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Getting Behind Environmental Ethics

ROBIN GROVE-WHITE AND BRONISLAW SZERSZYNSKI

*Centre for the Study of Environmental Change
Lancaster University, UK*

ABSTRACT: There are major problems in the way in which the environmental ‘ethics’ question is now being framed – problems which could lead to growing confusion and disillusionment, unless they are rapidly addressed and understood. It is on such problems that this paper focuses. We point to three dimensions of the environmental ‘phenomenon’ which prevailing accounts of environmental ethics are tending to overlook. We then identify several ways in which incomplete ethical models tend to be reflected in actual environmental policy discourse. Finally, we suggest three hitherto-absent ingredients which will need to be recognised if future models of the ethics question are to be able to reflect, and hence to engage adequately with, social reality.

KEYWORDS: Culture, ethics, environmental policy, hermeneutics, technocracy

I.

Calls for a new ‘environmental ethic’ have been growing. Until the mid-1980s, they tended to come only from the ‘margins’ – from religious groups, moral philosophers, and philosophically-inclined conservationists. But with the recent arrival of environmental concerns in the political mainstream of industrialised countries, such pleas are beginning to be heard from more ‘orthodox’ sources – from politicians, international administrators, scientific bodies such as the International Council of Scientific Unions, industry and the professions, and other of our mainstream institutions.

These calls themselves raise new questions. On the face of it, the call for a new ethic – of “care for the interests of other people, now and in the future, and for the species with which we share the earth” (Holdgate 1991: 776) – is a straightforward response to serious problems we now face collectively. The sequence tends to be presented as follows: the accumulating impacts of human-kind on the physical world and its inhabitants (human and non-human) result from trends in our industrial way of life and the escalating global population this

makes possible. Such impacts have been underpinned by attitudes and values – that is, by an ethic – assuming the inexhaustibility and endless availability of nature for human purposes. The worldwide rates of loss of wildlife, plant and other species, the calamitous contraction of tropical rainforests and erosion of productive agricultural land in many parts of the world, the impacts of pollution on the ozone layer, the oceans and now even the global climate itself (WCED 1987; IUCN et al. 1991), are consequences of these commitments. Such trends cannot be contained – the argument runs – unless profound changes in human values and attitudes are now induced rapidly. In short, since it is our earlier ethical commitments which have got humankind into this mess, we must adopt new ethical commitments to get ourselves out of it. We must develop and promote (through educational systems, new patterns of religious commitment, public information and media communications, and so on) a new ethic, aimed at changing people's outlooks and behaviour.

Few could challenge the moral or practical impulses behind this plea. It stems from a growing recognition that the phenomenon of environmental crisis is a deeply human one, not simply a set of technical issues. Engaging with it must now involve people at the level of their deepest personal commitments. However, it is at this point that the cracks begin to show.

II.

Central to our critique is the proposition that 'ethics' simply do not work in the way that their new advocates are tending to imply. Contrary to what IUCN, WWF and others seem to be assuming, an ethic cannot be created and implemented socially *de novo*. Even intellectually articulated ethics crystallise out of "actually existing morality", as practised in the wider social world (Walzer 1988: 20; Grove-White et al. 1991: 4, 24). Furthermore, the ethical is not a free-floating realm detached from the particularities of social practices. Rather, it both constitutes and is constituted by such practices (MacIntyre 1985: 187-8).

This suggests that any realistic ethical framework will have to reflect a subtler sense of the cultural contingencies by which environmental concern in our time has emerged and is expressed than is implied in the relatively simple narrative we have outlined in section I above.

Three such contingencies appear especially relevant:

- * There is much greater ambiguity to the scientific definitions of the parameters of many problems thought of as environmental than is acknowledged in pictures of the kind painted above. To a striking extent, such definitions are malleable and culturally shaped (Douglas 1975; Wynne 1982) – even in relation to such apparently clear-cut problems as water pollution, global climate change, or deforestation (Thompson et al. 1987).

