

Frame Analysis and the Literature of Climate Change

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[Prepublication manuscript for *Literature, Ecology, Ethics*, edited by T. Müller and M. Sauter (Anglistische Forschungen 432), Universitätsverlag Winter, 15-33.]

How a Frame Analysis approach can help address today's environmental problems

Why does the public know ever more about the necessity to change patterns of consumption, yet remain stubbornly resistant to such change? Why do we have societal inaction and political gridlock on problems related to global climate change, environmental degradation and food and water shortage in the developing countries? A recent report prepared for Friends of the Earth UK, the Council for the Protection of Rural England, the World Wide Fund for Nature, Oxfam and the Climate Outreach and Information Network entitled *Common Cause* opens with these questions. Over the last few years, there has been growing recognition that scientific and technical matters are not the only important things in debates on our environmental problems, and social, psychological and value-related factors also play a crucial role. Without taking these factors into account, and without involving the social sciences and humanities alongside the natural and political sciences in the search for solutions to global environmental problems, progress is likely to remain elusive.

Resistance to action on environmental challenges, WWF Change Strategist Tom Crompton and his co-authors of the report argue, will only be overcome through engagement with the cultural values that underpin that resistance. Hence the report's subtitle: *The Case for Working with our Cultural Values*.¹ Crompton urges the non-governmental campaigning organisations

¹ Crompton 2010. NGO campaigners (and linguists and psychologists) are not alone in stressing the need to pay attention to cultural values if we are to meet today's environmental challenges. The sociologist Kari Norgaard has recently identified cultural norms as key factors contributing to our paralysis in the face of the alarming predictions which have come from climate scientists, alongside processes of emotion management and structures of the global liberal capitalist political economy. See her analysis of the reasons for public 'denial' and 'cultural inertia' in *Living in Denial*.

he is writing for to actively promote certain long-held but neglected social values, and to seek to diminish the dominance of others. Values to be strengthened include empathy towards those facing the effects of humanitarian and environmental crisis, concern for future generations, and recognition that human flourishing depends on relationships with one another and with the natural world. This goes beyond the remit of the academic, and could be seen as coming dangerously close to attempts by industrial lobbies and political interest groups to manipulate public attitudes and behaviour, by associating their aims with popular values. However, *Common Cause* distances itself from such manipulative intentions, stressing that environmental NGOs have a moral obligation to work transparently, inclusively, and reflexively. Among their key aims must be to further public awareness of cultural values, rigorous debate on their consequences, and scrutiny of the mechanisms by which they evolve, in short: to “democratise” the way cultural values are shaped (p. 5).

Many working in the humanities and social sciences will welcome this expression of an urgent need for research into how cultural values are shaped and by whom, and into how values influence public responses to the issues that science tells us are of most pressing concern, as a source of legitimation for their activities and wider concerns. The shortcomings of the Enlightenment or ‘knowledge-deficit’ model of science communication and human decision-making relating to environmental issues are well known.² Far from humanity becoming more sensitive and aware as it emerges from past misconceptions and ignorance, environmental matters are subject to continuing dispute between people who think in sharply different ways. However accurate and detailed the factual information we receive may be, it is not the only thing which shapes our judgement on public issues. In addition, as research into the value-action (or attitude-behaviour) gap has shown,³ being informed is not the same thing as being concerned and feeling responsible. Emotional associations and dominant cultural values play a crucial role. Individuals tend

² In *Why We Disagree About Climate Change*, Mike Hulme describes (pp. 217-22) the recent shift in the culture of science communication from a (linear) deficit model to a dialogue one, in which senders and receivers of messages are recognised as jointly engaged in shaping and changing the meaning of messages.

³ See for instance Scott, *Minds, Gaps, Models and Behaviours*.

to reject information when it challenges their values and identity. Hence the need to develop expertise in laying bare the ways in which environmental discourse maps existing values and self-understandings onto new public concerns such as climate change. Studies of the communication of science, political discourse, the media, and popular culture all have a part to play in this.

Mike Hulme's book *Why We Disagree About Climate Change* (2009) took a significant step in this direction. Hulme's starting point is that resolving our disagreements over how to meet environmental challenges necessarily goes beyond the reach of physical science and economic calculation, that it requires articulating and debating our belief systems and social values. We have not paid sufficient attention in the past to social values and how they determine environmental attitudes and behaviours. Although Hulme is a climate scientist by training, his book is principally concerned with climate change as a social and cultural phenomenon. As well as discussing climate change as a matter of science, economics, and party political struggle, and its public policy and governance dimensions, he therefore also writes about it as a challenge to our humanitarian ideals, as a subject of personal lifestyle choice, and as a cultural construction. Climate change challenges us to think about the weight which we give to the welfare of future generations as against our own welfare, and about what store we lay by aesthetic and spiritual values as against instrumental ones. It therefore calls for humanities analysis, and expertise in culture, language, and the history of ideas.

Hulme's central argument (e.g. p. 330) is that the sources of our disagreements about climate change lie within us, in our values and our sense of identity and purpose. He therefore turns, as Crompton also does, towards frame analysis, for frames are the principal vehicle by means of which real life issues are invested with value. Hulme and Crompton hold that knowledge of framing processes in general and the framing of environmental change in particular will help us not only to understand social inertia, but also to communicate the need to act on climate change better. Focusing on consumption, economics and policy fails to engage people at a deep level, because it doesn't connect effectively with their life goals and values. It also ignores their memories of past disasters, and the narratives, myths and

metaphors through which such connections have been forged in the past. And it passes up the opportunity of using them as vehicles to reconfigure established cultural patterns, for instance by associating the quest for a sustainable way of life with desire for personal growth, self-determination, creative experimentation, relationships, and community.

For these three reasons it is then a matter of importance for contemporary society and the future of humanity to complement research in the natural sciences by raising awareness of how environmental issues are framed, both consciously and specifically through political agendas, marketing devices and media norms, and more generally through languages and cultures, with their familiar narratives, metaphors and genres.

