Beyond Communication: Climate Change Fiction

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Fiction – a vehicle for environmental communication?

It would be rash to assume there is a general consensus that writers, film makers and artists have a role to play in communicating climate change. The academic field of environmental communication studies that has emerged since the turn of the century is, quite understandably, primarily concerned with the description, interpretation and evaluation of climate change in scientific reports, political statements, journalistic debates and internet communication, rather than with its representation in novels, films, plays and poems. (See for instance the chapter in this Handbook by Simon Torok, Karen Pearce and Susan Joy Hassol, 'Communicating climate change science to different audiences'.) Journalism and popular science are the go-to forms of writing for conveying the facts of climate change, and the principal purpose of fiction is widely considered to be entertainment rather than instruction. Yet it is not that simple. For one thing, this is because climate change 'communication' involves more than merely disseminating facts. Empirical studies have shown that knowledge by no means automatically leads to enlightened action (Norgaard, 2011), and experts have cast doubt on the wisdom of adopting an 'information deficit' approach to the communication of climate change (Hulme, 2009, pp. 217-219). The idea that it is the task of the communicator to convey facts also ignores the interpretative and speculative element present in all predictions of the future severity and impact of climate change. The differences between scientific scenarios and the imagined futures in realistic, scientifically-based novels and films are matters of degree rather than essence.

Lawrence Buell (1995, p. 92) wrote, in one of the foundational texts of literary ecocriticism, that environmental nonfiction has a 'dual accountability' to the object world of matter as well as discursive mentation. Although there are a small number of literary texts which deliberately misrepresent the facts of climate change (the most prominent being Michael Crichton's bestselling novel, *State of Fear*), and more which mislead through oversimplification, the majority of writers are driven by a sense of

ethical responsibility to tell the truth about physical facts and scientific consensus, and to counter false, ideologically-motivated claims. They extrapolate from given facts in their imagined scenarios of the present and future, and seek on the whole, whatever poetic licence they may take to exaggerate and dramatize in order to attract and retain readers' attention, to respect the boundaries of scientific possibility.

Novels can certainly serve as vehicles for factual information about climate change, for instance by depicting climate scientists at work and rehearsing their arguments. And they can model processes of environmental learning through stories of individuals (for instance investigative journalists) whose views undergo change as a result of knowledge gained through their encounters and experiences – adapting the narrative template of the novel of personal development, or that of the crime novel, in which a detective uncovers hidden truths. Both role models and facts about climate change are frequently found in young adult literature, which is widely considered to have an obligation to educate as well as entertain. There is undoubtedly some truth in the argument that such novels reach and influence an audience who do not normally read IPCC reports, newspaper articles on climate change, or listen attentively to related items on the news.

However, fiction may have a more important role to play in addressing the disjunction between cognitive knowledge and willingness to act, which the New York-based Bengali novelist Amitav Ghosh (2016) has described in a recent book as the 'great derangement' of our time. For citizens of the advanced industrialized nations, taking climate change seriously is, as Ghosh (p. 145) pointed out, particularly difficult, because it almost inevitably involves relinquishing a position of privilege and power. And yet, if millions of lives are not to be lost to drought, flooding and starvation, there is no credible alternative to transitioning without delay to a carbon-neutral economy and way of life. The power of literature may lie in its ability to imagine the future and make it seem real, to bring its implications for ourselves and others home to readers by engaging them emotionally, rather than in mediating factual information. Literature is, as Derek Attridge (2004) has written, a portal to alterity: stories of the situations other people find themselves in, and their dilemmas and conflicts give us access to the different life experiences of others. Recent research into affect in environmental writing (James, 2015; Weik von Mossner, 2017) has led to a better understanding of the role of identification and empathy in reading and viewing, and a more

sophisticated appreciation of literature's ability to "ferry us from awareness [of environmental crisis] to an obligation to respond" (Houser, 2014, p. 24).

Novels differ from factual reports in 'performing' climate change: they stage likely experiences, reactions and conflicts arising from it. Fiction is commonly said to have the ability to make climate change visible and 'real': this may arouse interest among the indifferent, and motivate readers to act. However, it is arguably not the main business of climate change fiction either to inform readers, or to persuade them to take action, but rather to unsettle entrenched habits of thought, prompt self-awareness and trigger reflection – in short, to give space for creative thinking. Literature has always tended to resist instrumentalization as a vehicle for straightforward political or educational messages, working to complicate them by pointing to ambiguities and holding open alternatives. If fiction has a particular contribution to make, it may then be helping us rethink our cognitive and affective relationship with the world around us, for instance by sensitising readers to change and leading them to acknowledge their feelings. It can make contact with a readership alienated by traditional environmentalist appeals, by mapping the issue of climate change onto their other life concerns.

