The Anthropocene and Genre in the Contemporary Novel

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Abstract

This thesis investigates how contemporary novelists have used various literary genres to respond to the Anthropocene: a new geological era that began around the Industrial Revolution and is marked by the planetary impact of human activity. In particular, three of the four texts considered here target climate change, the most alarming manifestation of humanity's influence over the planet. Literary critics have observed that the complexity of climate change makes it an extraordinarily difficult topic to write about. This thesis highlights how writers have drawn on different forms of fictional writing to identify and address some of the challenges involved in understanding and responding to climate change, or other dimensions of the Anthropocene. The thesis considers four genres—science fiction, fantasy, realism and satire—through sustained close analysis of recent Anthropocene texts that have received widespread critical acclaim and attention: respectively, Margaret Atwood's MaddAddam trilogy (2003-2013), N. K. Jemisin's The Broken Earth trilogy (2015-2017), Barbara Kingsolver's *Flight Behaviour* (2012), and Ian McEwan's *Solar* (2010). Examining these texts, and the similarities and differences between them, highlights the possibilities and limitations of representing and exploring issues of the Anthropocene through fiction. Ultimately, this thesis argues that the novel has an important role to play in comprehending the Anthropocene, but the sheer complexity of the climate crisis requires that a wide range of genres are mobilised for that purpose. Literary criticism must therefore consider a diverse range of genres, instead of focusing solely on literary fiction, but it must also be attentive to the different ways that narrative responses to the Anthropocene are shaped by gender, ethnicity, and nationality.

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Introduction

1. The Anthropocene and Anthropocene Fiction

In Barbara Kingsolver's novel *Flight Behaviour*, what appears to be a miraculous visitation of monarch butterflies is recognised by a team of scientists as a consequence of climate change. In N. K. Jemisin's Broken Earth trilogy, an earthlike planet is shown as actively hating humanity for the exploitation of its deepest resources. These novels, while differing widely in genre, are unified in responding to the idea of the Anthropocene: a new geological era marked by the planetary impact of human activity. This new era was first proposed in 2000 by chemist Paul J. Crutzen and marine science specialist Eugene F. Stoermer, who concluded that we have left behind the Holocene, the relatively warm and stable geological era that began at the conclusion of the Ice Age: "considering … [the] major and still growing impacts of human activities on earth and the atmosphere … it seems to us more than appropriate to emphasize the central role of mankind in geology and ecology by proposing the term 'anthropocene' for the current geological epoch" (qtd. in Chakrabarty 209). As such, the defining feature of the Anthropocene is that humans "wield geological force" at a planetary scale (Chakrabarty 207). While there is no consensus as to when our species' impact on the global environment grew large enough to mark the beginning of the Anthropocene, it is most commonly tied to the emergence of the fossil fuel economy: "humans began to acquire this [geological] agency only since the Industrial Revolution, but the process really picked up in the second half of the twentieth century" (Chakrabarty 207). Driven by the atmospheric accumulation of carbon, climate change is the most striking and alarming manifestation of the Anthropocene. Our species' burning of fossil fuels has already had devastating effects on Earth's environment, and there can now be little debate that the ever-accelerating pace of climate change presents one of the greatest threats to the future of

life on our planet. Therefore, put simply, the new geological era we are living in is one defined by the ways in which our species is gradually destroying its planet.

The Anthropocene, being a crisis that threatens life at a planetary scale, might be expected to generate a global literary response. Indeed, over the last few decades, a range of novelists, poets, playwrights and more have dedicated their works, either in full or in part, to discussing the complexities of the Anthropocene. Most visible are works designated as 'climate fiction,' or cli-fi, but some have focused on other dimensions of our species' geological force, such as species extinction or bioengineering. However, the Anthropocene has proved difficult to encapsulate within many norms of novelistic writing. Consequently, the development of what I will call Anthropocene fiction (a term championed by ecocritic Adam Trexler) is still in its early stages. Nevertheless, a literary engagement with the Anthropocene is vital because such a far-reaching crisis can only be fully addressed by a multi-disciplinary response. As Lawrence Buell has argued, the

> environmental crisis is a broadly cultural issue, not the property of a single discipline. All thinking persons have a stake in it. For science, engineering, and public policy that is most obviously so … But no less intrinsically important are the environmental humanities – history, philosophy, religion, cultural geography, literature, and other arts. For technological breakthroughs, legislative reforms, and paper covenants about environmental welfare to take effect, or even to be generated in the first place, requires a climate of transformed environmental values, perception, and will. (vi)

This, then, is what is at stake in the field of Anthropocene literature. The novels written about climate change and other facets and threats of the Anthropocene are best seen as part of a wider struggle to expand and transform understandings of the crisis we face—an effort to

motivate and mobilise, and also to create new avenues of thought to highlight and respond to the myriad of obstacles preventing meaningful environmental reform.

But, as I have mentioned, the Anthropocene—and especially climate change—is not easily represented in literature and, in particular, fictional forms like the novel. Not least among the problematic qualities of the crisis is its sheer complexity. As Chris Maughan has noted, climate change is "much more than simply a material phenomenon; it is messily entangled with the ideas, cultures, and manifold irrationalities that make up our human and nonhuman worlds. Far from being a graspable and containable problem, it is no less than the material and social condition of the entire world, the culmination of millennia of human (and nonhuman) activity" (18). As such, the staggering scope of the issue presents a grave obstacle to those hoping to encapsulate climate change in fiction. Furthermore, the climate crisis is made especially difficult to articulate due to the wholly unpredictable ways in which it disrupts our world. This is an especially formidable obstacle for the genre of realism, despite it being typically well-placed and well-equipped to respond to real-world concerns. Realism is "deliberately prosaic," built on plausible plotlines (Ghosh 32). But, as Amitav Ghosh explains, "the currents of global warming [may be] too wild to be navigated" by realist fiction (14). Thus the Anthropocene also challenges the priorities of literary critics, especially the expectation that the most important questions are dealt with most effectively by literary fiction.

Aside from the issue's scope and complexity, there are other reasons why, as James Bradley has expressed, "climate change is not a subject that lends itself easily to fiction, or at least good fiction." Robert MacFarlane argues that the temporality of climate change also hinders literary responses: "climate change occurs discreetly and incrementally, and as such, it presents the literary imagination with a series of difficulties: how to dramatize aggregating detail, how to plot slow change" (qtd. in Bradley). Rob Nixon has influentially described

climate change's problematically discreet and incremental destruction as "slow violence," defined as "violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all" (2). He usefully sums up the representational challenges posed by climate change with a pair of questions:

> How can we convert into image and narrative disasters that are slow moving and long in the making, disasters that are anonymous and that star nobody, disasters that are attritional and of indifferent interest to the sensation-driven technologies of our image world? How can we turn the long emergencies of slow violence into stories dramatic enough to rouse public sentiment …? (3)

While science fiction has addressed the issue by telling stories set in the future, when the more dramatic consequences of climate change have become reality, the slow violence problem stands as a significant obstacle to realistic writing set in the present. This has led some to conclude that the novel "may not be the most appropriate form to convey what climate change, in its subtler, everyday manifestations, feels like now" (Tuhus-Dubrow). Nixon, however, while stressing the difficulties created by slow violence, asserts that fiction is an indispensable tool in combating the quietness surrounding the climate crisis, praising "combative writers who … help amplify the media-marginalized causes of the environmentally dispossessed" (5).

Crucially, the Anthropocene is not only a difficult topic to write about; it is also a difficult topic to read about. Anthropocene fiction is, in effect, beset on both sides; while formal challenges make it difficult to articulate some of the Anthropocene's core issues in fiction, a range of emotional obstacles make it just as difficult for such fiction to connect with

readers. The air of futility surrounding climate change—and the act of writing about it—is usefully articulated by Bradley:

> [A]lthough it is difficult to understand how one could not be writing about … [climate change], the ethical urgency one feels is tempered by a sense of the futility of the gesture in the face of such enormity, a feeling one's tools are not fit for purpose. What is the point of stories in such a moment, one wants to ask. How can one poem or one song or one novel make a difference?