Framing and frame analysis: origins and definitions

The term 'framing' is ubiquitous in the broad sense of the angle or perspective from which an issue is approached and represented, determining what is included and excluded. Framing directs our attention to particular parts and features of an issue, which has implications for its interpretation, e.g. who is responsible for the situation having arisen, what alternatives there are for action, and who can take that action. Framing in this general sense of the relationship between the presentation of an issue and the intended cognitive and behavioural outcomes is not restricted to the originators of messages: transmitters also frame them. While originators are likely to frame according to their own understanding of the world around them, the media typically engage actively in reframing issues, and they do so according to audience preferences as often as their own ideologies and norms.

Since the 1980s, cognitive psychologists and linguists such as George Lakoff and Charles Fillmore have argued that framing is a universal process. There is no such thing as a message without framing in relation to either tacit or explicit assumptions. Drawing on the concept of *schemata* in memory theory, first proposed by the Cambridge social psychologist Frederic Bartlett in the 1930s, and on developments in the 1970s including Erving Goffman's popularisation of the concept of framing through presentation of 'frame

analysis' as an examination of the organisation of experience in terms of our subjective involvement in events and situations, and Marvin Minsky's work on frames in computer science, Lakoff, Fillmore and others have explored the relationship between frames and physiological structures in the brain, and the reflection of frames in language.⁴ The concept of framing has also been taken up in discourse analysis,⁵ and proved a useful tool in media studies.⁶ In media studies, and in political sociology, where significant insights into the identification of dominant frames and the analysis of mechanisms of framing have been gained,⁷ attention has shifted away from framing as a universal structuring of information in relation to lived experience and values, to the conscious packaging of issues so as to tie them in with a target audience's world view. Framing in this narrower sense more open to empirical analysis has emerged as one of the principal paradigms in communication studies in the past decade, alongside and to a certain extent replacing older concepts such as agenda-setting and priming.⁸

Frames work by linking an unfamiliar object or field of experience with a familiar one, mapping the values associated with the latter onto the former. All efforts to communicate complex issues inevitably involve selection, prioritisation, and strategies of presentation which may draw on the speaker's or the audience's personal experience, allegiances and social identity. However, the process takes on a different meaning in advertising and political communication where these make conscious use of pre-existing frames as interpretative shortcuts. It is therefore common to distinguish primary, 'deep' frames (cognitive structures usually forged in childhood, held in the long-term memory, that associate an experience with the presence or absence of particular values), from secondary, 'strategic' or 'advocate' framing, i.e. the activation and application of a previously established deep frame by the

⁴ See Bruner, *Acts of Meaning*, 55-9; Feldman, *From Molecule to Metaphor*, and Busse, *Frame-Semantik*.

⁵ See Alexander, *Framing Discourse on the Environment*.

⁶ See for instance Chapters 5 and 10 of Robert Cox, *Environmental Communication and the Public Sphere*.

⁷ My paper 'Frame Analysis: Overview and relevance for the critical study of environmental discourse' includes a brief account of findings in the study of social movement politics and media studies by David Snow and Robert Benford, William Gamson, and others.

⁸ See Bryant and Miron, 'Theory and Research in Mass Communication'; Scheufele and Tewksbury, 'Framing, Agenda Setting and Priming'.

wording of an issue, so as to resonate with particular values, and evoke a particular response. The phrase “war on terror”, which was introduced into political discourse in America and Britain in the early 2000s, is an example of strategic framing. It drew on the conceptual frame of war, which involves two possible solutions, and a victor and a loser, marginalising the possibility of multiple players and outcomes including mutual understanding.

Common Cause discusses frames in some detail (especially Chapter 3, ‘Frames and Framing’, pp. 40-58). It locates frames at the interface of our experience of the world and its conceptualisation (p. 40), and cites George Lakoff’s description of them as “the mental structures that allow human beings to understand reality – and sometimes to create what we take to be reality”. Frames “structure our ideas and concepts, they shape the way we reason, and they even impact how we perceive and how we act.” (p. 11). Lakoff continues: “For the most part, our use of frames is unconscious and automatic—we use them without realizing it.”⁹ However, framing in this broadest of senses remains an essentially theoretical postulate. Neuro-physiological and linguistic evidence for frames has been found in patterns of neural excitation on the one hand and statistically significant recurrence of words, phrases and collocations on the other. But work on primary frames has so far yielded less real insight into the frame taxonomies and processes of framing and reframing which are of significance for public discourse than studies of secondary framing, i.e. the application of recognisable existing frames to new issues.

In the following, I am not concerned with neurophysiological debates, psychological scripts, frames as macrostructures governing cognition and discourse,¹⁰ or the details of linguistic or discourse analysis, but with frames as value-based systems of thinking, as interpretative storylines which communicate what is at stake in a societal debate, by relating it to personal life goals and collective social norms, by means of cultural narratives, images, and forms. After briefly considering the principal discourses found in contemporary debates on the environment, and the role which framings and

⁹ Lakoff, *Thinking Points*, p. 25.

¹⁰ See van Dijk, *Macrostructures: An Interdisciplinary Study of Global Structures in Discourse, Interaction, and Cognition*.

values play in them, I ask which of these framings are found in literary texts, and explore other dimensions of cultural framing. This section is focused on the question to what extent literature merely reproduces eco-political framings, and to what extent it plays a more ambitious and socially significant role in environmental discourse, for instance by working with frames to help us understand the climate consequences of our current way of life and to imagine credible alternatives to it. The final part of the article examines a trilogy of novels by the Hamburg-based environmental journalist and writer Dirk C. Fleck as an example of the literary representation of, experimentation with, and to an extent also critical interrogation of, the framing of climate change.