This chapter starts with an overview of the emergence of climate change fiction as a new thematically-defined, popular genre in the twenty-first century. It shows how, while climate fiction has borrowed freely from existing literary genres in order to imagine how the climate-changed world will affect people ecologically, socially and emotionally, all the principal forms have limitations. The remainder of the chapter therefore presents two alternatives to the assumption that it is the purpose of climate change fiction to inform and incite readers to action. The first is Ann Kaplan's (2016) suggestion that disaster narratives perform an important social function by helping readers work through the pervasive, unconscious trauma which arises from living with climate change. And the second is Nicole Seymour's (2018) proposal that the dominant, tragic mode of writing on the environment be supplemented by queering the discourse, in novels operating with irony and ambivalence, celebrating exuberance rather than preaching austerity, and rejecting the imperative to impart knowledge or appeal directly for action.

The emergence of climate change fiction as a genre

Concern about the climate has found expression in high and popular culture, extending across novels and films, poetry and theatre, art, graphic novels and computer games. (For analysis relating to films and plays, see the chapters in this Handbook by Weik von Mossner and Hoydis.) Since the 1970s, a substantial body of stories about climate change has emerged, initially in North America, Britain and Australia, and subsequently elsewhere. Much of this fiction imagines life in a climate-changed future, speculating with varying degrees of realism and fantasy. A smaller number of novels which are set in the present (or near future) explore the political, economic, psychological and cultural reasons for the current impasse.

The stories told about anthropogenic climate change today stand in a long tradition of writing reflecting on our place as humans in the world, and as individuals in society. Extreme weather and changes in the climate have traditionally been interpreted as consequences of human actions. In the Gilgamesh epic and the Bible, the Flood is presented as divine punishment for human transgressions. In the seventeenth and eighteenth centuries, this 'theogenic' perception of climate and weather gave way, at least among the intelligentsia and political elites, to a 'geogenic' one. However, the process of secularization and rationalization which culminated in the concept of 'natural disasters' masked the entanglement of human with non-human agencies, and conceals the anthropogenic component of today's weather-borne eco-catastrophes. Many climate change novels critique the hyper-separation of nature from culture which Bruno Latour has identified as characterizing modernity, by exposing our inability to stand apart from nature and control it.

Novelistic speculation on the consequences of deliberate human intervention in the climate is also no new phenomenon. Jules Verne's 1889 novel *Sans dessus dessous* (translated as *The Purchase of the North Pole*) told the story of a geo-engineering project seeking to melt the Arctic and access mineral resources by firing an enormous cannon and removing the tilt of the Earth's axis. Alexander Döblin's *Berge Meere und Giganten*, published in 1924 (translated as *Mountains, Oceans and Giants*), was a sprawling sci-fi work which depicted global-scale conflicts between rival super-states, and a catastrophic attempt in the 27th century to harvest Iceland's volcanic energy in order to melt Greenland's ice cap. Originally conceived as a hymn to the city and technology, Döblin's novel evolved in the course of writing into a tribute to the power of nature.

A series of works of what Jim Clarke (2013, p. 8) has called 'proto-climate fiction' appeared in the 1950s and 1960s. These include the first full-length Japanese sci-fi novel, Kōbō Abe's *Inter Ice Age 4* (1958-9), which is set in a near-future Japan threatened by melting polar ice caps, and similarly dystopian works of the British author J. G. Ballard. Ballard's novel *The Drowned World* (1962) describes a future of melted ice-caps and rising sea-levels. These are, however, caused by increased solar radiation. Ballard came closer to depicting anthropogenic climate change in *The Burning World* (1964), which describes a catastrophic drought resulting from disruption of the precipitation cycle by industrial pollution.

