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What We've Learned from Climate Sceptics

It would be pointless to undertake all this analysis without acknowledging how engaging with climate scepticism has changed our minds. As Jonathan Haidt, a leading advocate of viewpoint diversity and perspective-taking, argues:

A good place to look for wisdom ... is where you least expect to find it: in the minds of your opponents. You already know the ideas common on your own side. If you can take off the blinders of the myth of pure evil, you might see some good ideas for the first time.

(The Happiness Hypothesis 242)

In some cases, these are ideas we had already encountered, but dismissed or failed to take fully seriously. In others, they are ideas that were not found *in* our sceptical texts, but occurred to us while reading. Certainly, there was no shortage of 'talking points' – criticisms addressed years ago and long-refuted arguments, some over two decades old – but there were also more or less compelling claims that demand to be aired in conclusion.

We also make space here for differences in what was learned depending on the specific contexts of climate scepticism we each examined, and the interests we brought to bear on these contexts. The importance of the points below varies in terms of their relevance to the cultural and national climate scepticism under consideration. We will take the time to identify disagreements between our ways of coming-to-terms with climate scepticism, 'honouring divergence', 'gathering around it to think and hesitate together' (Stengers, *In Times* 143).

We will start with the less compelling claims.

Environmentalists hate fun

Po-faced nature-lovers have been the butt of jokes for centuries. Ever since the 1970s boom in environmental jeremiads, alleged humourlessness has combined with

fearmongering to form a deeply unattractive stereotype. It's not only conservative anti-environmentalists who warn about the risks of a political strategy focused on negativity. Ted Nordhaus and Michael Schellenberger argue that environmentalism has thrived in periods of optimism and economic growth and warn that the movement has 'saddled us with the albatross we call the politics of limits, which seeks to constrain human ambition, aspiration, and power, rather than unleash and direct them' (17). They go on to complain that 'no single word better describes the ethics of environmentalism than "sacrifice"' (124), so what can we offer that doesn't sound like 'a lifelong global celery diet'? (Prugh, Costanza and Daly 41)

Nothing could be less fun than compulsory humorousness. Still, Michael Branch has made a brave attempt to respond to the 'abhorrent condition of jokelessness in which we [environmentalists and ecocritics] reportedly find ourselves' (377) in 'Are You Serious? A Modest Proposal for Environmental Humour'. Without humour, and without the related capacity to unleash ambition and creativity, environmentalism will fail to motivate social change effectively. Vibrant environmentalist groups in France like *Génération Cobaye* are well aware of the need for an 'écologie souriante' ['smiling ecology'] and effectively use social media like YouTube videos to promote a politically engaged, humorous take on issues related to fossil fuels and global warming.

Reds under the bed

Are environmentalists 'watermelons' – green on the outside, but red in the middle? It's a prevalent claim among Anglophone sceptics that both reflects and reinforces political polarization. Admittedly, there are individual examples of obvious left entryism, such as the Lacanian-Leninist cultural theorist Slavoj Žižek, who seems interested in climate change only to the extent that it is the crisis that really, finally destroys capitalism (38). Green parties in all the countries surveyed here have tried to position themselves as 'neither Left nor Right but forward'. But, just as sceptics tend to the right, environmentalists are typically left-leaning. Whether they 'start' as socialists and discover the environment later, or simply acknowledge that environmentalist policies often require regulation, remains an open question. Until and unless conservatives become more vocal and engaged with the challenge to promote effective mitigation legislation, the political discourse surrounding climate change will remain decidedly on the left. Climate warmists, despite any political differences they might have with such proposals, ought to welcome them into the discussion.

This changes everything

The notion of socialist conspiracy gains credibility when one reflects on the scale and scope of changes required to reduce GHG emissions substantially and quickly. Popularizing treatments of climate change, such as *An Inconvenient Truth*, have tried to avoid freaking people out by emphasizing small changes in behaviour or consumption patterns, while major institutions such as the European Union have touted financial instruments such as carbon credits. The business-as-usual strategy itself has prompted response scepticism across the political spectrum (Van Rensburg 5). Citizens of wealthy countries who see climate change as a threat to their way of life – at least some important aspects of it – are correct. Marc Morano argues:

The climate agenda literally impacts every aspect of your life. The purported solutions to this non-problem will affect what kind of lightbulbs and appliances you are allowed to buy, the size of your home and how it is heated and air conditioned, how you travel, the food you eat, the clothes you wear, and how many kids you can have.

(2018, 8)

The *environmental* impact of decarbonization on both densely populated regions and wildlands selected for renewable energy projects would be immense. Environmentalists may not mind if Americans and Canadians can no longer run pickup trucks, Greyhound-sized RVs, ATVs and motorboats, but what about 'fossil freedoms' – forms of social emancipation underwritten by cheap oil (Bergthaller)? How should we respond to what Isabelle Stengers calls the 'intrusion of Gaia' (characterized by James Lovelock as 'her' revenge) knowing that the struggle is not between humans and the earth, but with the political and economic systems that gave rise to global warming?