Discourses, value-related frames and the cultural framing of environmental problems

Since the 1990s, it has become common for political sociologists to adopt a culturalist (or constructivist) approach to environmental politics. Klaus Eder, John Dryzek, Fischer/ Hajer and others have identified the key positions taken up by political actors and analysed them as discourses framing environmental problems and normalities in terms of the actors' worldviews and values. Dryzek, for instance, notes in *The Politics of the Earth. Environmental Discourses* (1997) that all environmentalist discourses are united in distancing themselves from the 'industrialist', Promethean, or cornucopian discourse which long dominated western societies, and was characterised by commitment to economic growth and the conviction that human ingenuity could overcome any difficulties arising from pollution or the exhaustion of resources. He locates the discourses which have proliferated with the diversification of environmental concern since the 1960s along two axes, the first ranging from 'reformist' to 'radical', and the second from 'prosaic' to 'imaginative'. These yield four basic categories of discourse:

- environmental *problem-solving* positions, which are both 'reformist' and 'prosaic', demanding the least extent of change from the political and economic status quo
- *survivalist* positions, which are 'radical' inasmuch as they call for reorientation away from growth and redistribution of power, but

- 'prosaic' in mainly envisaging solutions involving greater control by administrative and scientific elites
- positions related to the concept of *sustainability*, which remain within the framework of liberal capitalism, but take a more imaginative approach
 - *Green radical* positions such as deep ecology, ecofeminism, bioregionalism, social ecology, and environmental justice, which are, for all their differences, all both 'radical' and 'imaginative'. (pp. 14-16)

Dryzek shows that each of the competing discourses in these categories constructs a story or stories, about what action is needed by whom, from four basic elements:

- basic entities whose existence is recognised or constructed
- assumptions about natural relationships
- agents and their motives
- key metaphors and other rhetorical devices. (pp. 17-19)

Linguistic research on environmental discourse has similarly established the existence of a range of linguistic repertoires, or routinely used systems of language for describing and evaluating events and actors. These frame them by means of distinctive words and phrases with interrelated meanings, structural metaphors, tacit suppositions, and modal expressions implying obligation or prohibition.¹¹

The reasons leading an individual to take up a particular position on a given environmental issue and employ the corresponding discourse and framing are complex. External circumstances undoubtedly play a role, but individuals' freely chosen life goals and values have also been shown to be determining factors. Pending verification through empirical studies, Tom Crompton draws on George Lakoff's writing on deep frames,¹² and tentatively proposes the following three pairs of opposing value-related frames as mechanisms which structure people's perceptions of and attitudes towards social challenges:

1. Whether we conceive of human nature as guided by *self-interest* or *common interest*. Those who stress self-interest see individuals as engaging in cost-benefit calculations. Others see value as not explained exclusively in economic terms. They tend to believe in an inherent value of other creatures and things, and to do things in the

¹¹ See *Common Cause*, Appendix 3, pp. 87-8.

¹² Lakoff, *Moral Politics*, *Don't Think of an Elephant*, and *Thinking Points*.

interest of others without anticipating personal material benefit. For them, key values are community feeling, fitting into nature, tolerance of ideas and beliefs, social justice, universalism and benevolence.

2. Whether we conceive of the family as led by a *strict father* or *nurturing parent*. The view of the parent as strict father is associated with acceptance of authority and control, hierarchy, and social power as the guiding principle. The contrasting conception of nurturing parent prioritises the duty to love and nurture, teach children to empathise with others, and show responsibility.
3. Whether we conceive of society as legitimately shaped by *elite governance* or *participative democracy* determines people's views of the role of government in public decision-making. Elite governance implies a need for leadership and hierarchy. This framing is associated with image, pursuit of authority, power, observing social norms, and conformity. Those tending more towards participative democracy believe in the collaboration of citizens, and the ability to combine collective pursuit of ideals with personal transformation and self-realisation. Related values are self-acceptance and self-direction. (*Common Cause*, pp. 47-9, 53-7)¹³

We shall see in the following how this theoretical scaffolding and the concepts located in it relate to the framing of climate change encountered in literary texts. Before doing so, however, it is important to recognise that while such universal values constitute a key point of reference with respect to which issues are framed in general communication, cultural and aesthetic dimensions of framing also play a significant role. On the one hand, the sets of words available in a language, and the sets of concepts in a given culture (products of historical experience and past debates) influence the perception and interpretation of issues such as our proper relationship with the natural environment. On the other, the adoption of certain representational conventions and narrative forms (legacies of cultural tradition) predisposes the understanding, to the extent that these generate expectations in the reader. Narratives and metaphors are the key tools by which perceptual patterns and values are mapped onto unfamiliar issues. However, formal structures such as genres, and cultural allusions and intertextual references also play a role. Cultural framing involves the framing of the communication of environmental issues through choice between (and variation of) existing

¹³ The three frame sets are clearly related, and it could be argued that there is no more justification for regarding the third as different from the second than other deep-seated, value-laden and emotionally charged dualisms, such as conceptions of house/ home along axes between inclusion and exclusion, permanence and change, singularity and multiplicity.

modes and strategies of writing and visual articulation, and deployment of traditional myths and symbols (which are usually adapted in the process).

The psychologist and educationalist Jerome Bruner has written of the necessity for ideas to be culturally framed if they are to be accepted into and become part of the collective (cultural) memory, just as they must be framed in terms of schemata if they are to be retained by individuals in the memory. In both processes, narrative plays a central role: “The very processes involved in ‘having and holding’ experience are informed by [...] the constituent beliefs and the larger-scale narratives that contain them in [...] temporal configurations or plots”. Narratives have the power to “expand the horizon of possibilities”, and explore connections between the exceptional and the ordinary (*Acts of Meaning*, p. 59). Tropes such as metaphor, metonymy, synecdoche, and implicature serve to convert agents, actions, scenes, goals and instruments into emblems which require interpretation. Such encodings of interpretive meaning are “the coin of culture” (p. 61).