This is not to say there are not major physical problems 'out there'. There are. But it should not be assumed that scientists are simply 'reading' nature for us. There are fundamental and continuing indeterminacies in the ways in which our knowledge develops. It follows that the proper focus of ethical concern should be as much on the implications of what we do not – indeed cannot – know, as on what we think we do know.

- * The question of which issues have emerged as constituents of the environmental agenda – and hence as the apparently proper focus of ethical concern – is also more complex than appears. There have been immense processes of 'natural selection' of issues at work. Not only have the political opportunity structures in modern complex societies helped shape and delimit the specific ranges of problems that have been allowed to come to light (Kitschelt 1986). But also, the social movement responsible for crystallising them politically (Eyerman and Jamison 1991) – most strikingly, as Non-Governmental Organisations (NGOs) and Green parties – has been a cultural quite as much as a political form (Melucci 1989: 55-6).

One implication of this, so far poorly mapped, is that certain particular environmental problems (whales and nuclear power, for example), and the arguments surrounding them, may best be understood as having several layers. Thus their distinctive prominence may be the result of their resonance as symbols of deeper relational tensions in industrial society as a whole, over and above any more direct stories they may tell (Grove-White 1992). The issues which have emerged recently to constitute the environmental agenda may thus need to be understood not only as discrete scientifically recognisable 'problems', but also, frequently, as more adventitious reflections of general challenges to cultural and epistemological orthodoxies embedded in our social institutions (Grove-White 1991).

- * Thirdly, the ways in which public anxieties and policy responses on these questions have emerged, and have been expressed, have been dominated by the languages of dualism and individualism. Both of these discourses impose, inevitably, certain reductionist limitations on the human realities they seek to capture. Much environmental debate, we would suggest, has been conducted in tension with just these limitations. But this means that much of what has been at stake is far from obvious to the naked eye.

For example, in western societies, the continuing dominance of 'objective', 'scientific' descriptions reflecting a human-nature dualism has meant that public arguments about the current sense of environmental crisis have been drawn away repeatedly from cultural and human-relational tensions which may also be embodied in the crisis, back always towards scientific and 'natural' descriptions (Grove-White et al. 1991: 5-8). Similarly, the pervasiveness of 'individualistic' public discourses in contemporary western culture may be disguising from view the wider significance of the groping

reconstitution of collective communitarian concerns through widespread green activism and behaviour (grass-roots NGO participation and green consumption, for example) (Melucci 1989).

These examples point to social and cultural complexities with which an ethical response to the environmental problematic must engage, if it is to begin to do justice to what is at stake. Our prevailing public discourses on such matters tend to neglect them, as we argue in the next section.

III.

Let us consider three dominant conceptions of the relationship between environmental problems and the ethical domain. Each of these finds concrete expression in the contemporary public policy world, albeit in tacit form. Each is inadequate in its own distinctive way.

The first two of these approaches are technocratic, in that they imply that it is on bodies of professionals with expert, technical knowledge that we should rely for decisions about how we should live – not just for an accurate description of the natural world and our impact on it, upon which social policies can be built, but for the determination of such policies themselves (Habermas 1971: 63-4). The moment of ethical decision, be it one determined by open, democratic discussion, or by the sheer exercise of political will, is thus replaced by one of technical calculation.

The 'Science Alone' Model

For the first of these, which might be called the 'science alone' model, natural scientific knowledge alone is regarded as necessary for this process, since human beings are assumed to be, at base, risk-averse self-interest calculators who, once enlightened as to the consequences of their actions, will be rationally bound to amend their behaviour in an ecologically desirable way. An example of such an approach is to be found in the probabilistic risk assessment methods used for a number of years by the UK nuclear and chemical industries; these purport to give objective measurements of risk, to whose logic the rational agent will properly respond (e.g. HSE 1988).

But of course human beings are not disembodied rational calculators; they are complex beings radically situated in nature, culture and history (Fay 1987: 143ff). Attempts to apply a rationalistic model of human nature – even as a counterfactual, ideal model, from which real human beings always fall short – ignore the full force of this human embeddedness at the cost of moral and predictive adequacy.