Climate change fiction proper starts with works reflecting scientific knowledge of the effects of fossil fuel consumption and the resulting increase in atmospheric CO_2 concentrations. Ursula LeGuin (1971) appears to have been the first to dramatize the phenomenon, in her short sci-fi novel *The Lathe of Heaven*. It came centre stage in Arthur Herzog's thriller *Heat* (1977), and the Australian George Turner's structurally sophisticated, dystopian portrait of a flooded Melbourne, *The Sea and Summer* (1987). Further novels followed in the 1990s, David Brin's epic narrative, *Earth* (1990) being one of the most ambitious. At the turn of this century, Maggie Gee and T.C. Boyle extended the scope of the genre with increasingly complex and nuanced narratives. Since 2000, major North American authors including Margaret Atwood, Kim Stanley Robinson, Cormac McCarthy and Michael Crichton, and British writers David Mitchell, Will Self and Jeanette Winterson have written about climate change. A burst of literary production around 2010 (Steven Amsterdam, *Things We Didn't See Coming*; Paolo Bacigalupi, *The Windup Girl*; Liz Jensen, *The Rapture*; Barbara Kingsolver, *Flight Behavior*; Ian McEwan, *Solar*; Dale Pendell, *The Great Bay*) has been succeeded by a steady stream of novels (for instance by James Bradley, Amitav Ghosh, Paul Kingsnorth, John Lanchester, Richard Powers, Nathaniel Rich, Claire Watkins, Alexis Wright and others), with Robinson and Bacigalupi emerging as writers specializing in the genre (see Robinson's 'Science in the Capital' trilogy and *New York 2140*; Bacigalupi's *Windup Girl* and *The Water Knife*). Adam Trexler, author of the first book-length academic study of climate fiction, already estimated in 2015 that over 150 climate change novels had appeared in English.

Although climate change fiction is a primarily Anglophone phenomenon, it would be wrong to assume that it is limited to the English-speaking world. Ilija

Trojanow's *EisTau* (2011, translated as *The Lamentations of Zeno*) is the best known of around thirty German novels (see Goodbody, 2017). Jostein Gaarder's *The World According to Anna* (2015) is one of a series of Scandinavian novels by authors including Brit Bildøen, Elina Hirvonen, Emmi Itäranta, Maja Lunde, Johanna Sinisalo and Antti Tuomainen. The only French novels currently available in English are Michel Houellebecq's *The Possibility of an Island* (2005) and Philippe Squarzoni's graphic novel, *Climate Changed: A Personal Journey Through the Science* (2012), but other French authors of climate fiction include Antoine Bello, Julien Blanc-Gras, Jean-Marc Ligny, Yann Quero, Jean-Christophe Rufin and Philippe Vasset. Rosa Montero and Javier Sierra have written Spanish novels in which climate change plays a role. Works in the genre from South America, China and the Indian subcontinent include the Argentinian writer, Rafael Pinedo's *Plop* (2007), Cixin Liu's *The Three-Body Problem* (2007) and Rajat Chaudhuri's *The Butterfly Effect* (2018).

The popularity of the genre is reflected in the use of the label 'climate fiction' by publishers and booksellers as a marketing strategy, and by a plethora of websites. 'Cli-Fi Report Global', which is maintained by Dan Bloom, the Taiwan-based journalist who coined the term 'cli-fi' in 2007, provides information for journalists and the general public on the worldwide rise of climate fiction, and 'Spotlight on Climate Change Authors' presents works by some thirty authors. An explosion of academic interest in the new genre over the past decade is witnessed to in Susanne Leikam and Julia Leyda's research bibliography of 'Cli-Fi in American Studies' (2017), and in the bibliographies of recent publications (for instance Goodbody and Johns-Putra, 2019; Johns-Putra, 2019).

Popular forms of climate fiction and their limitations

Climate fiction has the potential to prompt reflection on the risks associated with climate change and the choices we are called on to make – choices determined by the sort of world we wish to live in and leave behind for our children. Yet there are many barriers in the way. Global warming is an average figure arrived at on the basis of countless different individual measurements, and of hidden decisions about the use of proxies for periods before today's accurate records. A temperature increase of a mere half degree over 50 years counts as significant, and the greenhouse gases which contribute to it are measured in parts per million in the atmosphere. Climate change is therefore uniquely abstract and inaccessible to the human senses. In

addition to this problem of making climate change perceptible and real, there are four key challenges in telling the story of climate change. The first is *communicating the science*: it is legitimate to ask, while being mindful of the role of imagination and aesthetics in literary writing, if the climate science is sound, what role it plays in the story, and how skilfully it is integrated. The second is *making the vast spatial and temporal scale of climate change meaningful*: this involves relating the local to the global, and the decades in which individual human lives are measured to the centuries and millennia of climatic change. *Doing justice to the interaction of human and natural agency*, that is, departing from the traditional near-exclusive focus on human characters and their actions, and conveying nature's agency and the limits of human control, is a third touchstone. Finally, it is important that novels *avoid distortion through narrative closure*. That is, that they do not give the impression that the problem of climate change is solved through the resolution of dilemmas and conflicts relating to individual protagonists.