The shaping influence of culture-specific ways of seeing things and narrative forms of articulation derived from cultural tradition is a central theme in the final chapter of Hulme’s book, where four narratives framing climate change are presented as alternative ways of mobilising the public. Each narrative works with a central metaphor and on a particular emotion: lamenting Eden (nostalgia), presaging apocalypse (fear), constructing Babel (pride), and celebrating Jubilee (justice). These four ‘myths’¹⁴ link our thoughts and feelings about climate change with deeper sets of assumptions about the world around us, behind us, and ahead of us, and our relationship with it (pp. 340-58). That the first two of these myths are commonly found in literary texts, and correspond to two of the tropes presented in Greg Garrard’s *Ecocriticism* (Chapters 3 and 5) as extended metaphors representing and reflecting on human interaction with the natural environment, shows how environmental frame analysis converges with ecocriticism and indeed aspects of traditional literary and cultural analysis in the area of cultural framing.¹⁵ Garrard’s other

¹⁴ Hulme’s narratives, which have their origin in the Bible and the Torah, share the explanatory power and archetypal quality of Greek myths, which are also frequently drawn on as explanatory templates in environmental discourse.

¹⁵ There is an obvious overlap here with narratology and genre theory. It would be instructive for instance to explore the parallels with the structuralist analysis of narratives initiated by

tropes (he examines dwelling/ home, animals, the planet, and to a lesser extent pollution and health) could undoubtedly also be reconceived as frames.¹⁶ However, I now turn to a final aspect of cultural framing, namely the question what role literature, especially prose fiction, plays in environmental communication, taking climate change as a concrete example.

Literature and film as media of environmental communication

There is a striking discrepancy between assessments in sociology and literary criticism of the potential contribution of literature to public awareness, understanding and willingness to change behaviour. In studies of the framing of environmental communication in political discourse and the media, only occasional mention is made of literature and film. Usually it is to say that novels and feature films are essentially alarmist in approach, and that their impact is short-lived, if not actually counter-productive. This is the thrust of Hulme's summary (pp. 211-215) of a series of studies of the impact of the Hollywood film *The Day After Tomorrow* (2004) on viewers' environmental concern and behaviour in the United States, Britain, Germany and Japan. The film makers acknowledged their exaggeration and sensationalisation of the science, but claimed that their portrayal of dramatic climate events could have a positive influence, motivating people to do something about climate change before it was too late. In the event, the survey work conducted with cinema audiences yielded no clear evidence of lasting attitudinal or behavioural change. Seeing the film changed some people's attitudes towards environmental risks in the short term, but its dramatic portrayal of climate

Vladimir Propp in the 1920s, and Northrop Frye's classification of Comedy, Romance, Tragedy, and Irony/Satire as primal myths, genres and modes of thought in his *Anatomy of Criticism* (1957).

¹⁶ Like Hulme, Garrard sees these schemata determining our perception of nature and environment, investing our everyday experiences with meaning, and making changes in the environment understandable, as preformed patterns associated with powerful emotions (especially guilt, fear of punishment and longing for redemption or the good life). (*Ecocriticism*, Chapter 1, especially p. 8) The difference lies in the greater attention Garrard pays to the corresponding literary modes and writing strategies, genres and narrative structures, metaphors and images.

change actually reduced viewers' belief in the likelihood of extreme weather events occurring as a result of climate change.

Hulme acknowledges that studies of the impact of documentary films such as *An Inconvenient Truth* might have reached a different conclusion, but his assumption that literature and film are of marginal significance in (environmental) communication differs sharply from the conception of the potential worldview-constructing function of literature in society underlying Ecocriticism, much Marxist, feminist, and postcolonial criticism, and for that matter traditional liberal humanism.¹⁷ Hubert Zapf's theory of literature as 'Cultural Ecology', for instance, conceives literary texts, or at least the more complex and sophisticated works, as performing an ecological function within the system of a given culture. They produce knowledge that can help restore the balance with nature which is needed for human survival. As Timo Müller has written, literature frames our notions of the natural environment in a continuous process of adapting and reformulating existing frames and proposing new ones.¹⁸ While the processes of literary ecology do not tend to offer concrete solutions to problems, they work with ideas from the reservoir of the collective imagination, representing and overcoming problems symbolically, and thus contribute, indirectly and over time, to changing the way we think about nature and culture.

In *Acts of Meaning* and in his article 'Frames for Thinking: Ways of Making Meaning', Jerome Bruner has argued similarly that we would err in insisting on science's deductive rationalism and propositional mode of meaning making as the only important model of cognition in human society, drawn attention to the part played by an interpretive mode of thought typically involving representation and narrative, and pleaded for open-minded exploration of these different ways of understanding which complement each other. Bruner stresses the continuing importance of literature and its forms of story and drama, which 'personalise' meaning by anchoring it in what people

¹⁷ See for instance John Felstiner, *Can Poetry Save the Earth?*, and Elizabeth Ammons, *Brave New Words*.

¹⁸ Timo Müller, 'Cultural Ecology and Cultural Framing'.

do, feel, believe and hope for, which define what is expectable and canonical, and which assure cultural solidarity through myths, legends and genres.¹⁹

Large-scale, methodologically robust empirical studies would be needed to confirm that literature and film can play a role in sensitising the public to the consequences and implications of climate change, and changing people's attitudes and behaviour. In the meantime, it is prudent to assume generally oblique and limited impact, and to remember that at least some literary writing and film probably reinforces the unhelpful perceptions of our relationship with the natural environment and patterns of consumption which have led to and are exacerbating the problems of climate change, rather than challenging them. Frame analysis of examples from the literature of climate change should keep an open mind on whether it merely reinforces dominant, or even residual, structures of feeling, in Raymond Williams's terms, or effectually articulates emergent ones.²⁰

