strategic priorities, had itself contributed decisively to the normative understanding of a segment of social reality. The tacit corollary was always that the deeper environmental and human costs of the resulting development trajectories would simply have to be accomodated by the rest of us.

At a succession of major public inquiries in the 1970s and 1980s, characteristically triggered by particular land use manifestations of such trajectories – power stations, reservoirs, motorways, a host of major land use changes –, a range of counter-arguments were advanced and tested by national NGOs and *ad hoc* environmental groups. For the most part, such challenges, though frequently resourceful intellectually, did not stop the individual schemes from winning authority to proceed. But that was in the short term. By the mid-1990s, things were looking different. In a number of domains, formerly 'unrealistic' counter-arguments were close to becoming official orthodoxy: the wider social and environmental realities of nuclear power had helped render it grotesquely uneconomic; new road-building had been accepted as feeding, rather than mitigating, traffic growth and its associated environmental burdens; the need to dampen escalating patterns of industrial energy use, with their ever-widening impacts (climate change most notably), had evolved to become an increasingly central priority of public policy; demand management in the water industry, and recycling in the minerals and packaging industries, had been recognised as socially the most intelligent ways forward; and so on. The individual battles might have been lost, but in a number of spheres the tides of the overall war seemed to be turning.

And what of science during this period of transition? At any particular moment from 1970 onwards, official environmental policy had been claimed to rest on 'sound science'. In public inquiries as in wider public policy debates, scientific justifications had been invoked routinely in support of particular favoured official patterns of policy development of the time, even as the *zeitgeist* had been shifting. Over the period, there has of course been substantial progress in the development of many aspects of environmental policy, underpinned by improved scientific understanding – particularly since the Brundtland Report crystallised the concept of 'sustainable development' in the mid-1980s. The Inter-Governmental Panel on Climate Change, the Climate Convention, the Montreal Protocol to protect the ozone layer, the OSPAR convention to protect the oceans, and a host of other measures and institutional developments, have all been major achievements of public administration and international political

negotiation. And both individual scientists within government and scientific institutions outside it – the Nature Conservancy Council (now English Nature), the Natural Environment Research Council, the universities, and many others – have been central creative contributors to such developments. But the fundamental point remains, that at the level of policy, particular constructions of 'science' have been harnessed routinely to the service of whatever the dominant official priorities of the day have happened to be.

To scientists and policy-makers, this seems unexceptionable: as yesterday's scientific understanding becomes superceded by today's, so policy too is able to change, to reflect that fact. But to the wider public – and to watchful NGOs (many of whom have far longer memories than politicians or public administrators) – such changes are experienced rather differently. Again and again, unambiguous official assertions of what constitutes 'sound science' in relation to particular policy commitments at one moment are replaced by equally unambiguous assertions of scientific justification for quite different policy positions, as circumstances change. Is it surprising, as such situations multiply, that public scepticism towards further invocations of definitive scientific authority in circumstances of controversy has been growing apace?

The implication is straightforward, and far more widely intuited by the public at large than hard-pressed politicians and public administrators appear to realise. Science in the public policy world needs to be recognised again for what it truly is – properly a servant, not a master.

This has nothing to do with whether or not particular scientific findings are 'true', but everything to do with the way in which the problems on which scientists come to focus are shaped and framed.

In crises of political credibility like those which in recent years have surrounded issues such as the *Brent Spar*, BSE, and genetically modified crops and foods, Ministers have been heard repeatedly to invoke the prevailing state of 'scientific knowledge' in support of their favoured policy stances, as if somehow the involvement of scientists put their pronouncements above the fray, and were therefore to be regarded by the rest of us as carrying unique social authority. As a corollary, an increasingly hard-eyed public has grown used to feeling patronised as ill-informed, 'emotional', and even 'irrational' by comparision.