At the same time, climate change is also made an extraordinarily difficult topic for readers to engage with because of the very unique set of emotions connected to the issue. Greg Garrard notes that climate change's "strange temporality" requires "anticipatory emotions" of "grief, shame, [and] anger" occurring in advance of the catastrophic consequences of climate change that have yet to happen ("Conciliation" 297). Such emotions may indeed be required to respond to the Anthropocene—in fact, they are difficult to avoid when considering how our current trajectory has already guaranteed future environmental catastrophes. However, anticipatory grief can also be a demobilising force. Timothy Morton argues that "environmentalism cannot mourn the loss of the environment, for that would be to accept its loss, even to kill it, if only symbolically" (201). As such, writing about climate change becomes a delicate balancing act: the crisis' future consequences must be taken seriously enough to "force us to face horror and fear rather than relax," but not depicted as so inevitable as to engender fatalism (Kaplan 9). A survey by Schneider-Mayerson of responses to popular climate novels found readers reported feeling "helpless," "scared and nervous," and "sad and disheartened" (489). Novels, Schneider-Mayerson notes, produce these feelings in greater magnitude than other forms of media "due to the prolonged engagement that reading a novel requires" (Schneider-Mayerson 489). Therefore, novels, more so than movies or TV shows or poetry, must be careful to balance their grim depictions of environmental loss

with some form of hope. Otherwise, as Schneider-Mayerson concludes, instead of drawing readers to engage fully with the issue of climate change, novels may produce a "wish to avoid the topic" that serves as an "obstacle to successful persuasion and mobilization" (490, 489).

2. Thesis Overview

In their review of the field of climate fiction, Adeline Johns-Putra and Adam Trexler stress an imbalance between critical responses to two forms of literature: genre fiction and literary fiction. The former term refers to works situated within popular genres that are deemed to be formulaic (e.g. science fiction, thriller, mystery, fantasy), and are typically read by a wider, more mainstream audience. Literary fiction, which has traditionally absorbed the attention of literary critics, is seen as the work of "serious writers … not … read or critiqued in terms of genre" that often stresses the intricacies of individual psychology (Trexler and Johns-Putra 188). Trexler and Johns-Putra argue that literary fiction, with its long tradition of innovation, is "best placed" to offer the "degree of complexity in fictional representations" the challenge of the Anthropocene requires (30, 185). However, they also suggest that the widespread perception that genre fiction is "beneath scholarly attention" acts as a "significant hindrance to scholarship on climate change literature, because probably the vast majority and the most read of fictional engagements with climate change are genre novels" (189). This thesis therefore pays equal attention to both kinds of literature: Margaret Atwood's MaddAddam trilogy and N. K. Jemisin's The Broken Earth trilogy (discussed in Chapters 1 and 2 respectively) exemplify the possibilities of genre fiction, while Barbara Kingsolver's *Flight Behaviour* and Ian McEwan's *Solar* (Chapters 3 and 4) represent those of literary fiction. As Garrard notes, "an author's choice of genre in writing about climate change is crucial: it makes some sorts of actions possible and others impossible" ("Apocalypse Not" 92). By considering prominent examples of writing from four different genres—science fiction,

fantasy, realism, and satire—I will explore how contemporary authors can skilfully manipulate the confines of their chosen genres to enable new and powerful ways of thinking about the climate crisis. Ultimately, this thesis will argue that considering a broad range of literary genres has the potential to diversify and re-orient the ways in which we think about humanity's culpability and responsibilities in the Anthropocene.

While this thesis is primarily focused on examining the different qualities contributed by a range of genres, I also recognise the importance of different national, gender, and ethnic perspectives. This is more important than ever when considering the literature of climate change; as I have mentioned, the planetary scale of the Anthropocene warrants a *global* response, yet the precise nature of its environmental and climatic impacts varies widely. However, this thesis does not aim to present a global survey of Anthropocene fiction, and as such, three of the four texts I will discuss originate in the United States and the United Kingdom (the two nations that have produced the greatest volume of climate fiction), while the fourth is from a Canadian writer. N. K. Jemisin is a female African American science fiction and fantasy writer who made her debut in 2010 with her critically-acclaimed Inheritance trilogy. In this thesis, I will consider her Broken Earth trilogy—*The Fifth Season* (2015), *The Obelisk Gate* (2016), and *The Stone Sky* (2017)—with which Jemisin made history by becoming the first author to win three consecutive Hugo Awards. Barbara Kingsolver is a renowned American novelist, essayist and poet, perhaps best known for *The Poisonwood Bible* (1998), and in her climate novel *Flight Behaviour* she foregrounds the setting and perspective of rural America. The Booker Prize-winning British author Ian McEwan is known for works such as *Enduring Love* (1997), *Atonement* (2001) and *Saturday* (2005), and his divisive satire of western climate science, *Solar*, paradoxically testifies to both the potential and futility of climate fiction. Lastly, Margaret Atwood, a famed Canadian novelist, poet and environmental activist, has been hailed as one of the greatest modern

writers of dystopia and science fiction——most notably as author of *The Handmaid's Tale* (1985)—and her MaddAddam trilogy illustrates how the future worlds of sci-fi can highlight the crippling flaws of our real-world present. While this selection is, of course, insufficient to build a complete understanding of the four chosen genres (for instance, any comprehensive discussion of climate-conscious science fiction is incomplete without taking stock of the work of Kim Stanley Robinson), this selection will nevertheless allow for an analysis that brings to light different possibilities and limitations that exist within each genre.

Chapter 1 considers the genre that has most readily and visibly adapted to the topic of the Anthropocene—science fiction—by focusing on Margaret Atwood's MaddAddam trilogy. As Trexler and Johns-Putra have identified, many climate-conscious sci-fi novels only "depict climate change in the relatively straightforward terms of setting" (187). This leaves climate change as a background concern—one that contributes to the novel's vision of a ruined future Earth but does not influence the actual plot of the novel. The MaddAddam trilogy is no exception: unlike the other three works I will discuss, climate change is not a primary concern for the Atwood's trilogy. Instead, it responds to the Anthropocene more generally, opting to focus not on the geological force humanity exerts via fossil fuel emissions but instead on the species-level impact Western science and capitalism exert through deliberately interfering with nature via bioengineering. As I will demonstrate, Atwood makes clever use of science fiction's method of extrapolating our real-world trends to inform a vision of our future. The result is a trilogy that explains how science and capitalism are corrupting one another as well as humanity's relationships with other species.

In Chapter 2, I turn to the fantasy genre. Though it is science fiction's closest neighbour in many respects, fantasy does not share sci-fi's advantages when it comes to discussing the Anthropocene, because it generally occurs in entirely fictional worlds and hinges on ideas of magic or the supernatural. As such, the worlds of fantasy novels, by their

nature, have no explicit means of connection with the threats of the Anthropocene facing our real world. However, N. K. Jemisin's The Broken Earth trilogy employs these features of fantasy to attack the anthropocentric assumptions that corrupt our species' relationship with our planet by imagining a literal Anthropocene, with the earth itself as an agential being, and some human characters possessing literal (magical) geological force.

In the latter half of this thesis, I will turn to two contributions to Anthropocene literature made by literary fiction. Chapter 3 will analyse *Flight Behaviour* (2012) by Barbara Kingsolver, a novel that marks a determined effort to adapt the conventions of realism—a genre fundamentally devoted to telling probable stories at the scale of the individual—to the task of exploring the nonhuman effects of the present-day environmental loss caused by climate change. Kingsolver achieves this by weaving a traditional realist narrative of family drama and self-discovery together with a story about monarch butterflies threatened by the climate crisis. Simultaneously, Kingsolver utilises realism's attachment to present-day reality to tackle the issue of climate change denial in rural areas of the United States.

In Chapter 4, I will consider Ian McEwan's *Solar*, a novel that seems significantly less alarmed by climate change than *Flight Behaviour*. As a satire, *Solar* offers a scathing criticism of the forces that prevent meaningful action against climate change. McEwan achieves this by instilling into his protagonist, Michael Beard, all of humanity's worst vices, so that the actions of this lazy, self-concerned and morbidly obese central character become an exaggerated allegorical representation of Western society's failure to respond to the climate crisis. In building this allegory, *Solar* forms insightful critiques of 'human nature,' the sciences, and the humanities, but the novel is ultimately incapable of offering a perspective that might allow for any potential alternatives to the myriad of faults it criticises.