The 'Values as Social Lubricant' Model

A second, 'values as social lubricant', model can be seen as a way of addressing this problem while remaining within the technocratic paradigm. It pictures values as acting on individual behaviour as non-rational determinants, which can potentially be manipulated through public policy instruments. Human beings are no longer assumed to be sufficiently rational to be relied upon to act in the best interests of the planet, even when made fully aware of the 'facts' as revealed by natural science. So the social sciences are needed, to understand the way that 'values' intervene in human behaviour.¹

This model is being reflected increasingly in the approaches of many public agencies. Thus Martin Holdgate, director-general of the World Conservation Union (IUCN), writing about the new conservation strategy *Caring for the Earth* (IUCN et al. 1991), notes that "what people do is governed by what they believe" (Holdgate 1991: 776). This sort of analysis is motivated partly, we would allow, by a genuine concern to lift the environmental problematic out of an overly technocratic reading. But such is the institutional commitment of such agencies to technocratic discourse that within this model ethics itself becomes an objectified tool for technological manipulation.

So this is still a technical, rather than a fully ethical, inquiry. Ethics becomes reduced to a noncognitive, motivating factor which can be manipulated to induce people to do what experts have already determined, technocratically, is ecologically best – as Holdgate puts it, "conservation through changing people's perceptions" (1991: 776). This echoes the kind of approach referred to by Howard Newby, the chairman of the UK's Economic and Social Research Council, in a recent article on the role of social science in technological innovation. In a passage which provided the present authors with a name for this second model, Newby criticises the dominant, 'linear' model of the relationship between science, technology and society as involving nothing more or less than "the natural science community appeal[ing] to social scientists to help lubricate the public acceptability of science and technological change" (1992: 20).

Many important recent attempts to encourage the integration of values into environmental debate steer a course perilously close to this amalgam of technocracy and social engineering. Two examples will suffice. Firstly, the current European Community programme for Socio-Economic Environmental Research, presents 'values' largely as one of several classes of factors, including culture and religion, which can be used to "explain the lack of coherence between knowledge and behaviour among individuals, institutions and societies" (CEC 1991: 40). The ethical is here pictured as a mere object of study, the results of which can be used instrumentally – "applied by policymakers" in an attempt to "overcome the incoherence between knowledge and behaviour" (ibid.: 41).

Secondly, the educational programmes linking religion and conservation developed by the International Consultancy for Religion, Education and Culture

for the World Wide Fund for Nature often take a similar form. Their overall strategy is to “look at ... the difference that core beliefs, as well as other beliefs, make to the way in which we live and treat, use or value, the natural world” (Palmer 1988: 11). The task of education is then, crudely, to replace world-views – religious or secular – which are ‘destructive’ with those which are ‘benign’.

But this is to assume that we already know how to behave towards nature, independently of our world-views – that we can determine, in isolation from our values and commitments, how we should live, and therefore which world-views are desirable. Once again, a genuine attempt at ethical reflection about the environmental crisis has been inserted into what is ultimately a technocratic framework.

An adequate treatment of the ethical dimension would not see it as an exogenous factor which obtrudes into the process of instrumental rationality. Instead, ethics would be understood as rightly entering in at the very beginning of reflection about desirable trajectories for society, not simply at the end, as a motivating factor, once all decisions are over. Even the very identification of an environmental ‘problem’ involves crucial dimensions of judgement. To reduce this to a technical calculation is simply to attempt to render impervious to social criticism what are properly ethical and political commitments with potential implications for the whole of society.

The ‘Division of Labour’ Model

Unlike the two models considered above, the third, ‘division of labour’ model of the values-knowledge relationship to be found in the environmental policy world leaves the technocratic approach behind. It does so by assigning a role for ethics in the constitution of knowledge itself, but one which is separated from the scientific process of the description of nature by a fact-value distinction. Technical experts are necessary for the determination of ‘what is’, but decisions about ‘what is to be done’ are separated from such technical matters, and arrived at through acts of ethical judgement. In other words, ethics are no longer seen simply as regulative systems of ideas and values which can ensure that people’s behaviour is ecologically desirable, but as ways of determining what is ecologically desirable in the first place, once the facts are known.