In their effort to bring home the reality of climate change to readers and meet these challenges, most climate novels make use of pre-existing plot formulas and stylistic conventions. A large group of works depicting a climate-changed future follow narrative patterns familiar from *disaster novels and post-apocalyptic fiction*: the atmosphere is one of fear. Characters in a post-disaster situation are forced to develop survival skills. Typically, an individual takes heroic action, which leads to a happy end underlined by a family reunion or reconciliation. A second group of novels speculating on the future draw on the themes and literary techniques of *science fiction*. These tend to elaborate scenarios of imaginary worlds and explore the impact of science and technology on society through stories of travel in space, and through juxtapositions of the present with the future via time travel or future memory, thereby articulating utopian aspirations and prophetic warnings. A third, less common mode of climate writing, which records and laments the losses incurred in the course of global warming (for instance species loss), echoes the *pastoral* tradition, which characteristically looks back longingly towards a golden age in the past (see Trexler, 2015, pp. 75-118). Elements of the *action thriller* and *conspiracy novel*, *fantasy* and (Gothic) *horror* are also combined in different ways in novels for both adults and teenagers.

Using such templates from popular fiction has the advantage of meeting the expectations of pre-defined readerships. However, they frame the issue through their

situations, character depictions and plot patterns, thereby imposing particular interpretations of the causes of the crisis and its possible solution, and closing down alternatives. Some of the more commonly encountered strategies of representation can spread disempowering fears, reinforce a mindset anticipating disaster, and even encourage readers and viewers through their patent implausibility not to take climate change seriously. A flood of dystopian novels set in worlds transformed by climate change, resource scarcity, population growth, and other environmental disasters show the United States, Britain, and other countries either becoming authoritarian regimes, disintegrating into lawlessness, or both at the same time: examples include Maggie Gee's *The Flood* (2004), Cormac McCarthy's *The Road* (2006), Jeanette Winterson's *The Stone Gods* (2007), Margaret Atwood's *The Year of the Flood* (2009), Marcel Theroux's *Far North* (2009), Steven Amsterdam's *Things We Didn't See Coming* (2010), Paolo Bacigalupi's *The Windup Girl* (2010), and the German novelist Dirk Fleck's *GO! Ecodictatorship* (1993). Not all the authors of such apocalyptic and post-apocalyptic climate change novels succeed in directing public anxieties productively: the temptation is great to exploit our fascination with large scale violence and destruction in sensationalist 'disaster porn' (see Recuber, 2013; Atkin, 2017). Much climate fiction falls back on formulaic clichés in narratives with one-dimensional characters and far-fetched plots. The exploration of how personal relationships unfold in a context of social and ecological crisis is shallow and haphazard. Thrillers tend to over-simplify issues, personalising them through association with heroes and villains, and thereby sacrificing the complexity of climate change dilemmas. Science fiction novels tend to imply human ingenuity will save the day. Pastoral narratives encourage nostalgia in an age when climatic change is inevitable, and may foster apathy. Social satire can promote a more cynical form of inaction, suggesting that human nature is unchangeable and individual good will is ineffective in a society where others continue to consume destructively. Each genre template therefore has its own drawbacks.

Is it then asking too much of fiction to expect it to 'communicate' climate change meaningfully? George Turner, David Brin and Kim Stanley Robinson are writers who have been identified (Heise, 2008, p. 207) as succeeding relatively well in circumventing the constraints of genre fiction. While they evoke apocalyptic scenarios when envisioning the effects of global warming, they constrain the millenarian narrative through modernist techniques of framing, fragmentation and

displacement. Other writers blend apocalypse with elegy, insert passages of satirical humour, or draw on myth and animist thinking to convey nature's agency. However, even where the pitfalls of genre fiction are avoided, a general problem with the novel as a vehicle for communicating climate change is its traditional focus on dramatic events, human dilemmas and interpersonal relations. This has led the critic Timothy Clark (2015, pp. 175-194) to argue that it is no longer fit for purpose. Clark might acknowledge Richard Powers's more recent novel, *The Overstory* (2018), which features human drama, development, and tangled plots in which hopes and fears collide, but within the framework of the life of trees, as an exception to the rule. But while it is the job of the writer to link climate change with what he calls "the interesting", his point stands that representations of human temptations and stories of deception and betrayal tend to distract attention from collective actions, non-human actors and initiatives to mitigate climate change.