Ultimately, this thesis does not provide an exhaustive overview of the current state of literary engagement with the Anthropocene. Most notably, it does not discuss the work of non-Western or Indigenous writers, such as Yoko Tawada's *The Last Children of Tokyo* (2018)—originally published in Japan as *Kentoshi* (2014)—and Indigenous Australian author Alexis Wright's *The Swan Book* (2013). In addition, the scale of this thesis limits the range of genres and forms that can be discussed, causing me to omit, for example, climate-conscious thrillers such as Nathaniel Rich's *Odds Against Tomorrow* (2013), and young adult fiction such as Paolo Bacigalupi's *Ship Breaker* (2010). Rather than cover every front of the arts and humanities' battle against climate change, this thesis has targeted the form of the novel and four of its genres with the broad goal of highlighting the value and importance of rethinking the Anthropocene through various different types of writing. It is my hope that this thesis will demonstrate that, although the climate crisis is a singularly challenging topic to write and read about, each genre considered holds unique and powerful opportunities to push its readers to re-evaluate the global threat.

Chapter 1: Science Fiction and Margaret Atwood's MaddAddam Trilogy

> There's nothing sacred about cells and tissues.
>
> Margaret Atwood, *Oryx and Crake*, p. 57

1. Introduction

When discussing the literature of the Anthropocene, the genre of science fiction, or sci-fi, is a natural starting point as it is arguably the genre that has most readily adapted to the new realities of the Anthropocene. While there are still few realist authors experimenting with methods for broaching the topic of climate change (as I will discuss in my third chapter), science fiction writers have already produced a plethora of works set in future worlds where the catastrophic consequences of the climate crisis run rampant. In fact, sci-fi's level of engagement with the topic has been so pronounced that a new subgenre has been recognised: climate fiction, or 'cli-fi' (see Tuhus-Dubrow). But despite the genre's vast catalogue of climate-conscious works, science fiction has been largely overlooked by critics and scholars, with Adam Trexler and Adeline Johns-Putra noting that 'literary fiction' is granted the lion's share of recognition and consideration by ecocritics, while 'genre fiction' (including sci-fi, thrillers, dystopias, and young adult novels) is "often perceived to be beneath scholarly attention" (189). Novelist Amitav Ghosh has argued that sci-fi's 'low' scholarly reputation is a result of a historical "branding of science fiction as a genre *separate* from the literary mainstream"—a branding founded on "the strange conceit that science fiction deals with material that is somehow contaminated" (77, italics in original). This prejudice and the resulting critical inattention to science fiction constitutes a particularly grave oversight in ecocriticism, because science fiction has a rich and extensive history of writing about the nonhuman—perhaps more so than any other genre. As Graham J. Murphy observes, since the "earliest science fiction," the genre has featured "two ubiquitous questions": "what is

nature?" and "what is a human being?" (373). The distinctions and similarities between these two forms of life are a key consideration for science fiction. As Lawrence Buell puts it, the genre exhibits an interest in "humankind's relation to the nonhuman world" (56). Whether it be aliens, artificial intelligence, bioengineered monsters, or a hostile environment, science fiction has almost invariably set humans alongside some form of nonhuman life. As I will demonstrate later in this chapter, climate-focused sci-fi can repurpose the genre's "preoccupation with … the alien and the uncanny" to examine our species' relationship with endangered animals, casting them in the role of 'other' (Bradley).

While science fiction is a notoriously broad genre, for the purposes of this discussion, I will approach it as a narrative 'thought experiment' that imagines a future world extrapolated from current scientific knowledge and possibility. As Gerry Canavan has explained, "the singular proposition that undergirds all science fiction is that things could be different than the way they are," meaning "science fiction is what you get when you turn the world into a philosophical thought experiment: both the person who writes science fiction and the person who reads it fiddle with the knobs of reality, turning this part up and that part down, adding in this, taking out that, to see what you get when you make some changes" ("Anything Could Happen" 224). In this view, science fiction is an experiment: present-day reality is the control and the writer, by turning the knobs or dials of Canavan's metaphorical switchboard, investigates what might happen when it is changed in some fundamental way. Climate fiction tends to adjust the dial of time, advancing the world into the future, while leaving the trajectory of climate change unaltered, in order to explore how the burning of fossil fuels eventually devastates or completely dooms our planet and/or our species. With this advancement of time also comes a corresponding advancement of science and technology, so that the climate-ravaged future world is characterised by various innovations

in the fields of technology and medicine. These typically hold some utopian potential but ultimately backfire, rendering the sci-fi world tragic and dystopic.

While science fiction is the genre that has most readily adapted to the Anthropocene by incorporating the effects of climate change into its future settings, it is also true that climate rarely functions as a major focus of the plot in sci-fi novels: because climate change has already reached unstoppable levels in their future worlds, climate is more often in the background of the narrative than a main thematic concern. Accordingly, in this chapter I examine how Margaret Atwood's MaddAddam trilogy exemplifies the ability of sci-fi novels to highlight other aspects of the Anthropocene besides climate. The stories of each of the trilogy's novels—*Oryx and Crake* (2003), *The Year of the Flood* (2009), and *MaddAddam* (2013)—are split between two dystopic worlds, one pre-apocalyptic and the other post-apocalyptic. The earlier dystopia is a society ruled by corporations and characterised by violence, inequality, and abuse of both technology and the environment, while the later dystopia is the product of a bioengineered plague that has wiped out almost all of humanity. While climate change is mentioned in the novels as one of the contributing factors of the pre-apocalypse dystopia, the trilogy focuses far more overtly on our species' relationship with animals. Therefore, I will argue that the thought experiment that the MaddAddam trilogy conducts on the Anthropocene is primarily concerned with the influence that humanity is exerting on entire species, and how this interference might intensify as the field of bioengineering develops. Throughout this chapter, I will consider Atwood's various warnings regarding the dangers of what I will refer to as 'Anthropocene science,' meaning the range of techno-scientific innovations that allow humanity to exert control over nature at a planetary scale. Furthermore, I will discuss how science fiction is uniquely able to give these warnings about humanity 'over-reaching' with the power it holds over the planet in the Anthropocene.

Each of the trilogy's novels move between before and after the plague. The first novel, *Oryx and Crake,* tells the story of Jimmy and his best friend, Glenn (who is referred to almost exclusively by his pseudonym Crake). These two protagonists grow up in the safety of the upper-class 'Compounds,' walled-off facilities where the ruling corporations house their employees and their families. Upon graduating from high school, the pair separates: Jimmy, a self-declared "words person" attends the Martha Graham Academy, a run-down "Arts-and-Humanities college" (*Oryx* 25, 186); Crake, a genius "numbers person," is recruited into the Watson-Crick Institute of science and technology (*Oryx* 74). After some years apart, the two protagonists are reunited when Crake, now working for one of the richest biotech corporations on the planet, recruits Jimmy to assist him on his 'Paradice Project.' Ostensibly intended to both cure all sexually-transmitted diseases and sterilise humanity for the sake of redressing overpopulation, the "BlyssPluss Pill" that Crake develops secretly includes a deadly and fast-spreading virus. When the pills are released to the public, virtually all of the human race is killed, but Jimmy is spared by his friend so that he might protect the Paradice Project's other creation: a bioengineered posthuman species referred to as 'Crakers.' Abandoning his old name for the moniker 'Snowman,' Jimmy becomes the Crakers' shepherd and prophet, watching over them in the post-apocalypse world, where a wide array of dangerous bioengineered hybrid animals now roam free. *The Year of the Flood* introduces two new protagonists, Toby and Ren, who, prior to the apocalypse, live outside the safety of the Compounds, in the perilous, eat-or-be-eaten districts known as 'pleeblands'. Toby and Ren find shelter amongst the God's Gardeners, an eco-religious cult led by the benevolent Adam One, and ultimately survive the catastrophe that he has prophesied as the "Waterless Flood." In the trilogy's final instalment, *MaddAddam,* Toby and Ren join Jimmy in a fragile post-apocalyptic community composed of surviving members of the God's Gardeners and the staff of Crake's Paradice Project. The trilogy ends with the surviving humans joining forces

with the most intelligent of the bioengineered animals, the pigoons (pigs possessing some human DNA), and securing a surprisingly hopeful future for the humans, the Crakers, and their animal allies. In what follows, I first demonstrate how these stories utilise the framework of science fiction writing to extrapolate and explore a possible Anthropocene future. I then turn to the question of how Atwood imagines the future consequences of our real world's current trajectories, focusing on her plotting of the trajectories of science and capitalism. After explaining how Atwood crafts and utilises these extrapolations, I conclude by considering the ways in which her trilogy depicts animals as victims of the Anthropocene.