The politicization of science

This issue is addressed in Chapter 6, where we acknowledge that climate change has eroded the perceived boundary between politics and science. From a scholarly perspective that boundary was largely fictitious all along. It is worth asking, though, whether we would continue to be calmly agnostic if we *opposed* the economic interests seen as 'corrupting' the science, as in the case of biotechnology.

Galileo, Galileo: The trouble with consensus

Environmental activists have set great store by the quantification of the consensus among climate scientists. But hasn't there been scientific consensus before that turned out to be wrong? Does science operate by consensus? Is there, in fact, the kind of consensus that is claimed? And, even if there were, will it move us to individual and political action?

The first claim is clearly true. The campaign against dietary fat began, according to Martin Cohen, with a single researcher in the 1950s, whose minority position developed into a solid consensus over two decades in the face of conflicting evidence (loc. 686–709). A German meteorologist, Alfred Wegener, claimed in 1915 that all the present continents had once been fused in one, which he called 'Pangaea'. His heterodox theory of 'continental drift' (later renamed 'plate tectonics') did not fully displace the prevailing consensus for well over half a century, and then only because the older generation died or retired (Bryson 173–81). The widespread idealized conception of Science, moreover, depicts it as progressing by means of 'organised scepticism' (Merton) or 'falsification of hypotheses' (Karl Popper), which implies scientific consensus really *ought* to be vulnerable and fleeting. Climate sceptics like to adduce examples of scientific heretics like Galileo who either overturned a consensus or succeeded in imposing a false one. Even if such parables usually turn out to be more ambiguous than they seem, they reproduce a heroic scientific narrative with much wider appeal than the messy reality of the production of scientific knowledge (see Chapter 6).

Environmental organizations are selectively respectful towards scientific consensus: Greenpeace rejects the 'release' of all Genetically Modified Organisms, even though the US National Academy of the Sciences consensus statement found no evidence of risks to human health or the environment.¹ Scientific consensus is not politically decisive. Nevertheless there have been numerous attempts to quantify it among climate scientists (Anderegg et al.; Cook et al. 'Quantifying the Consensus'; Oreskes; Verheggen et al.), all of which have come up with figures in the 90–100 per cent range (Cook et al. 'Consensus on Consensus'). *The Guardian* newspaper runs climate articles under the heading 'Climate Consensus – the 97%', a figure derived from Cook's 2013 paper, confirming its supposed persuasive value ('Climate Consensus – the 97% | Environment').²

The '97% consensus' reassures those already disposed to accept the IPCC position, and perhaps sways the undecided. To sceptics, though, it must seem as

improbably high as the electoral results of Kim Jong-Un (100 per cent), Bashar al-Assad (97.6 per cent) or Kurbanguly Berdymukhamedov of Turkmenistan (97 per cent) ('The World of 100% Election Victories'). Cook's 97 per cent figure also invites closer inspection of his paper's methodology, which Richard Tol found severely wanting. Pearce and colleagues note the irony that, far from securing assent, efforts to quantify consensus 'invited intense scrutiny to the judgments underpinning their claim, and generated further doubt' (2). Furthermore, Dan Kahan's research emphasizes that non-scientists experience the 97 per cent consensus claim primarily as corroboration or as a challenge to their cultural identity. In his critique of an Organizing for Action video, Kahan notes that a conservative viewer will most likely respond to it as a personal slight, not a rational argument (18): 97 per cent consensus is 'a bumper sticker, and it says "fuck you" on it' (Vaidyanathan).

Climate sceptics can read

We discussed stigmatizing language in the Introduction, but it is important to return to an obvious point: sceptics can read what is said about them. The dominant academic account of popular climate scepticism goes like this: fossil fuel-funded conservative think tanks (CTTs) disseminated deliberate untruths to confuse the lay public about the extent of scientific consensus on climate change, and it is this that has successfully delayed concerted political action. We agree this is an accurate account of the origins of climate scepticism in the Anglophone countries we discuss in this book. But what if obdurate scepticism were, in part, a *response* to climate science, governance and activism? Put it together: the Climategate emails appear to show CRU scientists imposing groupthink on their field; the IPCC is accused of marginalizing dissenting positions and admits publishing an unsubstantiated alarmist claim; major news organizations such as the BBC abandon the balance norm in climate reporting; and climate activism in turn depicts dissenters as idiots who might deserve, a would-be satirical British video suggests, to be blown to pieces. A warmist documentary from the height of the climate wars was actually entitled *Age of Stupid* (Franny Armstrong, 2009). No wonder some sceptics have adopted the valorized role of heretic.