Climate change literature in America, Britain and Germany

Climate change has become the principal focus for worries about the continuing limitations of our ability to control nature despite modern science and technology, and our physical weakness, vulnerability, and mortality. At the same time it has come to encapsulate fears about the possible unintended consequences of our actions. In the stories told about it, climate change serves as a marker of how our way of life involves patterns of consumption are already reducing the quality of life for people in other parts of the world, and will do so for future generations here in Europe. It raises awkward questions about whether human beings are inherently aggressive and destructive, and provides a focus for feelings of guilt and anxiety about a possible backlash, be it in the form of nature's revenge, or being overrun by desperate migrants driven by drought and hunger. Climate change stories have become popular vehicles for reflection on social values, prompting

¹⁹ Bruner, 'Frames for Thinking', p. 101. Another avenue worth exploring is the parallel with Cornelius Castoriadis's and Charles Taylor's conceptions of the 'social imaginary', and of the ability of creative writing and the visual arts to initiate far-reaching social change by imagining alternatives to the rational mastery of the capitalist imaginary.

readers to think about the right way to live, not merely in terms of what is physically sustainable in the longer term, but also in terms of what is right: the right balance between material values and aesthetic/ spiritual ones, and between individual freedom and self-realisation on the one hand, and the welfare of the community and future generations on the other.

In America, global warming literature began in the late 1970s, with Arthur Herzog's *Heat* (1977), though it only grew gradually throughout the 1980s and 1990s. (George Turner's *The Sea and the Summer*, 1987, and Norman Spinrad's *Greenhouse Summer*, 1999 are examples.) Adam Trexler and Adeline Johns-Putra have identified over a hundred American and British novels worthy of critical attention, with something of an explosion in the last ten years.²¹ Climate change literature is, they establish, a genre characterised by a mix of speculative imagination and factual research. While some popular writing on climate change simply uses the subject as a background for disaster scenarios and conspiracy plots, a significant number of novels have approached the subject more thoughtfully: British writing includes Ben Elton's political satire *This Other Eden* (1993), Jeanette Winterson's *The Stone Gods* (2008), which combines a strong feminist position with formal innovation, and Ian McEwan's *Solar* (2010), which is concerned with ethical dilemmas in the present rather than an imagined future, and addresses the question of human adaptability and survival through a frank and unflattering study of human nature. Other complex works rewarding study are novels by T.C. Boyle (*A Friend of the Earth* 2000), Margaret Atwood (*Oryx and Crake* 2003, *The Year of the Flood* 2009), David Mitchell's *Cloud Atlas* (2004), Kim Stanley Robinson's 'Science in the Capital' trilogy (2004-7) and Cormac McCarthy's *The Road* (2007). Johns-Putra and Trexler distinguish climate change 'genre fiction' (science fiction, thrillers, crime novels, etc., primarily seeking to entertain) from more ambitious 'literary fiction', but they argue that despite much poor writing and formulaic character depiction, there are many examples of useful engagement with climate change in both categories, exploring scientific, political and cultural themes.

²⁰ Raymond Williams, *Marxism and Literature*, pp. 121-35.

²¹ Trexler and Johns-Putra, 'Climate Change in Literature and Literary Criticism'.

Timothy Clark, Ursula Heise, Patrick Murphy and Scott Slovic are among the other critics who have written about American and British climate change texts. However, little has been written so far about the German literature of climate change. Global warming emerged as an issue of public concern in Germany, as elsewhere, in the 'greenhouse summer' of 1988. However, climate change in a broader sense had already appeared as an issue in the literature of Germany, Austria and Switzerland in the 1970s. Cold and ice, rain and floods dominated visions of the future in the writing of authors such as Thomas Bernhard, Friedrich Dürrenmatt, Hans Magnus Enzensberger, Max Frisch, Günter Kunert, E.Y. Meyer and Heiner Müller, prompting Reinhold Grimm to publish an article on 'Ice Age and Doom' in 1981, asking how the prevalence of the theme in the work of German contemporaries should be interpreted. Their works in fact echoed theories of global cooling first put forward in the late 19th century, when the laws of entropy were formulated, and resonated, like these, with currents of cultural pessimism.

There is a clear continuity here with some of the texts in which global warming began to appear the late 1980s. For a time, it was the extreme weather accompanying climate change which attracted most interest. Günter Grass's *Totes Holz* (1990), a collection of charcoal drawings recording the damage to forests on the German-Czech border, invests forest dieback and hurricane damage with wider symbolic significance, and there are moving passages in W.G. Sebald's *Ringe des Saturn* (1992) on the devastation caused by the great storm of 15 October 1987 (the most severe storm in England for over 250 years) and the impact of diseases on Britain's trees, which are interpreted as symptoms of a process of global decline and destruction for which human activity is partly responsible.

Since the 1990s, a series of popular novels on global warming have appeared. Anton-Andreas Guha's *Der Planet schlägt zurück* (1993) was an early example of German climate change sci fi. Thrillers and eco-horror novels include Frank Schätzing's *Der Schwarm* (2004), in which a Gaia-like alien force reacts in dramatic ways to humans' over-extension on the planet, Klaus Lehrer's *Natürlich grausam* (2009), and Ulrich Hefner's *Die dritte Ebene* (2009). The crime novel has proved another popular genre: examples

addressing a regional readership include Manfred Boeckl's 'Bavarian apocalypse', *Die Einöder* (2007) and Helmut Vorndran's 'Franconian crime novel', *Blutfeuer* (2010). Literary treatment of climate change in the German language also includes Liane Dirks's stream-of-consciousness account of the experience of global warming in an urban environment from a feminist standpoint in *Falsche Himmel* (2006), and works of children's and young adult literature, seeking more to enlighten readers than to shock or merely entertain. Claus-Peter Hutter and Eva Goris's *Die Erde schlägt zurück – Wie der Klimawandel unser Leben verändert* is an attractive book in which passages of narrative alternate with summaries of research findings.