What a travesty this is. In reality, specific scientific claims may well be 'true' within their own particular compass, whilst also still being highly appropriate foci for controversy about their contents. For the fact is, in the public domain, the frameworks which help shape the scope and contents of such claims are themselves by-products of all kinds of non-'scientific' influences. Sociologists of knowledge like Sheila Jasanoff and my own colleague Brian Wynne have helped us understand the extent to which the particular scientific assessments generated for policy or regulatory purposes are in crucial respects *constructs*, inescapably products of wider tacit political and institutional contingencies and

commitments. Such commitments, which help determine the substantive nature of the scientific claims themselves, are frequently 'invisible' even to the scientific practitioners and civil servants most directly involved. The adventitious ways in which particular problems for scientific assessment tend to be characterised at the outset; the tacitly 'given' substantive boundaries of such problems; the inherited assumptions concerning which specific disciplines and forms of expertise should be regarded as 'relevant'; the burdens of 'proof' understood to be appropriate; the particular forms of 'uncertainty' acknowledged as significant; the agreed cut-off points for assessments of additional potential synergies – all of these contingencies and many more help frame the identification of 'do-able problems' on which scientific expertise in particular regulatory domains may be brought to bear. Frequently, the framings in question correspond with the ways in which the public itself is experiencing an issue. But from time to time – might one say, increasingly? – this is far from the case.[1] And it is in precisely the latter circumstances that the most politically intractable controversies are tending to emerge.

The continuing upsets surrounding genetically modified crops and foods in Britain provide a graphic topical example. As work at the Centre for the Study of Environmental Change has suggested (particularly, the 1997 report, *Uncertain World: Genetically Modified Organisms, Food and Public Attitudes in Britain*), there has been a stark and glaring gap between the narrowly reductionist, one-product-at-a-time focus of the UK's regulatory framework for such innovations, and the broader, more analytically-elusive concerns of the wider public about the multiple implications of future biotechnology development trajectories. The emergence of this gap appears to have been disguised from official institutions by limitations in their own favoured research approaches and idioms. This is important politically as well as socially, because, as recent events have confirmed, the issues have deep resonance for much of the population. It might even be thought a potential risk to political authority. But the implications run on. Since public controversy about GMs surfaced in earnest in the UK in February 1999, the wider political problems have been compounded by the insistence of government scientific advisers and political leaders from the Prime Minister downwards, that, with minor adjustments, the 'science' generated in support of these (fundamentally limited) regulatory processes should be taken as the definitive normative frame for public debates – with the implication that concerns lying outside such boundaries are 'emotional' and 'irrational', mere epiphenomenal by-products of media mischief and manipulation.

Once again, such an approach suggests a perilous lack of appreciation of the provisional, artefactual character of scientific assessment as actualised in the real world. It amounts to an ungrounded *a priori* claim that there is one right ('scientific') way in which to picture the nature of what is now at issue in the GM field, and that that one way happens to be precisely the one which was thrown up in quieter times through the vagaries of informal negotiation between

inherited intellectual commitments and the interests-driven processes of regulatory horse-trading in Brussels, Whitehall and the World Trade Organisation. Far from reassuring a concerned citizenry, such an approach has every prospect of intensifying public scepticism not only about science-based policy advice, but also about the integrity of political institutions more generally.

The present writer's experience has been that, notwithstanding the huff and puff of scientific panjandrums and political leaders inconvenienced by public controversy, most people have a shrewd (if imprecise) sense of the strengths and limitations of scientific knowledge, as employed by real institutions in real life. By contrast, what is increasingly dangerous is the evident lack of official appreciation of the connection between government's frequently opportunistic use of scientific insight and reassurance in new and unfamiliar 'environmental' controversies, and the continuing growth of public cynicism and mistrust towards political authority.

So the issue of what might be called the 'social shaping' of science can be seen to have implications for societies like our own of mounting contemporary urgency. In their different ways, the sociologists whose papers appear in this special issue of *Environmental Values* are contributors to the accelerating process of helping us towards an understanding of what is now at stake.

It is a debate which can and must intensify.

NOTE

[1] Recent statements from the Office of Science and Technology and the Health and Safety Executive have called for the involvement of wider communities of scientists inside and outside government in the processes of generating scientific insight into environmental problems and solutions. However, to date, only the Royal Commission on Environmental Pollution amongst UK official bodies has begun to engage seriously with the still more complex challenge of how more socially and politically resilient connections between contemporary public values and official uses of scientific knowledge in politically charged circumstances might be fostered.