Both activists and scholars chastise climate scientists who concede too much to sceptics. A remarkable article criticizing the 'seepage' of non-scientific arguments into the scientific domain argues, 'In response to constant, and sometimes toxic, public challenges, scientists have over-emphasized scientific uncertainty, and

have inadvertently allowed contrarian claims to affect how they themselves speak, and perhaps even think, about their own research' (Lewandowsky et al. 1). Specifically, Lewandowsky and colleagues suggest that climate scientists permitted 'contrarian' perspectives to infiltrate their science insofar as they discussed the supposed 'pause' or 'hiatus' in global mean surface temperature increases after 1998 – even if they did so to dismiss its significance. Giving 'unwarranted attention and credence' to contrarian arguments or individuals so as to avoid seeming arrogant or elitist is listed as one of the ways that seepage could occur (4). Their argument depends on two assumptions: that there was never any 'methodological or empirical argument' (5) that could justify talk of a hiatus (although they do acknowledge 'a slowdown, if you will' (6)); and that contrarian arguments must *ex hypothesis* come across the boundary from 'non-science', rather than from within. The first assumption is well-supported, but the second is never directly addressed. Lewandowsky and colleagues conclude with an extraordinary plea for intolerance of heterodoxy:

We can do more to ensure that we do not inadvertently allow contrarian, skeptical, and denialist claims to seep into our thinking, leading us to overstate uncertainty, under-communicate knowledge, or add credence to erroneous claims by spending undue amounts of time responding to them, much less 'explaining' phenomena that do not even exist.

(10)

Regardless of whether 'we' take their advice and somehow shut alternative perspectives out of our minds, such policing reinforces the sense that warmists cannot stand dissent. Moreover, *intolerance breeds scepticism* in turn as dissident scientists such as Judith Curry and Lennart Bengtsson have avowed. Lewandowsky and colleagues' assumption, not entirely unwarranted, is that sceptical arguments are simply intentional obfuscation. But one must ask: isn't that always a risk? Is tolerance for a disingenuous point of view the worst mistake we can make? The risk seems to be the point. We won't know where the bridges could be built until we start assessing the distance to the other shore.

The identity of 'climate sceptic' is what Ian Hacking calls a 'reflexive kind', a class of beings that responds to the fact of its having been classified in a certain way (102–05). All the texts discussed here ask to be read as evidence of that reflexivity, whether their tone is jeering, defiant or rationalistic. CTTs have participated in framing the sceptic identity, deliberately politicizing it and aligning it– in the United States especially – with cultural conservatism; we might say, with justice, that they started the process of polarization. It

is nonetheless incumbent on scholars to do whatever they can to reverse it, avoiding stigmatizing language and polarizing framing of social and cultural research, thereby helping to re-align climate scepticism with the great scientific and philosophical tradition from which it takes its name.

Don't trust the models

The phenomenon of climate change is elicited from many species of computer models, including data models required to assimilate heterogeneous information about past weather from a wide range of proxies and instrumental records into homogenous climatic data sets, but the most contentious are General Circulation Models (GCMs) and Integrated Assessment Models (IAMs). GCMs project probable trends in Global Mean Surface Temperature (GMST) in response to changes in greenhouse gas emissions, while IAMs purport to simulate how geophysical and socioeconomic changes will interact far into the future. The reliability of GCMs (thirty-five of them in total) is estimated by comparing their ability to 'hindcast', or reproduce, past climatic changes once factors such as solar output, volcanic eruptions, greenhouse gas emissions and El Niño events are incorporated. Scepticalscience.com emphasizes that 'all the models are unable to predict recent warming without taking rising CO₂ levels into account' ('Climate Science Glossary – climate-models-intermediate'). Short of postulating an as-yet-unknown factor and given acknowledged limitations in relation to specific factors and feedbacks (cloud formation, oceanic oscillations, biogeophysical processes etc.), GCMs have projected GMST and continental-scale changes in temperature and atmospheric humidity more accurately than sceptics assert. Nevertheless, ethnographic study of GCM-building scientists has noted 'the ambivalent and flexibly used identity of modellers as to whether they are builders of predictive truth generating machines (their main policy and funding identity), or of heuristic devices for aiding research' (Shackley and Wynne 125). Myanna Lahsen's study, which included six years of fieldwork, noted frequent contention – as well as productive collaboration – between modellers and empirical meteorologists. She suggests, 'Compared with modelers, the empiricists may at times be in a better position to identify model shortcomings because of their deeper knowledge of empirical processes simulated by the GCMs, and because of their lower psychological and professional investment in the models' (Lahsen 915). Her research confirms sceptics' suspicion that groupthink is a risk in such a specialized scientific community, but also affirms that it is regularly challenged from within and without.

Paul N. Edwards details the painstaking, decades-long research programme required to wring 'global climate data' from the forbiddingly 'noisy', patchy records of maritime logs, weather charts, ice cores, tree rings and satellite sounders (e.g. 312–317). He explains the increasingly sophisticated methods that have been devised to control for 'artifactual elements in both theory and observation' (282), including ensemble forecasting and perturbed-physics model runs. He concludes:

It's not that climate simulation models are perfectly reliable, any more than weather forecast models always get it right. Instead, it's that the simulations already include a lot of data in their parameters; they are precisely *not* pure theories, but theories already partially adjusted to the conditions we observe in the real world. That's model-data symbiosis. So whether we are looking at data images or model projections of climate futures, we will always experience them as probabilistic, as shimmering rather than fixed.

(352)

Edwards reports that, as of 2013, perturbed-physics models designed to explore possible errors in parameterizations always returned equilibrium climate sensitivities (see below) of *at least* 1.9°C, and often much higher (355). Scientific confidence in the direction of travel is extremely high.