2. Atwood's Sci-Fi as Extrapolation

Science fiction's understanding of the relationship between our planet's future and present has evolved with the dawn of the Anthropocene. Just a few decades ago, in the days of sci-fi hits like *Star Trek* (1966-1969), the genre's focus was set squarely on the possibilities of future progress. At this time, as Canavan remarks, sci-fi was "at its core always about utopia: the dream of another world that wasn't just a hopeless fantasy, a glimpse of the better history that could actually be ours, if we would only choose to build it" (Robinson and Canavan xi). As such, the genre revelled in forecasting technological marvels, from flying cars to interplanetary travel to teleportation. The temporal horizons of science fiction in the Anthropocene are not nearly as broad or as bright. As our species has developed technologies previously thought fantastical and gained the power to influence the planet as a whole (both through deliberate initiatives and through carbon emission), the divide between reality and science fiction has narrowed. Accordingly, the dystopian futures found in Anthropocene sci-fi novels generally represent not just what might go wrong in the future but also what is already going wrong in our present. Therefore, Anthropocene sci-fi can be seen as an extrapolation: tracing a path into our future based on the patterns of our past and present. In

the remainder of this section, I will demonstrate how Atwood employs this method of extrapolation as she presents the dystopic sci-fi future of her MaddAddam trilogy.

Brent Ryan Bellamy has argued that "science fiction, ever a tool of imagining the (im)possible, has long offered us the chance to imagine retroactive futurities: if we begin to behave differently now, how might this change affect the future of the Earth-system?" (417). While this is certainly the approach taken by some science fiction, Atwood's method is slightly different. Giving context for her trilogy's first novel, Atwood has remarked "Every novel begins with a *what if* and then sets forth its axioms. The *what if* of *Oryx and Crake* is simply, *What if we continue on the road we're already on? How slippery is the slope?"* (Atwood, *Writing* 285-286, italics in original). Here we can see Atwood's intention is not to ask what would happen if we "behave differently now," but rather what will happen if we do not. To answer this question, Atwood builds her future world around "current trends in biotech, virtual realities eroding the social contract, corporate malfeasance, and planetary warming" (Traub 89). While not central to the trilogy's plot, climate change appears as a striking example of Atwood's method of extrapolation in *Oryx and Crake*. When Jimmy refers to September and October as "months that used to be called *autumn*," the narrative subtly connects this damaged future to disruptions that we are already seeing in real-world weather patterns (*Oryx* 71, italics in original). Later, Atwood offers clarification when describing Jimmy and Crake's graduation:

> Jimmy and Crake graduated from HelthWyzer High on a warm humid day in early February. The ceremony used to take place in June; the weather then used to be sunny and moderate. But June was now the wet season all the way up the east coast, and you couldn't have held an outdoor event then, what with the thunderstorms. Even early February was pushing it: they'd ducked a twister by only one day. (*Oryx* 173)

This scene neatly demonstrates how Atwood's trilogy extrapolates from characteristics of the Anthropocene already present in our real world—in this case, the degradation of seasonal patterns and the increasing occurrence of 'natural' disasters—to craft defining features of the trilogy's near-future world.

As well as extrapolating aspects of the physical world, Atwood also puts sci-fi's extrapolation to work on the trends of culture and politics. Early in the third novel, Toby (through whom the narrative is focalised for most of the latter two novels) reflects,

> Speculations about what the world would be like after human control of it ended had been – long ago, briefly – a queasy form of popular entertainment. There had been online TV shows about it: computer-generated landscape pictures with deer grazing in Times Square, serves-us-right finger-wagging, earnest experts lecturing about all the wrong turns taken by the human race.
>
> There was only so much of that people could stand, judging from the ratings, which spiked and then plummeted… (*MaddAddam* 32)

Here, Atwood's extrapolation of culture is clear. The Western world is now living through the period of "finger-wagging" that Toby describes; there are indeed plenty of "online TV shows" imagining a world where humans have (at least mostly) been wiped from the planet. Post-apocalyptic stories have featured prominently in pop culture in recent years, with shows like *The Walking Dead* (2010-) and video games like *The Last of Us* (2013) depicting U.S. cities slowly overgrown by regenerating nature while the remnants of humanity struggle for survival. But Atwood's prediction of a shift away from such end-of-the-Anthropocene stories accords with Courtney Traub's argument that there now exists "general cultural fatigue towards the pathos, gloom, and doom so prevalent in contemporary fiction" about the end of humanity (86). Aside from their pessimistic prediction of Western culture's waning interest

in post-Anthropocene narratives, the MaddAddam novels also extrapolate a decline in democracy. In the third book, Zeb, Toby's lover and fellow ex-Gardener, tells of how he once worked for "Ristbones, an outfit that specialized in the hacking of electronic voting machines … If you controlled the machines, you could slip in whichever candidate you wanted … but outrage had been expressed and fusses had been made … [as] the appearance of democracy was still considered worth preserving back then" (*MaddAddam* 175). Here, Zeb's past neatly lines up with our present, where recent U.S. presidential elections have been subject to claims of tampering, either from within the U.S. or from rival nations. Atwood's extrapolation suggests such concerns may one day be a thing of the past. In the MaddAddam world, democracy has been replaced by what Sarah A. Appleton has termed a "corpocracy" (64); neoliberalism has prevailed, and corporations rule with no government intervention whatsoever. The lines Atwood traces into the future by following existing threads in neoliberalism, politics, culture, and climate change each contribute to what Canavan has called a "declinist vision of the future" ("Hope" 149).

With the many disturbing-yet-familiar qualities of the MaddAddam world in mind, it becomes easy to see why Atwood has asserted that she included nothing in her trilogy that "we don't have or are not on the way to having" (qtd. in Halliwell 256). Many critics have agreed with this assessment, with Noah Richler commenting "the entire litany of disasters in *Oryx and Crake* is already familiar to us: man-made viruses, cryogenics, genetically manipulated foods and animals, and climate change. We have sown the seeds of these processes already" (qtd. in Frew 204). This familiarity is crucial, as it empowers Atwood's work to fulfil the role science fiction has increasingly taken on in the Anthropocene: the role of the thought experiment designed to give a distorted reflection of reality. Marinette Grimbeek has pointed out that "the near-future world" of the MaddAddam trilogy "is a commentary on the historical circumstances of its origin" (90). So, the trilogy is set in a

fictional future but is primarily designed to inform us about our real-world present. To achieve this, Atwood deliberately crafts a recognisable dystopia that makes only subtle use of the metaphorical switchboard of science fiction, changing "only a few variables" so that "the text's thematic urgency is increased" because the dystopic future is, to the reader, "not entirely foreign or unconceivable" (Crane qtd. in Bartosch, *EnvironMentality* 223). Through this formulation, Atwood presents a warning about the trajectory of our real world, as can be seen clearly in a passage of *Year,* when Toby reflects on her past: she "knew things were wrong in the world, they were referred to … But the wrong things were wrong somewhere else. By the time she'd reached college, the wrongness had moved closer … Everybody knew. Nobody admitted to knowing … *We're using up the Earth. It's almost gone"* (*Year* 239, italics in original). Here, we find another act of extrapolation. In the real world, we are still in the stage of knowing but not admitting. Atwood's warning is clear: things will get worse; the 'wrongness' will get closer until we can no longer ignore it. By extrapolating a range of dystopic possibilities, Atwood's novels argue that we must admit that these are the paths we are on and work to turn away from them.