Once again, there are several different versions of this model evident in the public world, each of them to be found wanting in different ways. In one, manifest in cost-benefit analytical approaches, the attempt is made to incorporate ‘values’ into environmental policy processes by attempting to sum the preferences of all individuals affected by a particular decision. The currently influential work of environmental economists such as David Pearce, adviser to the UK Secretary of State for the Environment, largely follows this approach (Pearce et al. 1989: 56-7). But, despite appearances, this falls into the trap of objectifying values, treating them as unambiguous, unitary preferences which

can be taken at face-value. Ethical inquiry thus becomes conceived as a simple technical exercise, collapsing back into the first, 'science-alone' model.

Another, broadly Kantian, version of the 'division of labour' model attempts to articulate universal ethical principles upon which the moment of ethical judgement can be grounded. This model of ethics is one of a disembodied, autonomous subject legislating to itself on the basis of a similarly disengaged moral reason. The discussions of inter-generational equity in current environmental economics, with their reliance on abstract principles of justice (e.g. Pearce 1989: 3) fall into this category. But such an approach imposes a specious univocality upon ethical reflection, as if all rational beings, in any period of history, and in any culture, would arrive at the same conclusions. This is to ignore the radical embeddedness of human beings mentioned above, and the gulf between abstract principles and the concrete ethical life (Walzer 1988: 23).

Furthermore, all versions of the 'division of labour' model make the error of ceding the realm of facts over to the technical. In reality, clear demarcations between questions of fact and questions of value are untenable. The idea of an objective, neutral description of nature prior to any normative commitments is illusory, as a growing body of work in the sociology of scientific knowledge confirms (Polanyi 1958; Mulkay 1979; Wynne 1982; 1988).

The next section of this paper sketches out tentatively what might be involved in taking these criticisms seriously. We identify the moves necessary for an approach to the question of ethics and the environment which might engage more successfully with human realities. These entail acknowledgement of (i) the implication of values and commitments in the production of knowledge, (ii) the intrinsic contestability of meaning, and (iii) the embeddedness of the ethical in social practices. We also suggest some implications of such acknowledgements for the practice of environmental ethics.

IV.

To attempt to delineate a new, universalistic ethic which could incorporate concrete local factors would be far from the spirit of this paper. Our argument has been simply that philosophers and thoughtful public administrators seeking to respond to calls for the more explicit incorporation of an ethical dimension into environmental policy need to take account of the complex realities sketched in section II above, and that approaches like those described in section III fail to do so. So what features might a more adequate approach embrace? Three seem particularly important, corresponding broadly to the three cultural realities highlighted in section II.

* *Knowledge Constitution*

If evaluative judgements were acknowledged more generally as informing the constitution of our descriptive knowledge of the world (Jayyusi 1991: 240-3), even in its most scientific forms, then a number of implications would follow. In the first place, there would be less intellectual sanction for our dominant institutions to act so unrestrainedly in their technological manipulation of the world; the 'precautionary principle' would be given far more weight than is generally the case in environmental policy and decision processes. Given a less hubristic notion of our knowledge of the natural world, we would find ourselves less open to the over-confidence necessary to permit social projects which risk radically altering the local or global ecology.

Moreover, environmental debate would be understood as consisting, in part, of the questioning of the social commitments underlying seemingly objective arguments on all sides. Many social conflicts, overtly about the technical determination of environmental risks, can be more usefully seen as conflicts between commitments to certain models of how society is – or should be – ordered.² A better understanding of the relationship between knowledge and values might help to turn the implicit into the explicit, and blind conflict into open negotiation (Wynne 1992: 282, 294).