At regional scales, though, and in relation to changes that matter to humans and other animals (such as precipitation), the models are essentially useless. Demetris Koutsoyiannis and colleagues compared predictions by six GCMs with actual climatic indicators at eight stations distributed around the world, and found that, while 'GCMs generally reproduce the broad climatic behaviours at different geographical locations', they are 'irrelevant to reality' at annual and climatic (30-year) scales (Koutsoyiannis et al. 682). Adding more factors, such as future changes in emissions or land-use, multiplies the uncertainties. IAMs link GCM projections to socioeconomic models to try and provide policymakers with cost-benefit analyses of mitigation and adaptation over the coming decades – and centuries. John Adams points out, though, that the benefits of emissions will largely accrue to different people than those bearing the costs of climate change, and in quite different forms. Of multi-century projections, he observes:

300 years ago the US dollar did not exist and most of the North American continent was still owned by the Indians. One way of appreciating the magnitude of the task that the greenhouse economists have set themselves is to imagine them transported by time machine back to 1693, and set the task of doing a

cost-benefit analysis of the European conquest of North America – with the net present value of the conquest calculated in 1693 wampum.³

(Adams 175)

IAMs can only model what can be quantified, leading to unavoidable systematic exclusion of cultural and political changes, even though ‘historical examples ... illustrate the importance of culture and institutions in the interpretation of, and response to, environmental change’ (Shackley and Wynne 123). Oreskes and colleagues insist that regional-scale uncertainty and inability to predict major non-linear events, such as rapid break-up of continental icesheets or methane clathrate release, show that relying on adaptation rather than emissions reduction is extremely unwise (1025–26), but they assume that the costs of precautionary action are solely economic, as well as politically manageable. They may well not be.

Living with uncertainty

The likely response of global mean temperatures to rising carbon emissions (often expressed as ‘equilibrium climate sensitivity’) is known within certain bounds: a doubling of CO₂ will lead to at least 1.5°C of warming, likely 2–4.5°C, with 3°C being considered the most likely. Depending also on the pace of change, below 2° would pose few problems of adaptation, whereas over 4° would be catastrophic. Climate scientists have developed techniques to narrow (or ‘constrain’) the range as much as possible but remaining geophysical uncertainties and lacunae in the observational record could make a sharper picture unattainable – until it’s too late. For sceptics, uncertainty justifies inaction.

Despite the efforts being made to constrain the projections, some warmists, such as the economist Paul Krugman, also emphasize uncertainty:

Now, despite the high credibility of climate modelers, there is still tremendous uncertainty in their long-term forecasts. But ... uncertainty makes the case for action stronger, not weaker.

Krugman points out the risk – considered extremely low but not negligible – that smaller increases in GMST could trigger disastrous feedback effects. This, though, sounds like a ‘heads I win, tails you lose argument’: more certainty (of mid- to high-climate sensitivity, anyway) strengthens the case for action, *and so does less certainty*. As Judith Curry points out, Krugman’s argument implies that ‘the [sceptical] merchants of doubt are now climate policy action’s “best friends”’

(‘Uncertainty, Risk, and (in)Action’). She contends that climate scientists can never completely tame the ‘uncertainty monster’:

Given the complexity of the climate problem, expert judgments about uncertainty and confidence levels are made by the IPCC on issues that are dominated by unquantifiable uncertainties.

(Curry and Webster 1672)

It is tough for the non-specialist reader to follow the arguments between Curry and her critics (Hegerl et al.). So what is a concerned citizen and literary critic to do?

It helps to understand the irreducible limits to knowledge of our climatic future. As we saw in the discussion of models, adding complexity typically increases uncertainty. For that reason, says Jeroen van der Sluijs, efforts to ‘exorcise’ the uncertainty monster are doomed to fail: ‘For each head climate science chops off the uncertainty monster, several new monster heads tend to pop up’ (89). Seeking to channel and domesticate the monster, by determining who qualifies as an ‘expert’ and then quantifying ‘consensus’, is also ineffectual. Van der Sluijs admits that those who ‘embrace’ the monster include ideologically motivated sceptics but he insists:

The IPCC process should be open to such sceptics ... [because] the unpleasant way in which the game is played and the mixture of valid and ungrounded criticisms that it produces is the price that has to be paid for the key advantage for quality control of the identification of weak spots in the knowledge base.

(91)

Van der Sluijs’s preferred method of dealing with the uncertainty monster is ‘assimilation’, which implies revising our assumptions and expectations of science (specifically post-normal climate science), and ‘learn[ing] to live with ambiguity and pluralism in risk assessment’ (91). In effect, he recommends we accept what is known as ‘epistemic scepticism’, rather than seeking to combat it. Such scepticism is widespread: ‘Doubts about climate science in particular may also be reflections of a more universal belief among the public that there are clear limits to the levels of knowledge that scientists actually possess in the domain of socio-technical risks’ (Capstick and Pidgeon 398).