2011 saw the publication of three new global warming novels. Nele Neuhaus's crime novel *Wer Wind Sät* resembles Michael Crichton's *State of Fear* in interpreting climate change as a conspiracy of scientists seeking funding for their project teams, and a matter for healthy scepticism, self-assertion against authority and individual freedom. Ilija Trojanow's *Eistau* is a more serious exploration of the physical, social and psychological consequences of climate change, echoing tropes from earlier environmental writing in the pastoral/ elegiac mode. The third novel, Dirk Fleck's *Maeva!*, was the final part of a trilogy of speculative accounts of the consequences of climate change which had begun with *GO! Die Ökodiktatur* in 1994.

In the following I ask how global warming is presented in Fleck's sci fi trilogy, first in terms of discursive framing (how it relates to the discourses of environmental politics, value sets, and deep frames), and then with respect to cultural framing (its relationship with German debates and traditions, modes of writing, genres, structural metaphors and intertextual references). My principal aim is to establish whether Fleck merely reproduces ready-made framing devices, or whether he rather experiments with frames, imagining what they might lead to if their implications are fully realised, and draws attention to them in other ways which expose their consequences.

Dirk C. Fleck's climate change trilogy

The action in *GO!* is set in the year 2040. Europe, America and Japan are governed by secretive Eco-Councils. Money has been abolished, and everyone between 18 and 55 is put to work on some aspect of the state ecological reconstruction programme. Punishments meted out for crimes against the environment (such as killing and eating animals) include forced labour in rehabilitation camps. Private building projects and travel are strictly regulated, accommodation is subject to state control. We learn that this state of affairs has existed for some twenty years, having been preceded by a nine-year period of rule by a Fascist League.

The Fascist League had emerged from a crisis of global capitalism and liberal democracy precipitated by over-population, media-driven consumption and religious disorientation. The Fascists intensified exploitation of the world's rapidly diminishing natural resources at the cost of the environment, keeping people in employment through construction projects including new nuclear power stations. A series of nuclear disasters eventually led to recognition of the need for a radical change by an elite of technocrats, who brought down global communications with computer viruses, and simultaneously spread disease in major urban centres and seats of government by polluting the drinking water, thus forcing multinational companies and the world's governments into submission. A third of the world population either died in the 'Great Redemption' of the revolution of 2020, or has since been lost to aids, cancer and degenerative nerve diseases. However, since knowledge of the brutal disregard for human life and the gross injustice of the Eco-Councils' continuing treatment of the Third World is limited: all private media have been banned, ostensibly so as to prevent advertising luring people into unnecessary consumption. The Eco-Councils maintain armies, police forces and networks of informants, and keep a tight control on information.

Whether the revolution has enabled restoration of the planet to health, or has merely postponed further decline into a global environment inhospitable to human life is left open. The ecological principles on which the Eco-Council regime was founded (which are codified in twelve basic laws stipulating the 'dignity' of the earth, banning genetic engineering and private transport, and imposing strict population control) are in any case being secretly compromised, and ethical values sacrificed to security, political

stability and survival. Science has betrayed its mission of serving humanity, having become first an agent for profit, and subsequently a tool in the hands of unscrupulous politicians. The media have similarly become facilitators of catastrophe rather than independent critics of those responsible for it. A relic of the original ideas behind the revolutionary 'rebirth' is the privileged, semi-autonomous position of a network of 'meditation communes', whose voluntary members lead a form of sustainable, simple life, putting community before self and practising a form of nature religion.

GO! is a *roman à thèse*, written to illustrate what Fleck sees as the dilemma facing humanity. The novel alternates between narrative strands introducing different aspects of the future society through characters representing different standpoints and giving insight into the difficulties and choices facing those who come to oppose the regime. The principal actors include the Minister of Information (ironically named Martin Heiland), who pursues an increasingly Machiavellian line of power politics; an engineer, who begins to see through the official line that the country's problems with toxic waste and radioactive contamination are capable of solution by renaturalisation; a captain in the security forces, who discovers that he and his men are being programmed, by means of microchips implanted in them, to behave like robots, ignoring danger to themselves and ruthlessly unfeeling in their handling of members of the public who contravene the environmental regulations; and Iris, the top government media officer, who produces educational TV programmes which the public are required to watch, but becomes disillusioned with the regime as she discovers its darker secrets. Further characters include pensioners, who are either painfully aware of the culpability of their generation or live in denial of the consequences of their old way of life, rebellious teenagers and the inhabitants of a meditation commune.

In this future society, climate change is one environmental threat among others. Global warming is, however, the most serious long-term threat facing humanity, because of the poor crop yields resulting from heat, drought and damage from extreme weather conditions. At one point (p. 160), we are told of vast migrations of refugees in other countries, because sixty percent of the earth's land surface, including low-lying coastal cities overwhelmed by storm floods, have become uninhabitable. The city of Hamburg and large

parts of the North German plain are endangered by the rise in sea level from the melting ice caps. Climate change and the other consequences of the environmental sins of the twentieth century are framed as posing a series of value-related dilemmas, which are conveyed through the constellation of characters, their articulation of their perception of the situation, and the narratives of their actions and interactions. Genre and cultural and historical allusions also play a role in framing the issues at the heart of the novel.

The principal frame posits the necessity to choose between democracy and efficiency, i.e. a form of government prioritising individual freedom and one giving precedence to powerful central control. However, this choice is undercut by Fleck's portrayal of the former as incapable of achieving sustainability (humanity is fatefully drawn to destructive acts of consumption, despite knowing better) and the latter (established in order to control the population until it has regained "reverence for creation") as inevitably leading to abuse and social injustice. Freedom of the individual in society is shown to have been undermined already in the late twentieth century by the surfeit of information, which has led to cynicism and indifference rather than critical awareness, absolving individuals of responsibility and reducing them to consumers. (which may save the planet by imposing strict limitations on individual consumption, but is open to). The author's standpoint would seem to be one of profound pessimism regarding the future, grounded in an essentially negative view of human nature. A glimmer of hope for an alternative is, however, offered at the end of the novel: Iris rebels, asserting, in the words of Ingeborg Bachmann: "Die Wahrheit ist den Menschen zumutbar" (p. 261). The radical mental reorientation without which humanity will not survive is only conceivable as a result of openness, honesty and fairness. Paradoxically, she reflects, we need to give humans the same rights as plants and animals.