* *Interpretation*

Ethical approaches should reflect more sensitivity to the 'depth' of moral utterances. The surface meanings of such utterances do not necessarily exhaust their significance (Ricoeur 1981). Thus many explicit statements of concern and commitment need also to be sensed as expressive manifestations of deeper anxieties about embedded trajectories of contemporary society.³

For example, opposition to the development of nuclear power facilities may reflect tacit judgements about the trustworthiness of the nuclear industry and its regulators, or about the general issue of the fragility of social control over patterns of technological development in modern society, as much as about the actual technology of nuclear fission (Wynne 1982: 12, 163; Winner 1977: 279-305). Similarly, many seemingly irrational 'willingness-to-pay' measurements collected from citizens faced by environmental decisions may best be understood as deeply serious 'protest bids', lodged against the very idea of putting a price on nature at all (Sagoff 1988: 81-8). Even much 'Nimby' style of protest, far from arising only from self-seeking motives, may best be seen as genuine moral protest channelled into a particular form by planning law, which gives greatest formal weight to individual 'interests' directly affected by a development.⁴

Not to recognise these possible dimensions of ethical judgements – or to see them as somehow undermining the latter's cognitive status⁵ – is to adopt

an unhelpfully one-dimensional picture of the ethical. Many recent attempts to capture theoretically the moral aspects of environmental concern appear to us to strive towards formalisation and systematicity at the expense of adequate acknowledgement of these deeply significant and relevant human dynamics.

* *Contextuality*

If the ethical is a dimension of human life which is radically embedded in wider social and cultural practices, then it is only with a Procrustean violence that it can be abstracted from this milieu and fashioned into a universal ethic (Walzer 1983: 314; 1988). Attempts to understand the ethical aspects of the environmental crisis should resist the colonising tendencies inherent in the project of a universalist ethics, in favour of the articulation and critique of already existing or emergent concrete ethical practices (Cheney 1987: 135-8; 1989: 120-1).

Part of what this would involve is a turn to the 'micro-ethical'. Instead of attempting to produce elegant deductive systems of ethics, research could proceed more usefully by entering into the actual social contexts of ethical judgement, and exploring their rich textures.⁶ The realm of the ethical is best approached through an ever-deepening engagement with the lived realities of day-to-day existence. It is only from such encounter – what Gadamer (1975: 272-3) calls the "fusion of horizons" – that normative judgements of truly persuasive integrity (including those about other normative judgements) can arise.

V.

If we ourselves have been prescriptive about how ethics should be done, these prescriptions have arisen out of precisely the sort of engagement with concrete social reality that we have been advocating – that is, with the reality of environmental dispute and policy development as it has emerged over the last two decades (see section II).

We have argued that current aspirations to engage with the ethical dimensions of the environmental crisis must take more account, firstly, of current understandings of how ethics actually work in relation to their social and cultural contexts, and, secondly, of the peculiarly complex cultural realities embedded in the environmental problematic itself. We have also suggested that many of the (explicit or implicit) accounts of environmental ethics which are beginning to find expression in the public domain fall far short of embracing these realities.

The resulting lacunae, and their practical implications, now demand urgent and systematic intellectual attention.

NOTES

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¹ Another way of addressing the empirical inadequacy of the 'science alone' model within a technocratic paradigm would be to see human beings as acting rationally as individuals, but as making their decisions in social contexts – markets, bureaucracies, and so on – which often result in individually rational decisions adding up to collectively irrational ones. But we are focusing here on an attempted solution which introduces 'values' into a still fundamentally technocratic analysis.

² Wynne (1989a) shows how disputes such as those over pesticide use (*ibid.*: 36-8) and landfill practices (*ibid.*: 39-41) can arise because of assumptions about social arrangements – involving "an ideal world of operation, inspection, management or maintenance" (*ibid.*: 36) – implicit in expert discourses. Such descriptive assumptions can easily slide into the imposition of prescriptive visions of society. For example, official pronouncements about the 'safety' of an expansion of nuclear electricity generation can be seen as assuming, and so conditional on, social arrangements characterised by strict regulation and control. To pursue such a programme despite the falsity of such assumptions is, in effect, to attempt to impose them.