We would add that what is missing when we focus exclusively on *scientific* uncertainty is a discussion of values, an admission of the criteria we bring to bear in making judgements and the inherent risks of such a fundamental enterprise. Obsession with the data may serve to shield us from such vulnerable conversations as they essentially pertain to the humanities: who are we as a

species and what are we doing here? Where do we want to go? As Daniel Sarewitz has argued:

We are not suffering from a lack of objectivity but from an excess of it. Science is sufficiently rich, diverse, and Balkanized to provide comfort and support for a range of subjective, political positions on complex issues such as climate change Arguing about science is a relatively risk-free business; in fact, one can simply mobilize the appropriate expert to do the talking and hide behind the assertion of objectivity. But talking openly about values is much more dangerous because it reveals what is truly at stake.

(90–91)

Psychologist Dylan Evans thinks we need to calibrate our 'risk intelligence' by seeking out a wide range of perspectives. Climate change, he says, is a signal example of 'probability neglect': 'When a hazard stirs strong emotions, people ... tend to factor in probability less, with the result that they will go to great lengths to avoid risks that are extremely unlikely' (Evans 13). Reading this book should have started re-tuning your risk intelligence, and helped you begin to assimilate the uncertainty monster.

Recalibration returns us to the values and narratives – worldviews – that frame our interpretations of the world. For us, this exercise in reading scepticism has exposed the culture of warmism as such. That is, in sceptics' persistent attention to certain predilections among manifestations of climate alarm, it reminds us that climate change is never a culturally or politically neutral question, even if sceptics' depictions of scientists and environmentalists are often stereotypical themselves. Climate positions are culturally embedded, of course, but least visible to those who passionately advocate one position or another. Although passion is not wrong or dangerous, scholars who are also devoted to climate action need to show sufficient detachment to engage in criticism, including self-criticism, in order to identify where we go from here.

Climate scepticism is transnational but culturally embedded

Identifying national similarities and differences across cultures of climate scepticism runs the risk of oversimplifying and distorting a complex picture by reducing the range of standpoints and forms adopted in each country to a handful of salient features. We would however like to offer some tentative observations comparing France and Germany, and then the UK and the United States.

Despite significant differences, climate sceptics in France and Germany have more in common with each other than with those in the United States, or even Britain. Climate scepticism emerged in both countries as a significant phenomenon around 2007, later than in Britain and America, largely as disputation of the need for a radical socio-ecological transformation rather than as trend (literal) or even attribution scepticism. Although public concern over global warming and its consequences has declined in France and Germany since 2010, the overall level of scepticism in the press and political discourse remains low, and the cross-party consensus on climate politics means there is little sign of the growing polarization of opinion seen in the Anglophone world. Climate change is not a touchstone for opposing worldviews.

Comparative studies of climate change politics in the two countries, like those of sociologist Stefan Aykut, have drawn attention to the institutional differences that, Sheila Jasanoff shows, give rise to distinct 'civic epistemologies': climate science and politics are regarded as the business of a technocratic and political elite in France, whereas they emerged as topics of public debate in Germany where non-political experts have been directly involved in the discussion of science and the formation of policy. However, French and German sceptics share, broadly speaking, fundamentals in both the arguments they present and the writing strategies they adopt. Positioning themselves as the voice of reason, common sense and objective knowledge, they oppose Romantic pronature sentiment and the philosophy of deep ecology. They speak out against catastrophism as a popular distortion and exaggeration of the risks associated with climate change and describe themselves as eco-optimists trusting in the ability of humanity to meet the challenges of global warming. Sceptics on both sides of the Rhine criticize the blurring of the distinction between science and politics and the way green 'dogma' abandons critical analysis of environmental problems for an unquestioned ideology.

At the same time, while we have noted the existence of a number of sceptical thrillers and science fiction novels, the bulk of sceptical writing is essayistic non-fiction in France, and popular science in Germany, and even sceptical novelists blend fiction with reality by introducing real people and institutions, facts and factoids into their works. We have observed a preference of both French and German sceptics for humour and satire, much like their counterparts in the British Isles: irony and sarcasm debunk the high moral claims of the greens. Writing with stylistic verve and aphoristic eloquence, they typically delight in paradox, subversive playfulness and mischievous exaggeration, with a number resorting to parody and black humour, to disrupt readers' acquired perceptions

of the right way to address climate change and provoke them into reflection on alternatives.

However, such similarities do not make for a unified Franco-German front. On the contrary, we found no evidence of collaboration between climate sceptics in the two countries, despite the fact that many are scientists who might circulate in similar academic settings. Language is an obvious impeding factor (only a handful of the French and German texts have been translated into English). Another may be the different traditions from which climate scepticism emerges in both countries: a critique of cultural pessimism in Germany and a defence of secular humanism in France; a reaction against simplistic thinking and naïve activism in Germany and an adherence to methodical doubt in France; German sceptics' self-understanding as guardians of pragmatic realism and French sceptics' as proponents of rationalism. While these differences are not determining, they have allowed climate scepticism to follow separate discursive and political paths in the two countries.