3. Science and its Alternatives in the MaddAddam World

Atwood's use of extrapolation builds a robust criticism of the sciences and the notion that they will rescue humanity from the threats of the Anthropocene. Contemporary sci-fi dystopias like Atwood's demonstrate a genre largely losing faith in the science that inspires it. Instead of revelling in dreaming up new technologies as the genre once did, sci-fi now tends to perform a much more sober role: that of the voice of reason, or the 'wet blanket,' asking us to be careful how much faith we have in technology—a question of utmost importance in the Anthropocene, as science is often considered our greatest or even only hope of surviving the consequences of climate change. The MaddAddam novels, and in

particular *Oryx and Crake* with its focus on the Compounds, commit themselves to this new role of sci-fi by depicting their ruling biotech corporations as entirely amoral and extremely dangerous. As I will demonstrate, Atwood's portrayal of these corporations and their various projects presents a critique of the "train of thought that puts science on a pedestal, or the ideology known as scientism" (Bahrawi 255). Furthermore, as I will discuss later in the section, Atwood works to advocate for alternative modes of thinking that might serve as ethical counter-balances to Anthropocene science. Namely, Atwood considers the humanities in *Oryx and Crake* and a form of eco-religion in *The Year of the Flood.*

To begin exploring the role of the biotech corporations in the MaddAddam dystopia, it is worth noting that, although they almost universally do more harm than good, the corporations' gene-splicing endeavours are, at least ostensibly, necessary attempts to counteract the consequences of the Anthropocene. "Happicuppa coffee" is a fine example of how, although the corporations' endeavours serve a useful purpose by providing food to a population that might otherwise be starving, they always create at least as many problems as they fix because they are motivated purely by the pursuit of profit. The Happicuppa coffee bush "was designed so that all of its beans would ripen simultaneously, and coffee could be grown on huge plantations and harvested with machines. This threw the smaller growers out of business and reduced both them and their labourers to starvation-level poverty" (*Oryx* 179). Here we can see that the biotech corporations are less interested in providing for humanity and more in developing new cost-cutting and profit-making methods; in this case, the company in question, "a HelthWyzer subsidiary," has secured themselves a monopoly over the global coffee market, with little regard for the workers all over the world who suffer as a result (*Oryx* 178). Bioengineering projects that produce new animal species are also shown to backfire in the MaddAddam world, with Atwood outlining "how many of the hybrid creatures do not turn out the way their creators had intended, and how the creators lose

interest or control (or both) of the hybrids once they are released to the public" (Sanderson 221). The dangerous nature of such biotech creations is amplified after the plague, when hybrid animals become the greatest threat to the surviving humans: Snowman (Jimmy) lives in near-constant fear of being hunted down by pigoons (made fiercely cunning by their human brain tissue) and wolvogs (a canine hybrid commissioned by the military, "bred to deceive," so that they look like harmless dogs but attack with the ferocity of wolves) (*Oryx* 205). Through this, Atwood creates a sort of poetic justice, where what little remains of humanity is at risk of being killed off by its own creations, doomed by the hubris that made our species think we could bend other species to our purposes.

Atwood's depiction of biotech creations thus raises an ethical argument regarding humanity's increasing influence over and interference with nature as a defining feature of the Anthropocene. As Jay Sanderson has noted, "in literature, hybrid creatures are often used by authors to evoke images that raise suspicion, apprehension and unease about science, biotechnology, government and human nature" (128). One of the most unsettling of these bioengineered creations is Atwood's "ChickieNob": a headless variation of a chicken designed to grow only breasts or drumsticks (the body parts most desirable as food sources). After encountering these creatures, Jimmy is left wondering, "Why is it he feels some line has been crossed, some boundary transgressed? How much is too much, how far is too far?" (*Oryx* 206). Such questions are also raised much earlier in the novel, when a young Jimmy eavesdrops on an argument between his parents—who are both scientists working at the biotech company OrganInc Farms—which is triggered when Jimmy's father declares that his "neuro-regeneration" project is close to succeeding in growing human brain tissue in pigoons for transplanting into stroke victims (*Oryx* 56). Jimmy's mother, disgusted by the thought of "people with the brains of pigs," raises ethical and moral objections: "You're interfering with the building blocks of life. It's immoral. It's sacrilegious" (*Oryx* 57). To this, Jimmy's father

replies with the amoral logic popular in Western science: "It's just proteins, you know that! There's nothing sacred about cells and tissues" (*Oryx* 57). Jimmy's mother is unable to counter this point—unable to give a clear voice to the vague misgivings her son experiences when confronted with the ChickieNobs. Indeed, *Oryx and Crake* as a whole seems unable to offer any persuasive anti-biotech stance, with characters who scorn artificially-created products framed as freaks or zealots, such as Bernice, a member of the God's Gardeners eco-religion and Jimmy's university roommate, who burns his leather sandals to show "how much she disapproved of his carnivorous ways" (*Oryx* 189). (*Year of the Flood,* on the other hand, gives a much more nuanced depiction of the God's Gardeners and does build a sustained case against bioengineering, which I will discuss later). As such, *Oryx and Crake* argues against profit-driven interference in nature, but only tentatively, providing assertions but not arguments that the influence humanity holds in the Anthropocene ought not to be abused.

Despite voicing concern over bioengineering and its rewriting of the natural world, *Oryx and Crake* also presents bioengineering and an extreme reordering of nature as the only viable solution to the corruption of the trilogy's pre-apocalypse. It is only through Crake's deployment of the speciocidal BlyssPluss Pills and his creation of the posthuman Crakers that a new, largely peaceful world order takes over from the corporate-ruled dystopia. Therefore, as Grimbeek puts it, "while biotechnology is mainly connected to dystopian visions of the future in the novel, the one ambivalent utopian endeavor in the text also relies on bioengineering" (94). While some critics have read Crake as a "mad scientist" character, it can also be argued that, by using "the same techno-science knowledge of a corrupt system to bring it down," Crake is, "in antimodern terms, heroic" (Frew 210). Such a sympathetic view is founded on the notion that Crake, "underneath his veneer of cynical aloofness, nourishes a deep disgust of the world he grows up in, and … is motivated not by greed but by a genuine desire to change it. His Paradice project is … an attempt to cut the Gordian knot that is

human nature" (Bergthaller 735). Crake does this by purging 'human nature,' designing his Crakers to have none of our species' fatal flaws. They are "more ecologically sound" as they derive all their sustenance from consuming either the ever-abundant kudzu or their own excrement, meaning they have no reason to exploit the environment, either through eating meat or undertaking agriculture (Canavan, "Hope" 149). Furthermore, by carefully tailoring the Crakers' desires and practices of sexual reproduction, Crake has eliminated the "cycle of spiralling overpopulation" and the "often destructive dance of love and courtship" (Canavan, "Hope" 145). Ultimately, the Crakers, being "environmentally friendly, peace-loving and socially and economically egalitarian," are immune to the vices of greed, violence and selfishness that define Atwood's pre-apocalypse society (Bouson 17). Indeed, at times, the MaddAddam novels seem to endorse the Crakers as a suitable solution to the corruption of humanity; for instance, after encountering the Crakers in the post-Flood world of *Year of the Flood*, Toby asks God, "are the new people Your idea of an improved model?" (*Year* 414). Given that the Crakers are the creations of human bioengineering and deliberate rewriting of nature—humans making full use of the influence over nature that characterises the Anthropocene—the MaddAddam novels' depiction of science becomes conflicted, as bioengineering is shown to have restorative as well as destructive potential.

The MaddAddam trilogy's depiction of science is complicated further when it is viewed alongside *Oryx and Crake*'s handling of the humanities. Throughout his story, Jimmy refers to himself as a "words person," in comparison to "numbers people" like Crake. As these categorisations recur throughout *Oryx,* the novel's interest in the debate between science and the humanities becomes clear. As Lanlan Du has noted, in the MaddAddam future, science has won this contest: "science and technology have been given full sway, while language has been disintegrated and arts and humanities have degraded" (118). The 'disintegration' of language is a great concern for Jimmy, who actively "compiled lists of old

words," feeling "as if they were children abandoned in the woods and it was his duty to rescue them" (*Oryx* 195). These words—for example, "wheelwright, lodestone, saturnine, adamant"—are fading from use, replaced by corporation and brand names whose deliberate misspelling and mid-word capitalisation (e.g. NooSkins, SoYummie, Foetility) serve to emphasise how language (like animal DNA) has been appropriated and rewritten for corporate agendas (*Oryx* 195). Meanwhile, the degradation of the arts and humanities mentioned by Du is plain to see in the novel's portrayal of Jimmy's university, the Martha Graham Academy, as devoted to the study of subjects that are "pleasant to contemplate in [their] way, but no longer central to anything" (*Oryx* 187). Crake offers a correspondingly low opinion of art, remarking "What is it Byron said? Who'd write if they could do otherwise? Something like that" (*Oryx* 167). Jimmy, desperate to defend his fellow 'word people,' responds to this by arguing "when any civilisation is dust and ashes … art is all that's left over. Images, words, music. Imaginative structures. Meaning – human meaning, that is – is defined by them" (*Oryx* 167). This argument takes on particular importance in the trilogy's post-apocalypse world, as this world's new inhabitants, the Crakers, are genetically-engineered to have no capacity for art or culture. Just as this absence of the humanities lessens the utopian potential of the Crakers in the post-apocalypse dystopia, the degradation and subjugation of the humanities can be seen to contribute to the amorality of the pre-apocalypse. As Du has argued, the MaddAddam world is one where "efficiency and utilitarianism are extremely valued," so "slower, word-based thinking gets edged out of the way" (119). This 'edging out' of word-based thinking, crucially, amounts to a discarding of all *ethical* thinking; the implicit message is that, if scientific, 'numeric' minds like Crake's are valued and 'softer' minds like Jimmy's are rejected, science will make use of the powers humanity holds in the Anthropocene without the ethical safeguards needed to avert dystopia.