Fleck's vision of the current environmental situation leading to the collapse of global capitalism and the instalment of totalitarian government (first in the form of an accelerated fascist industrialism, and after its collapse as an eco-totalitarian state) draws on the elite government vs. participative democracy frame, but replaces its alternative choices by a conception that we are facing a dilemma in which no satisfactory outcome is possible. The

scientists leading the Eco-Councils have been transformed into ice-cold strategic thinkers, managing a retreat and abandoning their ideals in the process, persuaded as they are that order must prevail over chaos (p. 43). (The government has been reduced by food shortage to secretly feeding the population with genetically engineered pollution-resistant species, and are considering an inoculation programme to make people behave in a nature-friendly way.) Heiland's perspective is one of the necessity to sacrifice the "fetish of personal freedom" (p. 40) in order to survive. The result is a military dictatorship, with show trials and indoctrination (pp. 30ff.). Fleck was criticised by readers, as he reveals in a public lecture appended to the 2006 reprint of his novel ('Die ignorierte Katastrophe. Plädoyer für eine Ökodiktatur', pp. 282-308), for implying that ecological sustainability is incompatible with democracy, social justice and respect for human dignity. However, his aim was, he claims, rather to provoke the public into taking action while there was still time for it to make a difference. His novel could be classified as a 'warning apocalypse', constructing a hypothetical future which reflects the fears rather than the wishes of the author, and presenting positions which are undercut by verbal and dramatic irony, using paradox as a rhetorical tool and provocation as a strategy. This complex, ambivalent mode of writing is open to misunderstanding by politicians, scientists, and others unfamiliar with its conventions, but by no means unique in literary fiction.

The only obvious alternative to the survivalist turn taken by the Eco-Councils, which has gone so horribly wrong, lies in the meditation communes. This social experiment (details pp. 51 and 146-8) can be read as an attempt to combine two very different strands of green radicalism, namely rational, bio-regionalist eco-networking, and emotion-led eco-spirituality, in order to reconcile individual self-realisation with communitarianism. Fleck appears to be suggesting that ethical commitment to the collective and the necessary shift from materialist, physical-self goals to universalist, self-transcendent ones is not viable without a foundation in religion. Yet his presentation of the beliefs and practices of the Native American Hopi, to whom the members of the German commune depicted turn in search of inspiration, is curiously ambivalent. The Hopis' way of life and traditional wisdom are described in some detail (e.g. pp. 195f.) as a utopian practice of 'natural' living, giving,

preserving and sharing in mutual respect and love. But the nature worship of the young Hopi woman Dhyani, who has been persuaded to come over to Germany to preach the unity of all life, is dismissed by a child in the commune as “Quatsch” (p. 147). The optimism of the commune inhabitants is patently facile, and it is hinted that the communes are tolerated by the Eco-Councils as a means of deceiving the population and keeping them under control, rather than being treated as a genuine seedbed for the future society. Fleck’s novel is then fundamentally ambivalent about humanity’s ability to survive – and its very ambivalence draws readers in, challenging them to make sense of it.

Echoes of the Third Reich and its cult of nature in the Eco-Council state, Fleck’s allusion to Oswald Spengler in the lecture at the end of the novel (p. 291), and perhaps also his blanket rejection of nuclear power and genetic engineering can be seen as pointing to proximity with German traditions of anti-modernism and cultural pessimism. However, Fleck also draws on less problematic aspects of German cultural tradition relating to the understanding of human interaction with nature, in references to Romantics and Neoromantics such as Novalis (e.g. pp. 61, 175 and 276, where he quotes from the *Lehrlinge zu Sais* and the *Geistliche Lieder*) and Hermann Hesse (p. 32) as precursors and prophets of radical ecologism. And writing strategy and genre may be partly responsible for Fleck’s seemingly deeply pessimistic take on the situation. *GO!* integrates elements of action novel, romantic drama, conspiracy plot and even eco-horror, but the general framework is recognizably that of dystopian fiction. The narrative is interspersed with echoes of George Orwell’s classics *Animal Farm* and *Nineteen Eighty-Four*, with their themes of the betrayed revolution, subordination of the individual to the collective, concentrations camps, surveillance and indoctrination.

Among *GO!*’s more interesting aspects are, alongside its ambivalence, passages reflecting on environmental communication in which he draws on his experience as an environmental journalist. The German Eco-Council employs Iris to produce monthly audio-visual ‘lessons’, which inform the public about the environmental destruction of the planet in the past, and bring home the necessity for them to accept the Eco-Council’s draconian restrictions of individual freedom. Viewing is compulsory. The programme outlines, some of

which are quite detailed, have been carefully researched by Fleck on the basis of events and developments at the time of writing. They convey a good deal of information which might strengthen his readers' resolve to take action for the environment. However, at the same time they permit critical reflection on the efficacy and legitimacy of strategies of environmental communication. The off-putting nature of an overtly didactic approach is acknowledged, and the potential for environmental education to be hijacked by other agendas is explored. The 'beautiful torturer' Xenia, a virtual dominatrix generating emotional bonding with the state, blends preaching with seduction. Designed to arouse respect and desire, she intersperses factual information with shocking images of pollution and the abuse of animals, romantic landscapes, and erotic teasing. The implication is that consumption and destruction of the environment are ultimately identical with the drive for possession. Rather than seeking to enlighten and persuade her viewers to change with rational arguments, she leads them on seductively, encouraging them to develop a sado-masochistic relationship with her which may outweigh their innate inclinations. The fact that she makes them increasingly depressed and disorientated raises questions about what techniques it is legitimate for environmental campaigners and writers to use.