Specific socio-historical factors have also affected the emergence of cultures of climate scepticism in each country. *Der Spiegel's* 1986 cover image set the alarmist tone for climate advocacy in Germany. Sceptical critiques of the fascination with apocalypse, as well as their calls for a more eco-optimist view, are in part a response to this earlier portrayal of climate change. Moreover, quite a few of the climate sceptics in Germany have a strong track record as environmentalists themselves. In France, there was no single moment at which awareness about the state of the planet entered the public forum. Instead, climate sceptics drew on Luc Ferry's 1992 critique of an ecological order that would allow the State to implement totalitarian measures placing environmental concerns over social ones. Even if Claude Allègre worked to pass laws on air and water pollution, describing his position as that of 'true ecology', most French sceptics' engagement with environmentalism remains superficial if not contradictory (for instance in the refusal to give up 'the good life').

A closer look at individual texts in each country complicates this list of similarities and differences. On the one hand, the non-fiction writings of Maxeiner and Bruckner both critique green puritanism that exploits feelings of guilt and plays on a desire for redemption. But Maxeiner is a journalist well-versed in scientific debates, whereas Bruckner is a philosopher defending French secularism. Similarly, the over-the-top satire in Kracht's and Gran's fictional accounts of climate change clearly appeal to the reader's desire for a more lighthearted response to contemporary eco-politics, but they adopt very different forms in developing their satirical voice: Gran blurs the line between

fiction and reality, addressing the reader directly, undoing the distinction between author and protagonist, and making extensive use of footnotes, whereas Kracht develops a world of multiple parody cynically ridiculing climate alarmism by substituting methane for CO₂ as prime agent of global warming, and ultimately calling on humanity to make way for a more intelligent, less destructive species.

Given that climate scepticism fuses social and environmental perspectives, we are not surprised by such differences. French and German serve as 'language glasses' (Deutscher) through which the dominant eco-narrative is viewed in each country. So, even as global warming becomes the subject of further universalizing scientific studies and international agreements, it remains embedded in linguistic and cultural practices and meanings.

As Chapter 2 observes, British and American sceptics have much in common: they are quite consistently right-wingers and anti-environmentalists who recycle memes produced by CTTs on both sides of the Atlantic. 'Organised scepticism', which has seeded doubts about climate science and fostered polarization, is far more influential than it is in France or Germany, and the wide-open communication channels across the Atlantic ensure the two countries share a cultural history, to a degree. English/British nationalist and Euro-sceptic fervour, boosted by the smug, deluded assumption that the UK enjoys a 'special relationship' with the United States, aligns with American isolationism, although it falls short of President Trump's 'America First' assault on the international order. Evangelical Christianity is widely assumed to contribute a unique quality to American scepticism, so it was a surprise to come across Philip Foster's *While the Earth Endures*, which argues that God causes global warming by triggering supernovas. Still, the frumpy, bemused style of Foster's book and its publication by a tiny Christian press signal the eccentricity of the argument in a British context, whereas the infrastructure of American conservative media and publishing is immense and the leading Christian sceptic Jimmy Inhofe, discussed in Chapter 4, is a US Senator. A near-universal complaint, shared also with continental sceptics, is that climate science contravenes the ideal of apolitical science (see Chapter 6). However unjustly, the 'Climategate' emails were cited and recited by sceptics from all four countries to foster disillusionment with climate scientists, much as conservatives later made use of hacked emails from the Democratic National Congress to discredit Hillary Clinton's 2016 election campaign.

The differences between British and American scepticism are at least as striking as the resemblances, albeit that the lure of national stereotypes is strong here and furthermore our differing selections bias the contrast: Chapter 2 casts a wider net than Chapter 4. First: humour. It is by no means absent from American

climate scepticism: Crichton's *State of Fear* takes great relish in dismembering the hypocrite Ted Bradley, and the author is surely winking when he assures us in his Author's Message, 'Everybody has an agenda. Except me' (574). Humour, though, is so fundamental to British scepticism it has its own taxon, 'comic nihilism' (Segnit and Ereaud 7–8). Clarkson, Delingpole, even Wilfred Beckerman's jokes not only subvert the zealous certainty of climate activists, but ironically undermine the masculine authority of the sceptics themselves. Self-deprecating humour is the stereotypical quality Brits most like to celebrate in themselves; in the case of climate sceptics, it is used – like the paradox of the trusted unreliable narrator – to reclaim, at a deeper level, the authority it appears to disclaim. Hard-won scientific authority scarcely stands a chance against a witty riposte.

The American rhetoric of the climate 'hoax' is distinct from the prevalent British sceptical identity as 'the heretic' primarily because climate change is more politicized in the United States – the liberals are trying to get one over on conservatives – but also because of conspiracist tendencies that have long prevailed in political discourse there. In fact, a transnational study published just as we were finishing this book shows that the United States is an outlier in this regard:

The relationship between conservative ideologies and climate scepticism is unusually strong and consistent within the United States compared to other countries. For those who are embedded in US politics (and US-centric data sets), it is easy to see how one could reach the pessimistic conclusion that the debate around climate change is deeply mired in conspiratorial thinking and/or politically polarized 'culture wars'. However, ... there is nothing inherent to conspiratorial ideation or conservative ideologies that predisposes people to reject climate science.