While *Oryx*'s argument in favour of maintaining the humanities as a counterforce for science and technology is largely implicit and subtle, the trilogy's second novel adds a third dimension to the science-humanities binary in a more explicit manner. *The Year of the Flood* has been referred to as a "retelling and revaluing" of *Oryx and Crake*, as its new protagonists offer a different perspective on the pre-apocalypse world and its corporations (Bouson 10). By implementing the God's Gardeners as advocates of an eco-religious way of thinking, Atwood effectively circles back to and reinforces the claim made by Jimmy's mother that the corporations' bioengineering is "immoral" and "sacrilegious" (*Oryx* 57). As J. Brooks Bouson argues, Atwood adds the God's Gardeners to set them against her vision of an amoral hypercapitalist society as a "counter-vision and counter-narrative of sweetness and light" (17). In the God's Gardeners' eco-religion—which borrows from both scientific theories of evolution and traditional Christianity—humans are regarded as equal with non-human creatures. This belief is highlighted in one of the Gardeners' many hymns: "Let me not be proud, dear Lord, / Nor rank myself above / The other Primates" (*Year* 54). To the Gardeners, there is no hierarchy in nature, and therefore no excuse for humanity to take control of other species, whether by eating meat or by bioengineering. Holding this more eco-friendly mind-set, they become defenders of nature, determined to live harmoniously with surviving species and "guard the memories and the genomes" of those that have gone extinct (*Year* 253). Another of the Gardeners' fundamental tenets is one of self-sufficiency: they deliberately limit their contact with what they call the 'exfernal' world of consumerism, and express disdain for the "tawdry rubbish" of *Year*'s hypercapitalist society (*Year* 71). This attitude frames them in direct opposition to the corpocracy.

While the Gardeners might initially be dismissed as naïve zealots (as they are in *Oryx*, where Bernice is their only present representative), over the course of *Year* they are afforded both pathos and legitimacy, which is only strengthened when we see that, thanks to Adam

One's warnings, a great proportion of the small group of people who survive Crake's plague are Gardeners. Some critics have viewed this as proof of Atwood's endorsement of the Gardeners, reasoning *Year* offers "life … to those who resist joining exploitative practices" (Appleton 72). While this is, to some degree, an over-simplification, since many Gardeners are killed by the plague (see *Year* 424-425), it is true that the Gardeners' doctrines of self-sufficiency and eco-harmony are presented as admirable alternatives to the exploitation of nature committed by the novels' corporations. Therefore, *Year* seems to suggest that this new attitude adds something crucial that neither the sciences nor the humanities were able to provide in the much grimmer *Oryx and Crake.* It would be reductive to say Atwood is advocating for religion; her scepticism of fundamentalist religion is expressed in *Year* by the inclusion of the 'Lion Isaiahists' who commission the bioengineering of a lion-lamb hybrid, thinking this will accelerate the end of the world (*Year* 94). However, the Gardeners' valuing of nature as sacred—an idea introduced by Jimmy's mother in *Oryx* but not properly defended until *Year*—is certainly presented as a force that could redeem humanity and serve as a more effective counter-balance to scientific ambitions that the 'soft thinking' of the humanities alone can. As Margrit Talpalaru has suggested, *Oryx* and *Year* argue that solutions to the threats of excessive human control in the Anthropocene "rely on integrating ethics and morals into the techno-scientific development process" (243). Specifically, I argue, *Oryx* and *Year* build a framework of ethical modes of thinking to keep Anthropocene science in check by presenting and advocating for, respectively, the humanities and notions of nature's sacredness.

4. Americanism as a Flaw in our Species

However, the MaddAddam novels suggest there is a deeper issue at stake than Anthropocene science and its need for an ethical counter-balance. Atwood has asserted "science isn't the

bad thing; the bad thing is making all science completely commercial, and with no watchdogs" (qtd. in Halliwell 261). Atwood illustrates this point in her trilogy by going beyond her extrapolation of science's future misuses to also highlight capitalism as the underlying force that threatens to strip science of ethical boundaries. As Traub has noted, each of the MaddAddam novels are interested in satirizing the "excesses, absurdities, and deep violence of consumer capitalism" (93). Such excesses and absurdities are plain to see early in the first novel when Jimmy's father describes the promise of HelthWyzer's NooSkins products; created by applying "skin-related biotechnologies" to pigoons, these products offer "genuine start-over skin that would be wrinkle- and blemish-free" (*Oryx* 55). Jimmy's father goes on, "What well-to-do and once-young, once-beautiful woman or man, cranked up on hormonal supplements and shot full of vitamins but hampered by the unforgiving mirror, wouldn't sell their house, their gated retirement villa, their kids and their soul to get a second kick at the sexual can?" (*Oryx* 55). Here, it is not only nature that is "perverted for monetary gain" at the hands of Anthropocene science; the "human body is [also] exploited as the site for such profiteering" (Appleton 64). Such 'health and beauty' schemes are billion-dollar industries in the MaddAddam world, with virtually no limit on what people can change about themselves given the right price: Crake explains that "gender, sexual orientation, height, colour of skin and eyes – it's all on order, it can all be done and redone" (*Oryx* 289). The biotech companies also simultaneously exhibit the "deep violence" mentioned by Traub; Crake tells of how health companies like HelthWyzer create artificial diseases to make their customers wholly dependent on their treatments:

> They put hostile bioforms into their vitamin pills … Naturally they develop the antidotes at the same time as they're customizing the bugs, but they hold those in reserve, they practise the economics of scarcity, so they're guaranteed high profits … The best diseases, from a business point of view … would be those that cause lingering

> illness. Ideally – that is, for maximum profit – the patient should either get well or die just before all of his or her money runs out. It's a fine calculation. (*Oryx* 211)

This sort of amoral, hypercapitalist manipulation of consumers is paired with more direct violence. As Zeb explains in *Year,* corporations routinely execute any of their employees who attempt to expose their many deceptions. "We call it Corpicide," Zeb says, "If you're Corp and you do something they don't like, you're dead" (*Year* 244). As all of these examples of mistreating both humanity and nature are committed solely to generate profit, it is made clear that, as Grimbeek has pointed out, "the reasons given [in the MaddAddam novels] … for the deterioration from our world to the pre-apocalyptic setting are almost always connected to an all-pervasive commercialization" (90). As such, capitalism emerges as another thread Atwood has extrapolated from our real-world present, positioning it alongside and entangled with the thread of science.