³ We do not mean to imply that any explicit ethical statement can be somehow 'reduced' to a mere epiphenomenon of more fundamental social tensions, but rather to point to some of the implications of acknowledging the existence of such different levels of meaning. To claim the former would be to assert an epistemological privilege about meaning which would be far from our intention. It is integral to our approach that no particular person can claim meaningfully to be in a position to reveal the 'true' (as it were, 'ultimate') meaning of ethical judgements. In the essentially dialogical picture of ethics proposed here, ethical judgement cannot be reduced to the monological deliberation of a privileged observer. Interpretations are open to challenge, and to further interpretation (Habermas 1979: 90).

⁴ 'Nimby' is an acronym for 'not-in-my-back-yard'. Wynne (1982: 56) provides an interpretation of the 1977 Windscale Inquiry into the expansion of a nuclear power facility which neatly reverses the usual reading of such conflicts, where the nuclear industry is seen as championing the public good against the private rights of individuals.

⁵ This would be a 'hermeneutics of suspicion' approach to interpretation (like those carried out by Marx and Freud) which we would deny should have the final word.

⁶ For studies along these lines see Wynne (1989b) on sheep farmers, Birke and Michael (1992) on scientists engaged in vivisection (see also other articles by Birke and Michael, and Arluke, in the same number), and Harrison et al. (1987) on the attitudes of 'ordinary' people to their local nature resource.

REFERENCES

- Birke, Lynda and Mike Michael 1992 "The Researchers' Dilemma", *New Scientist*, **134**: No. 1815, 4th April, 25-8.
- Cheney, Jim 1987 "Ecofeminism and Deep Ecology", *Environmental Ethics*, **9**(2): 115-45.
- Cheney, Jim 1989 "Postmodern Environmental Ethics: Ethics as Bioregional Narrative", *Environmental Ethics*, **11**(2): 117-34.
- CEC (Commission of the European Communities) 1991 *Research and Development Programme in the Field of Environment: 1991-1994 Workprogramme, Document XII/177/91-EN*. Brussels, Directorate-General XII, Commission of the European Communities.
- Douglas, Mary 1975 "Environments at Risk", in *Implicit Meanings: Essays in Anthropology*, pp. 230-48. London, Routledge & Kegan Paul.
- Eyerman, Ron and Andrew Jamison 1991 *Social Movements: A Cognitive Approach*. Cambridge, Polity.
- Fay, Brian 1987 *Critical Social Science: Liberation and its Limits*. Cambridge, Polity.
- Gadamer, Hans-Georg 1975 *Truth and Method*, tr. William Glen-Doepel, edited by Garrett Barden and John Cumming. London, Sheed and Ward.
- Grove-White, Robin 1991 "The Emerging Shape of Environmental Conflict in the 1990s", *Royal Society of Arts Journal*, **89**, No. 5419, 437-47.
- Grove-White, Robin 1992 "Human Identity and the Environment Crisis", in *The Earth Beneath: A Critique of Green Theology*, edited by Ian Ball, Margaret Goodall, Clare Palmer and John Reader, pp. 13-34. London, SPCK.
- Grove-White, Robin, Paul Morris and Bronislaw Szerszynski 1991 *The Emerging Ethical Mood on Environmental Issues in Britain*, report to the World Wide Fund for Nature (UK). Lancaster, CSEC, Lancaster University.
- Habermas, Jürgen 1971 *Towards a Rational Society*, tr. Jeremy J. Shapiro. London, Heinemann.
- Habermas, Jürgen 1979 *Communication and the Evolution of Society*, tr. Thomas McCarthy. London, Heinemann.
- Harrison, Carolyn, Melanie Limb and Jacquelin Burgess 1987 "Nature in the City: Popular Values for a Living World", *Journal of Environmental Management*, **25**(4): 347-462.
- Holdgate, Martin 1991 "Panacea" *BBC Wildlife*, November, p. 776.
- HSE (Health and Safety Executive) 1988 *The Tolerability of Risk from Nuclear Power Stations*. London, HMSO.
- IUCN, UNEP and WWF (International Union for the Conservation of Nature, United Nations Environment Programme, and World Wide Fund for Nature) 1991 *Caring for the Earth: A Strategy for Sustainable Living*. London, Earthscan.
- Jayyusi, Lena 1991 "Values and Moral Judgement: Communicative Praxis as a Moral Order" in *Ethnomethodology and the Human Sciences*, edited by Graham Button, pp. 227-51. Cambridge, Cambridge University Press.
- Kitschelt, Herbert 1986 "Political Opportunity Structures and Political Protest: Anti-Nuclear Movements in Four Democracies", *British Journal of Political Science*, **16**(1): 57-85.