(Hornsey et al. 619)

The drama of climate politics is played out openly in the United States, as Edwards points out: partisan politicians recruit scientists as 'expert witnesses' for televised Congressional hearings, with the result that '*two systems [politics and science] specifically designed to promote challenge-response-revision cycles multiply each other's effects*' (406). Britain's closed political system has helped maintain the thin hegemony, described in Chapter 2, against which climate heretics rebel. Backed by the Koch brothers and Fox News, American sceptics can hardly adopt the British pose of 'naughty boys', however hard they sell the fiction of a hostile, homogenous 'liberal elite'.

If British sceptical discourse is less heated, more blithe and irresponsible, than its American cousin, it is also conspicuously more literate than the examples discussed in Chapter 4. The sample size is tiny, of course, and our approaches are somewhat different, but Richard Bean's play *The Heretic* and Christopher Booker's theory of narrative archetypes are, in their different ways, artistically and intellectually credible responses to climate change. It is hard to think of American equivalents. Why have talented conservative writers – of which there are many – shied away from climate change? Why, moreover, have fiction writers of whatever stripe avoided characterizing climate sceptics? *State of Fear* may not include any credible, knowledgeable environmentalists, but Barbara Kingsolver's *Flight Behaviour* – the state-of-the-art in cli-fi – trivializes rural climate scepticism by blaming local TV weathermen. While serious Anglophone novelists always fear didacticism, the polarization of American politics may further deter imaginative engagement. Whatever the case, this seems a missed opportunity. More even than climate change itself, an acknowledged challenge to novelists (Ghosh), the fascinating diversity of climate cultures – including sceptical ones – cries out for fictional treatment. We hereby challenge American writers to step up.

Dissent is irreducible

Scientific consensus has not and will not eliminate disagreements about climatic risks and policy responses, not least because American warmists are no more scientifically informed than sceptics (Kahan 20). Much as Europeans like to look down on 'dumb Americans', 'cross-national differences in the fractions of populations that say climate change is a serious problem are not indices of scientific ignorance' (Jamieson 67). Our cultural comparison does not bear out the idea that less sceptical Germans are smarter than Americans; rather, we find that historical and political differences account for the civic epistemologies and related risk cultures of different countries. These broad influences interact with 'the particular contexts that individuals find themselves in: their personal experience of climatic danger; the way their affective and analytical reasonings operate; their placement of trust in experts; their values and their world-views' (Hulme 201). Worldviews shape, and are in turn shaped by, differing orientations (four, according to cultural theorists (Adams)) towards the management of risk. Add together the resilience of irreconcilable worldviews, the irreducible uncertainty of climate projections and the mass assent needed for democratic

climate governance to make a difference, and it should be clear that neither scientification nor silencing organized scepticism will suffice. All is not lost, though: respecting political diversity, rather than trying to eliminate it, has an excellent record of success, as Haidt explains:

If you put individuals together in the right way, such that some individuals can use their reasoning powers to disconfirm the claims of others, and all individuals feel some common bond or shared fate that allows them to interact civilly, you can create a group that ends up producing good reasoning as an emergent property of the social system.

(*The Righteous Mind* 105)

A university could be such a site provided that viewpoint diversity is explicitly welcomed. It will not be easy, though. Polarization makes *rapprochement* more painful and unpopular, even as it makes it more urgent.

Dissent is internal

It cannot go unmentioned that the voices urging openness appear to come from the left-liberal side of the argument. With a few honourable exceptions such as Peter Taylor and Dirk Maxeiner, the sceptics we have encountered here seem to want to exacerbate polarization, not ameliorate it. Ironically, we did not learn respect for sceptical views *from them*.

Self-doubt is still less common in these texts than the desire for communication and compromise, and those are rare enough. To some extent, this is simply selection bias, in that the forms and genres surveyed here are more conducive to polemic than reflection. It is also, we want to say, the big lie that the supposed warmist/sceptic binary conceals. The truth can be glimpsed occasionally in population-level treatments of climate scepticism, such as Kahan's finding that 'for the vast majority of [his subjects] global warming elicits strong negative feelings, likely of fear or dread' *irrespective of whether they 'believe' in it* (25). Likewise, Michael Carolan's attempt to get 'behind' the quantitative, population-level findings of widespread scepticism ('climate change perceptions from ... 10,000 feet' (319)) finds multiple examples of 'sociological ambivalence' in the Colorado citizens he interviews. Some respondents hold the 'seemingly irreconcilable views of being seriously concerned about climate change *and* believe that the media exaggerates its seriousness', which could lead to them being classified as either a sceptic or warmist, depending on the question and the

context (Carolan 315). In other instances, respondents explain that they worry about climate change ‘only a little’ or ‘not at all’ to help ‘resolve a tension between knowing climate change is real while feeling helpless about mitigating further effects’ (316). His finding seems to support ethnographer Kari Norgaard’s memorable conclusion, based on conversations with Norwegians, that ‘apathy is the mask of suffering’ (loc. 945). Carolan also notes, though, that his respondents themselves emphasized their own ‘attitudinal instability’. By contrast, sceptical texts (and not a few warmist ones) stand out thanks to their bumptious self-confidence.