Beyond 'communication': Working through trauma and extending the range of environmentalism with irony and irreverence
Given these limits to the ability of novels to convey the reality of climate change in future scenarios of its consequences or depictions of the dilemmas confronting us today, what contribution can fiction make to rethinking our relationship with the world around us?

Ann Kaplan (2016) gives one reply to the question in her book *Climate Trauma. Foreseeing the Future in Dystopian Film and Fiction*. Drawing together ecocriticism and trauma theory, she argues that we need to pay greater attention to psychic issues if we are to address climate change, and that the disaster scenarios in climate novels do important psychological work. Citing recent research into Post-Traumatic Stress Disorder (PTSD, the anxiety disorder caused by very stressful, frightening or distressing events, which manifests in insomnia, nightmares and flashbacks, and feelings of isolation, irritability and guilt), and extrapolating from individual to collective psychology, Kaplan describes the current situation for the general public as one characterized by a 'pre-traumatic environmental stress' which builds a psychological barrier in the way of responding rationally to climate change. Human consciousness is shaped by a strong evolutionary drive to survive. We therefore find it hard to recognize that our individual efforts to secure the necessities of life may lead us to put the future of our species at risk. We find it equally hard to

accept that so much of what we love could be lost as a result of climate change. But we need to transition from denial to action – in Freudian terms from melancholia (inability to let the object go, internalising it, incorporating it in the subject's psychic world) to mourning (that is, working through the loss, seeing it as separate from us, grieving but moving forward with life).

Kaplan argues that western cultures have entered an era in which pretrauma (low level anxiety about the future) has become pervasive in the public sphere. Media of all kinds (journalism, the internet, television, film, and literature) are offering catastrophic future scenarios inviting audiences to identify with future selves in uncertain, dangerous and ultimately unsustainable worlds. While acknowledging that some disaster fictions merely amplify public fears or offer false hope, she insists that certain others perform a valuable social function by prompting readers to bear witness to the possible future. This 'witnessing' is the opposite of the paralysing fear and suppression of knowledge which is present in climate denial. It involves taking responsibility for the future, and drawing others' attention to it, and to the need to act.

Readers can be invited to take up a witness position by a series of different cues in the narrative distancing them from the action, for instance techniques of *defamiliarisation* such as enclosure within framing narratives and interruptions by the narrator, passages of direct philosophical and ethical reflection, and the indirect raising of moral issues by mapping actions onto them through symbols and correlatives. Other narrative techniques which can facilitate witnessing to climate change include *oscillating between dystopia and utopia*, so as to maintain a utopian impulse and allow readers to hope by resisting closure; *cultivating a sense of impending loss* through scenes looking back from an impoverished future; and *offering "memory for the future"* in narratives of the recovery of forgotten, alternative truths of the past, which can serve as an enabling force, liberating in their deconstruction of the official story of progress and their reaffirmation of alternative ways of thinking and living in the world. Kaplan (2016, p. 140) argues that disturbing *ambiguity and uncanny episodes* are among the ways of creating a position for ethical witnessing: "empathetic unsettlement" through a mood of menace and threat can move public awareness forward in productive ways. "Confronted with what must never take place, we are perhaps inspired to think through what needs to change," she writes (ibid., p. 21). Giving space for people to think is more important than conveying a message.

In her book, *Bad Environmentalism. Irony and Irreverence in the Ecological Age*, Nicole Seymour (2018) shares Kaplan's starting point that environmental degradation engenders emotional distress, and feelings of powerlessness are widespread in the face of climate change. Like Kaplan, she also casts doubt on the efficacy of a strategy focused on educating the public. Information is not enough to move people to act, indeed it can be counter-productive. From here on, however, she develops a set of different arguments, centred on the role of affect in public attitudes and social reality. The affect-laden forms of rhetorical address that typify environmental appeals are jeremiad, melodrama, and the tropes of apocalypse and disaster. Though these are effective for some audiences, they leave many cold. Seymour (ibid., p. 4) therefore champions a 'bad environmentalism' consisting of works that both identify and respond to the absurdities and ironies of climate debates and climate politics today – often *through* absurdity and irony, or the related affects and sensibilities of irreverence, ambivalence, camp, frivolity, indecorum, awkwardness, sardonicism, perversity, playfulness, and glee. Such works (most of her examples are derived from film, television, theatre and performance art, but her argument applies equally to novels such as Ben Lerner's *10:04* [2014]) reject what she sees as the guilt, didacticism, sentimentality, earnestness and sanctimonious self-righteousness which characterize mainstream environmental discourse.