- MacIntyre, Alasdair 1985 *After Virtue: A Study in Moral Theory*, second edition. London, Duckworth.
- Melucci, Alberto 1989 *Nomads of the Present: Social Movements and Individual Needs in Contemporary Society*. London, Hutchinson Radius.
- Mulkay, Michael 1979 *Science and the Sociology of Knowledge*. London, George Allen and Unwin.
- Newby, Howard 1992 "Join Forces in Modern Marriage", *The Times Higher Education Supplement*, January 17, p. 20.
- Palmer, Martin 1988 *Genesis or Nemesis: Belief, Meaning and Ecology*. London, Dryad.
- Pearce, David, Anil Markandya and Edward B. Barbier 1989 *Blueprint for a Green Economy*. London, Earthscan.
- Polanyi, Michael 1958 *Personal Knowledge: Towards a Post-Critical Philosophy*. London, Routledge.
- Ricoeur, Paul 1981 "The Model of the Text: Meaningful Action Considered as a Text", in *Hermeneutics and the Human Sciences: Essays on Language, Action and Interpretation*, edited and tr. John B. Thompson, pp. 197-221. Cambridge, Cambridge University Press.
- Sagoff, Mark 1988 *The Economy of the Earth: Philosophy, Law and the Environment*. Cambridge, Cambridge University Press.
- Thompson, Michael, Michael Warburton, and Tom Hatley 1987 *Uncertainty on a Himalayan Scale: An Institutional Theory of Environmental Perception and a Strategic Framework for the Sustainable Development of the Himalaya*. London, Ethnographica.
- Walzer, Michael 1983 *Spheres of Justice: A Defence of Pluralism and Equality*. New York, Basic Books.
- Walzer, Michael 1988 "Interpretation and Social Criticism", *The Tanner Lectures on Human Values*, Vol. 8, edited by Sterling M. McMurrin, pp. 1-80. Salt Lake City, University of Utah Press.
- WCED (World Commission on Environment and Development) 1987 *Our Common Future*. Oxford: Oxford University Press.
- Winner, Langdon 1977 *Autonomous Technology: Technics Out of Control as a Theme in Political Thought*. Cambridge, Mass., Massachusetts Institute of Technology Press.
- Wynne, Brian 1982 *Rationality and Ritual: The Windscale Inquiry and Nuclear Decisions in Britain*. Chalfont St Giles, Bucks, British Society for the History of Science.
- Wynne, Brian 1988 *Risk Management and Hazardous Waste: Implementation and the Dialectics of Credibility*. Berlin, Springer-Verlag.
- Wynne, Brian 1989a "Frameworks of Rationality in Risk Management: Towards the Testing of Naïve Sociology", in *Environmental Threats: Perception, Analysis and Management*, edited by Jennifer Brown, pp. 33-47. London, Belhaven.
- Wynne, Brian 1989b "Sheepfarming after Chernobyl: A Case Study in Communicating Scientific Information", *Environment*, 31(2): 10-15, 33-9.
- Wynne, Brian 1992 "Risk and Social Learning: Reification to Engagement", in *Social Theories of Risk*, edited by Sheldon Krimsky and Dominic Golding, pp. 275-97. New York, Praeger.