Typologies are too easily mistaken for reality, as Bruno Latour sardonically recalls:

You can be at once and without even sensing any contradiction (1) an antifetishist for everything you don’t believe in – for the most part religion, popular culture, art, politics, and so on; (2) an unrepentant positivist for all the sciences you believe in – sociology, economics, conspiracy theory, genetics, evolutionary psychology, semiotics, just pick your preferred field of study; and (3) a perfectly healthy sturdy realist for what you really cherish – and of course it might be criticism itself, but also painting, bird-watching, Shakespeare, baboons, proteins, and so on.

(241)

If so, epistemic and response scepticism are prevalent not only because of the unique challenges posed by climate change, but because doubts about the human capacity for knowledge, wisdom and sustained moral action are ancient, ubiquitous and deeply plausible. The first step towards turning down the ‘antagonistic cultural meanings’ (Kahan 29) of polarized politics may be to recognize that we all, if we are honest, suffer the antagonism internally. ‘Warmist’ and ‘sceptic’ should be seen not as opposed identities but inner possibilities that are – now that a changing climate *is* our future – effectively permanent. The deepest fault lines are within.

The puzzle of sceptical literature

The pieces of the puzzle are, broadly, science, politics and the text. Without straying into climatological science, we have examined how these pieces fit together in each of the national contexts under consideration, stressing the distinctiveness of sceptical texts as well as their commonalities. British sceptics are more politically diverse than Americans, and the French and Germans are

still more varied, although intriguingly there are disillusioned environmentalists everywhere. Criticisms of apocalypticism and environmentalist religiosity are widespread, too, although as Nordhaus and Shellenberger point out, 'Environmentalism doesn't work enough like a *church*' in terms of the kind of belonging and fulfilment it provides, let alone the commitment it expects (201). Some puzzles remain: why is climate scepticism deeply embroiled in left-right polarization in the United States, less so in the UK, and hardly at all in France or Germany (Hornsey et al. 616)? How does sceptical fiction differ from sceptical non-fiction in its portrayal of science as social discourse? How does the 'horizon of reception' of sceptical literature differ from one country to another in light of civic epistemologies? What impact does sceptical literature have on readers with varying degrees of climate science literacy? And why are virtually all of the sceptical writers, in all four countries, men?

Our analysis has acquainted readers with the diversity of sceptical literature, in Britain and Europe at least, and has puzzled over works that demand different forms of attention than 'quality writing'. Christian Kracht and Ingo Niermann's *Metan* cheekily challenges the moralization of climate with its call to accelerate global warming by maximizing capitalist production and consumption, but it does not meet any of the normal criteria of a major work. The popularity of some authors, for instance Crichton and Clarkson, is itself a puzzle; *State of Fear* is fairly exciting and *Top Gear* used to be funny and inventive, but their prominence seems exaggerated. The prospects for *singular* sceptical literature, in the sense outlined in the Introduction, are small, especially in the UK and the United States where political polarization seems to deter imaginative writing. However, there are more sceptical American climate change novels, in a broad sense, than space allowed us to discuss in Chapter 4. In genre fiction, Larry Niven's sci-fi novel *Fallen Angels* (1991) depicts, with humour and imagination, a future world in which a new Ice Age, initiated by declining solar activity, is exacerbated by misguided efforts to combat global warming. Ironically, 'the biggest environmental disaster in history was caused by environmentalism' (59): sci-fi fans form an underground resistance to the authoritarian green government, which has turned its back on technology. *Freedom* (2010) by Jonathan Franzen, an esteemed literary novelist, is an example of social and psychological realism set in the present. Franzen's principal protagonist, the partly autobiographical Walter Berglund, rebels against the subordination of other environmental issues (in particular the loss of the habitats of rare birds) to the reduction of carbon emissions. Similarly, the sympathetic protagonist in Joel Baqué's *La Fonte des glaces* allows the reader to experience some of the grief associated with the

extinction of megafauna species while also revealing the questionable motives of green capitalism. Such texts are puzzling in the constructive sense that they fit into neither the climate sceptics' canon nor the category of warmist climate fiction.

If, as some scientists warn, the IPCC is actually too conservative, and if climate scepticism delays concerted global action beyond a tipping point that leads to catastrophe, it will have been an unimaginable cultural crime. At what price will our empathy have been bought then? A more scientifically probable outcome, in which climate change is entangled in centuries of related and unrelated regional disasters, elevated risks and unprecedented opportunities, will resemble neither 'apocalypse' nor 'hoax,' the tropes favoured by warmists and American sceptics. Responding constructively to that ambiguous future will require, and reward, the kind of depolarization we have modelled here.

While we recognize the discomfort ecocritics might feel in inviting such writers to the literary table, scorning or ignoring 'puzzling' texts does not make them go away. Scholars who truly believe in the transformative potential, individual and social, of literary study ought to be prepared to take the risk of encountering a new, all too familiar, kind of alterity. Greeting 'the other as other,' as Derek Attridge suggests, necessarily alters the 'rules and schemata' (loc. 796) by which these others are occluded. Perhaps they are shifting now.