However, to say the looming threat of Atwood's imagined future is simply capitalism would be just as reductive as saying it is science. Bouson argues that Atwood's critique is targeted more precisely at the "spreading 'virus' of Americanism" (17). When Adam One describes the moral decline of humanity, he calls this process "the Fall of Man" and argues that it is a "multidimensional" fall—a fall "from vegetarianism to meat-eating," "from instinct into reason, and thus into technology," "from firelessness into fire, and thus into weaponry," and "from seasonal mating into an incessant sexual twitching" (*Year* 188). Fredric Jameson argues this 'Fall of Man' cannot be "fully grasped" in the novel "unless it is understood to be a fall into Americanism." By this term, Jameson has in mind the confluence of violence, neoliberalism, and consumerism that the United States powerfully exemplifies. As I have already demonstrated, the ruling corpocracy of Atwood's pre-apocalypse—amoral, unregulated, and completely profit-driven—exhibits these three dimensions of Americanism in spades. Through the corporations' various destructive actions, Atwood demonstrates how

"the historical trajectory of neoliberal capitalism has reached its logical culmination" (Canavan, "Hope" 142). Americanism is a useful term for the end result of this culmination. Building on Jameson's argument, Bouson suggests that Atwood's future world is one where "the 'virus' of Americanism… has gone global" (15). This may at first appear a counterintuitive claim, given that the MaddAddam trilogy avoids referring to its setting as America, and includes only sparse indicators that the story takes place in the future United States. However, it is more accurate to interpret this as a signal that Atwood's future world is so 'Americanised' that it is irrelevant whether the novels are set within the physical borders of America itself—the American-style corporatism and consumerist culture say enough. As Jameson puts it, in Atwood's "global near future, the term American is no longer necessary."

By introducing us to a future where Americanism has successfully gone global, with no alternatives left in sight, *Oryx and Crake* asks whether humanity's tendency toward consumerism is so powerful that what we call 'Americanism' is actually an inevitable trait of our species—perhaps the Fall of Man was always destined to be a fall into Americanism. Whereas Dipesh Chakrabarty cautions against judging humanity collectively as a species because such an approach might "hide the reality of capitalist production and the logic of imperial … domination that it fosters," in *Oryx and Crake* capitalism is not masked by 'species talk' but rather regarded as synonymous with the human species writ large (216). Indeed, Atwood's novels seem to actively endorse the notion of Americanism as inevitable and in-built as they depict the pervasive staying power of consumerism. For instance, Jimmy remembers how the song "Winter Wonderland" used to play in malls "every Christmas, long after the last time in snowed" (*Oryx* 224). This anecdote paints a powerful picture of how the rituals of a holiday largely built around consumerism endure long after the seasonal patterns that once supported it have succumbed to global warming. Another of the first novel's

testaments to Americanism as a part of 'human nature' comes when Jimmy and Crake are watching people riot against Happicuppa on TV:

> "Those guys should be whacked," said Crake.
>
> "Which ones? The peasants? Or the guys killing them?"
>
> "The latter. Not because of the dead peasants, there's always been dead peasants. But they're nuking the cloud forests to plant this stuff."
>
> "The peasants would do that too if they had half the chance," said Jimmy. (*Oryx* 179)

Jimmy's cynical response suggests that a desire to exploit both nature and other people is an inherent quality of humanity—anyone given the power of Anthropocene science will act just like the corporations that rule Jimmy's world. The grim narrative of *Oryx and Crake* leaves us positioned to agree with Crake's belief that "human beings" are "the biggest problem of all" (*Year* 305). In this light, Crake's destruction of humanity can be seen as a drastic, but perhaps necessary, solution to the flaws in our species that are manifested most visibly by Americanism. As Canavan explains, "apocalypse (especially eco-apocalypse) is increasingly the frame we use for imagining an end to capitalism, precisely because … we can't imagine any other possible way for it to end" ("Hope" 139). The MaddAddam narrative follows this trend, asserting in *Oryx* how deeply-rooted American-style capitalism is in modern Western societies, and then pointing to Crake's genocide as the only way to eradicate Americanism and 'reset' the world with the Crakers as its new inhabitants. In this, *Oryx* imbues what Canavan has called "utopian potency" within "capitalism's final, catastrophic breakdown" ("Hope" 139).

However, just as it added a new dimension to the first novel's ambivalent contrasting of the sciences and the humanities, *Year of the Flood*'s narrative presents a reappraisal of

humanity as a species. As Nazry Bahrawi notes, hope is "more prevalent" in *Year* than *Oryx*, which is largely because of the God's Gardeners, who represent the credible alternative to hypercapitalism that was missing in the first novel (256). As I have mentioned, the God's Gardeners scorn consumerist culture and work to preserve and protect nature in whatever ways they can, from cultivating rooftop greenhouses to sabotaging biotech corporations. Such selfless devotion to nature undermines Jimmy's assertion that anyone would exploit the planet for profit "if they had half the chance" (*Oryx* 179). Therefore, as a group, the Gardeners challenge the first novel's cynical 'species level' view of humanity's actions in the Anthropocene. The two new protagonists of *Year*, Toby and Ren, contribute greatly to this shift in perspective. When these two characters are reunited in the dangerous post-Flood world, Ren is wounded and Toby is initially unsure whether she should risk her own survival by accepting the burden of caring for Ren. But, despite the risks, Toby chooses to protect Ren—she reverts to her Gardener training, demonstrating "unselfishness and sharing and those higher qualities the Gardeners had been so eager to bring out in her" (*Year* 358). Ren proves to be similarly selfless when her friend Amanda is abducted by a gang of Painballers—murderers and rapists whose violence was televised as a form of sport in the pre-apocalypse's Americanised society. After her fellow surviving Gardeners decide it is too risky to attempt to rescue Amanda, Ren resolves to go alone, and Toby steps forward to join her (see *Year* 399). These instances of selflessness are key because, as Bouson observes, "Toby's fierce acts of bravery and … compassion and … Ren's acts of loyalty [and] love" serve to counter the violence and selfishness that run rampant in Atwood's pre-apocalypse (22). Ultimately, *Year*'s Gardeners, both individually and as a group, represent a lifestyle and code of ethics that function as alternatives to Americanism. As such, *Year* can be read as a call to be more like the God's Gardeners—to protect our world by opposing Americanism and preserving nature. This possibility of the God's Gardeners serving as an inspiration for

eco-friendly action is directly referenced by Adam One when he calls the Gardeners "a beacon of hope" (*Year* 248). When read with a degree of optimism, *Year* gestures toward a vision of redemption for humanity—an eco-friendly path we might take instead of our current trend toward ever-spreading Americanism and the Anthropocene science that comes with it. Simultaneously, however, the MaddAddam trilogy's cynical depiction of Americanism's power over humanity calls into question the plausibility of such redemption by suggesting it is unrealistic to hope Gardener-like eco-friendliness will ever become mainstream enough to rival consumerism (after all, God's Gardeners are only a relatively small sect of society in *Year*). Therefore, the trilogy's ultimate stance on whether or not humanity as a whole ought to be viewed as flawed at the species-level, collectively responsible for the Anthropocene and its nature-bending science, is left unclear.

5. Animals as Victims of the Anthropocene

While Atwood's depiction of her pre-apocalypse says a lot about the flaws of our species, it is also deeply concerned with animal species. As I mentioned in the introduction to this chapter, science fiction has a history of exploring humanity's relationships with nonhumans (typically fictional alternative forms of life such as aliens, cyborgs, or artificial intelligence). Atwood, however, adapts this trend for the Anthropocene by casting animals in the role of 'other'. While many climate-conscious works of fiction have focused on animals as victims of climate change, Atwood's trilogy focusses more on how animals suffer at the hands of Anthropocene science. Throughout the MaddAddam trilogy, Atwood shines a light on an uneasy relationship between humans and animals to raise questions about how we ought to treat animals—and nature in general—in our real world. Specifically, the trilogy "argues against the anthropocentric idea that nature's purpose is to serve humanity," advocating for the Gardener's view (discussed in Section 3), where humans are seen as equal to rather than

above animal species (Bahrawi 253). Adam One raises this point often: for example, while commenting on the widespread species extinction detailed in *Year*, he asserts that humanity as a species has "broken trust with the Animals… [and] wiped them from the face of the Earth where God placed them" (*Year* 91). In doing so, Adam One explains, humanity has "defiled our sacred task of stewardship" (*Year* 53). In raising this point of failed stewardship, Atwood illustrates a dysfunctional relationship between dominant humanity and dominated nature, thereby framing humanity's claim of dominion over animals as hubristic and, crucially, unsustainable—a point Atwood illustrates via the MaddAddam world's numerous species extinctions.