Climate change, which is, as already noted, only one of the environmental issues addressed in *GO!*, alongside acid rain, epidemics, viruses spread through GM foods, and nuclear contamination, takes centre stage in *Das Tahiti-Projekt* (2007) and *Maeva!* (2011). *Das Tahiti-Projekt* is a more transparently didactic book. After the success of *GO!*, Fleck had been approached by Eric Bihl, French author of a non-fiction work setting out an ecologically orientated socio-economic model called 'Equilibrism', which sought to strike a balance between economy and ecology, and human and non-human needs and rights. Chided for his pessimism, he was challenged to write a novel to convey Bihl's positive vision of an ecological future to a wider public. Written with the express intention of helping bring about the necessary change of consciousness, and published together with an appendix on 'Equilibrism' and a glossary of terms, *Das Tahiti-Projekt* was to be the first step on the way to a practical project putting Bihl's ideas into practice.

Das Tahiti-Projekt is a prequel to *GO!*. The action takes place in 2022. An independent state since 2013, Tahiti has introduced radical economic reforms, abolished private land ownership, guaranteed universal employment provided cheap public transport, switched to renewable energy, and reorientated the education system towards preparation for a sustainable way of life. As in *GO!*, we are introduced to a constellation of characters, each representing an idea or approach. The narrative is a fictional experiment with how the positions and relationships evolve, testing out the actions of politicians, industrialists, scientists and journalists. But the framing is different in an important respect: the book is written in the utopian rather than dystopian mode. He avoids the absence of dramatic tension which often characterises utopias by embedding his descriptions of the environmental policies and initiatives in Tahiti (which he is quite open about having chosen for his ideal state because it enables him to draw on South Sea exoticism as a form of cultural framing with powerful positive resonances) in a narrative which generates suspense from the outset, opening with a mysterious murder and building up to an exciting climax. (The book was marketed as “ein spannender Öko-Thriller und ein realistisches Bild unserer Zukunft”.) At the same time, the book embraces a love story, and it can be read as an auto-fictional conversion narrative, in which the central character, the middle-aged Hamburg environmental journalist Cording, embarks on a personal journey from despair to hope.

If the shift from dystopia to utopia and the hope manifest in this second volume of Fleck’s trilogy resonated with the optimistic public feeling in the years leading up to the Copenhagen climate conference, when it seemed that concerted international action to reduce the carbon dioxide emissions which accelerate global warming would be possible, this had evaporated by the time he wrote *Maeva!*. Conceived four years later, in the aftermath of the climategate scandal and the burgeoning of climate scepticism in the context of global economic crisis, Fleck’s third novel tells how the promise of the Tahiti model unravels and global ecopolitics falls apart in the years between 2022 and 2040. Maeva, with whom Cording has been living in Tahiti, is elected President. Travelling to Australia, Asia, the Caribbean and the American North-West, she wins over ever more states and regions as new members of

a Pacific-based (bio-)regional confederacy, 'United Regions of the Planet'. However, Maeva has powerful enemies in the multinational companies. More surprisingly, a secret society of religious fundamentalists in Tahiti also disapproves of her actions. With Cording's cooperation, it eventually kidnaps her, forcing her to withdraw from politics.

Like *Das Tahiti-Projekt*, *Maeva!* strikes a balance between information and entertainment. Within the framework of the narrative of Maeva's growing ambitions and self-confidence, and the various plots to curtail her activities, Fleck again includes passages depicting a series of new ecological experiments in sustainable living. Maeva's journey also introduces us to models of government in different states, which correspond to discourses familiar from environmental politics. In New York, a Promethean course is taken, dominated by global industry. In the West Coast states of Washington and Oregon, a breakaway 'Pacific Republic' is pursuing a course roughly characterisable as ecological modernisation. Meanwhile California has taken Deep Ecology to its logical end, and become home to an ecofascist government (effectively that which has won over most of the world in *GO!*). New in Fleck's third novel is an extended exposition of spiritually inflected cultural ecofeminism. Maeva is less a politician than a priestess, practising a culture of the 'heart' giving individuals a sense of responsibility for the whole planet. A powerful charismatic figure preaching pacifism, she articulates people's fears and longings, and gives them hope for a better, self-determined life. However, she is caught between fundamentalists who use force, whether they are materialist, deep ecologist, or religious.

Fleck thus offers the reader alternative positions ranging from cautious, reasoned reform in a liberal democracy to totalitarianism and militarised self-defence, and a society based on radical change of consciousness, treating sustainable living as an outcome to be achieved by attending to people's emotional and spiritual needs. The tensions between them are manifested in clashes over exploitation of the global commons (the Pacific sea floor and the Arctic). The overall message of this book would appear to be that faith in humanity and hope are essential to our survival, but that we cannot take these qualities for granted.

In Fleck's deep framing of climate change, which presents efforts to combat it as a matter of moral obligation to future generations and social justice, the elite governance approach is disqualified through association with power-seeking materialism, while the participative democracy approach is valorised through links with self-transcendence, universalism, benevolence and community interest. These positions are emotionally coloured and assigned value through association with characters capable of attracting emotional identification and motivating the reader. Tropes, metaphors and allusions make the narrative resonate with the reader's experience and worldview. However, at the same time irony and self-reflexivity work against an understanding of easy solutions to the challenge of climate change.

The novel therefore complements and challenges hegemonic framing in scientific, political, and media discourse on climate change. Whereas media writers tend to apply a consistent range of frames, thereby controlling the number of alternatives open to readers as they construct their social reality, Fleck's novels are sites of experimental re-framing and deframing. They present the challenge of climate change in a quite complex and powerful way, embracing alternatives and ambivalences. It could be said that they combine the aim to inform members of the public with that of training readers to recognise the framing of environmental issues, enhancing their critical awareness of the implications of different framings, and encouraging them to think creatively. Literature and art may contribute in this way to our ability to participate actively in policy debates, and empower us as individuals to make changes in our lives which can lead to changing society.

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