Seymour challenges the notions that reverence is required for an ethical relationship with the nonhuman, and that knowledge is the key to fighting climate change. She takes issue with the position that art works should be judged by their capacity to educate the public or trigger measurable change. A less strictly instrumentalist approach, she contends, allows us to imagine different capacities for environmental art. Raising activist morale, for instance, building a community, serving as a cultural diagnosis, indexing and helping us understand our current situation, separating us from default, quasi-obligatory responses to disaster, and mitigating the partisan divide over environmental matters that has hardened over the past 50 years. Her works model flexibility and creativity in the face of crisis. Their approach to climate change is non-normative, self-reflexive, and non-instrumentalist.

Irony – the rhetorical attitude of dissimulation and calculated understatement, overtly rejecting things that are meant seriously – is central to such work. In the face of uncertainty, it constitutes a valuable resource for inciting moral and political imagination against what is given or imposed. Ironic works are capable of articulating

complex and contradictory sensibilities, they are self-aware and open to critique. Irony embraces doubt and ignorance when self-righteous conviction is part of the problem. Ironic writers and artists refuse to position themselves on the side of nature, deny their implication in environmental change, and idealize the past. Their approach to the present and the future amounts to "a new affective philosophy by which to live in an era of climate change – and its denial" (p. 66). "Rather than the revelation and resignation of tragedy, the reconciliation and reintegration of comedy, or the idealistic transcendence of romance," Seymour calls for irony, which "suggests things just happen, to no special point. We have to adapt." (ibid.)

Drawing on queer theory, Seymour argues that reclaiming 'gaiety' and other contrarian modes can enable us to create new forms of resistance and community, and new opportunities for enquiry into environmental crisis which leave behind the moralising seriousness, belief in the serenity of the natural world, and faith in the restorative power of natural landscapes which underpin much environmental writing at a time when knowledge no longer leads to action. Seymour champions works which "question the imperative to impart knowledge; [….] do not prescribe any particular action for the viewer to take; and [….] fail to make familiar, or even comprehensible, affective appeals [to readers]" (ibid., p. 47). T.C. Boyle, Will Self, Christian Kracht, Ian McEwan and Philippe Vasset are among the authors of climate change novels who work with irony, humour and satire, and incorporate the elements of playfulness and provisionality which environmental educators and science communicators recognize as central to public engagement.

Conclusions

The expectation that climate change fiction should 'communicate' climate change is based on a simplistic understanding of how literature, film and art function in society – how they relate to scientific facts, political ideologies and education, and what part they play in shaping and changing public values. Some climate change novels nevertheless do important work. Adapting existing literary forms, narrative templates and tropes to imagine how the climate-changed world will affect people ecologically, socially and emotionally, they supplement educational and media work seeking to inform the public, spur them on to action, and prepare them for the future. Literature has the ability to enhance awareness of climate change by making experiences, attitudes and actions *real* through stories and images involving threats to people's

centres of felt value (James, 2015; Weik von Mossner, 2017). It makes global warming tangible by rendering it local and immediate, thereby compressing its imperceptibly broad and gradual progression into meaningful units of space and time, and by associating ideas, attitudes and patterns of behaviour with authentic characters, tracing their inner development, and exploring conflicts of interest in fictional experiments. Alternatively, it can model a different relationship with nature characterized by intimacy and attentiveness. Climate change fiction offers, as Trexler (2015, p. 9) has written, "a medium to explain, predict, implore, and lament" climate change. Bringing readers and viewers to face and mourn the future losses associated with climate change can be the first stage in a psychoanalytic treatment of the dissociation at the root of climate anxiety (Kaplan, 2016). And working with irony can undercut public indifference and negativity towards environmental activism (Seymour, 2018).

As Mike Hulme (2017) has commented, representations of climate do not necessarily communicate science, nor do they always seek to alter readers' and viewers' behaviour, or bring them to atone for or alleviate climate change. Climate novels can, however, also perform a useful task by provoking readers to reflect on their understanding of climate change, and their self-understanding. Climate fiction humanizes climate. It has the power to draw readers into new imaginative worlds in which they learn more about themselves and their emotional, intellectual, philosophical and spiritual capacities. As a medium of the contemporary social climate imaginary, it participates in determining the aims, alternatives and self-understandings which underpin climate debates and policies.

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