Aside from Adam One's impassioned sermons, Atwood also constructs her anti-dominion stance through the evolution of the pigoon. Although the pigoons were ostensibly cultivated only to develop new treatments for human medical conditions, as climate change worsened and "meat became harder to come by, some people had their doubts" (*Oryx* 24). In the OrganInc cafeteria, these doubts are expressed as jokes, with Jimmy's father's co-workers reacting to pork meals by declaring "Pigoon pie again … Pigoon pancakes, pigoon popcorn" (*Oryx* 24). The novel's insinuation that these jokes are in fact accurate is a testament to how, in the MaddAddam world, animals are used to fit whatever purpose the ruling corporations deem necessary, whether that involves experimentation or consumption. Even animals with human DNA are given no special treatment. Witnessing the 'pigoon pie' jokes, Jimmy feels uncomfortable: "he was confused about who should be allowed to eat what. He didn't want to eat a pigoon, because he thought of the pigoons as creatures much like himself. Neither he nor they had a lot of say in what was going on" (*Oryx* 24). While the MaddAddam trilogy does not actively campaign for animal rights until the Gardeners gain prominence in the second book, this passage lays the foundation by exhibiting a distinct sympathy for animals subjugated by human dominance.

While the pigoons are initially cast as helpless victims, deserving of protection from the malevolent abuse of their corporate masters, their role changes dramatically in the post-plague world. In this new landscape—"a world where human and nonhuman animals fight for survival on equal terms" (Pusch 65)—the pigoons, set loose from their cages, become a grave threat to the surviving humans, as their human brain tissue makes them cunning and resourceful predators. After narrowly escaping a herd of pigoons, Snowman remarks, "if they'd had fingers they'd have ruled the world" (*Oryx* 267). However, in the trilogy's final instalment, the pigoons' role shifts again. Made desperate by the butchering of one of their young by the gang of surviving Painballers, the pigoons approach the Gardeners and Paradice staff and, by communicating through a young Craker capable of translating their grunts, offer to form an alliance. This moment is crucial as it elevates the pigoons' agency even further—they are more than simply intelligent animals; they are capable of communicating with humans and thinking logically, picking the lesser of two evils (both groups of human survivors hunt them, but the Painballers are more aggressive and more vicious). Remarking on this increased agency afforded to hybrid animals in the post-apocalypse world, Pusch has suggested "pigoons, who … contain human DNA and are therefore custom-made to suit individual human's needs, shed their label of commodity and thing-ness and gain identities" (Pusch 64). The pigoons certainly do not exist under the dominion of humans in the post-plague world. Nevertheless, even as the allies of humans, "because of their origin they are under constant threat of being granted an inferior status" (Kozioł 278). As such, we can see Atwood's animals as holding the role of the discriminated 'other,' exploited and hunted by humans unwilling to acknowledge them as rational beings deserving of respect. The goal here seems to be raising sympathy for the animal species that are being increasingly subjugated in the Anthropocene, an era where humanity has complete control over their chances for survival. However, there is a noticeable complication in Atwood's formulation of the

pigoons—these hybrids only attain the role of rational actor because they have *human* DNA; pigoons are made remarkable only by the intelligence they derive from human implants. As such, if the pigoons are intended as a symbol to promote a new respect for animals, then they are a flawed one. While Atwood advocates for a flatter hierarchy of nature through her use of the God's Gardeners in *Year*, the pigoons and their alliance with humanity in *MaddAddam* do not quite exemplify this view, as the pigoons only achieve an equal footing with humans because they are part-human.

Atwood's treatment of the pigoons also contributes to another problem that detracts from her exploration of the dangers of the Anthropocene: the trilogy's unusually hopeful ending. After their successful climactic battle against the Painballers, the alliance secured between the surviving humans, the Crakers, and the pigoons leads to a sort of utopian posthuman society, instilling an "optimistic atmosphere" into *MaddAddam*'s last pages (Kozioł 282). This optimism is perhaps most potent in Atwood's inclusion of the birth of four babies, all of them human-Craker hybrids (see *MaddAddam* 379-380). As Traub has suggested, the message here seems to be that "even an all-out ecodisaster can lead to postdiluvian rebirth" (99). Some have taken issue with this abrupt turn towards optimism, with Debrah Raschke calling *MaddAddam*'s conclusion an "overly saccharine happily-ever-after ending" (28). Raschke even goes as far as labelling the ending "false" and arguing it functions like a "fairy tale" and its implicit survivalist message should therefore not be taken seriously (40). The peace with the pigoons is one dimension of this: it can be seen as highly improbable that the humans, desperate as they are for food sources, would truly honour a truce with the pigoons over the long term. Similarly, forecasting lasting harmony with the Crakers, who would be all too easily exploited thanks to their in-built naivety, seems uncharacteristically optimistic for Atwood's trilogy—a "work that builds its story following worst-case scenarios" (Kozioł 283). Ultimately, the utopian conclusion, seemingly installed

to grant narrative closure and avoid leaving readers feeling hopeless about our species' chances in the real-world Anthropocene, detracts from the work of Atwood's pre- and post-apocalypse dystopias and their insistence that humanity must alter its current course.

All in all, the MaddAddam trilogy represents a clever retooling of science fiction's 'thought experiment' framework. In designing the trilogy's pre-apocalypse, Atwood uses the genre's extrapolation method with a restrained hand, carving a path into a dystopian future that asks not 'what could go wrong?' but 'what is already going wrong?' Specifically, Atwood takes great care to extrapolate our real-world trajectories of science and capitalism, with *Oryx and Crake* detailing how these two forces may contaminate one another and bring about a future dominated by the amoral pursuit of profit, where the exploitation of both people and nature is commonplace. Ultimately, *Oryx* points to the spread of Americanism as the root cause of the ethical degradation that has begun already in our real world and reached its culmination in Atwood's fictional one, and even goes as far as suggesting that this downward spiral is inevitable, a result of a built-in flaw of our species. *Year of the Flood,* however, shifts the trilogy's stance, as its characters present a credible and sustainable alternative mode of thinking to *Oryx*'s unchallenged hypercapitalism. Through its depiction of its new protagonists and the God's Gardeners eco-religion, *Year* argues that there is enough goodness in humanity to guide us through the Anthropocene, if we only accept a flatter hierarchy of nature, valuing animals as equal to our own species. The trilogy's final instalment, *MaddAddam,* attempts to literalise this belief, showing the hybrid pigoons forming an alliance with the human survivors. While this attempt at campaigning for animal rights is marred by the pigoon's human DNA, the trilogy as a whole succeeds in interrogating our current science-centric path deeper into the Anthropocene and insisting upon more nature-friendly alternative ways of thinking.

Chapter 2: Fantasy and N. K. Jemisin's The Broken Earth Trilogy

> According to legend, Father Earth did not originally hate life.
>
> N. K. Jemisin, *The Fifth Season*, p. 379

1. Introduction

While it is true that science fiction, as discussed in the previous chapter, has been problematically overlooked by ecocriticism, the same is doubly true for that genre's closest neighbour, fantasy. Where science fiction has several key critics insisting upon its relevance to ecocriticism—for example, Gerry Canavan and Amitav Ghosh—fantasy has no similarly visible champions, leaving little to no critical conversation surrounding the genre's connections to Anthropocene discourse. Nevertheless, as I will demonstrate in this chapter, fantasy is just as capable of responding to the climate crisis as science fiction. The two genres, twin pillars of the field of speculative fiction, function in similar but distinct ways; they both perform 'thought experiments' by creating fictional worlds that reflect our own real world, but the nature of these worlds and, therefore, the nature of their reflections are fundamentally different. This is because, while science fiction tends to simply advance our real world forward in time—adjusting the 'time' dial of Canavan's switchboard, to return to the metaphor used in my previous chapter—fantasy tends to shift both time and space, setting its stories in completely fictional worlds that depart from the laws of physics. While such invented worlds, which may include magic, elves, or dragons, clearly offer a more marked departure from reality than one typically finds in science fiction, fantasy narratives can still fulfil the reflective role performed by sci-fi novels like the MaddAddam trilogy; as Terry Eagleton has put it, "alternative universes," like those of fantasy, "are really devices for embarrassing the present, as imaginary cultures are used to estrange and unsettle our own." Along with the capacity to interrogate our real world by presenting an alternative one, fantasy

also shares science fiction's interest in "humankind's relation to the nonhuman world" (Buell 56). Where science fiction deploys aliens, artificial intelligence, and bioengineered animals, fantasy explores human-nonhuman interactions using fictional races such as elves, dwarves, orcs or mages. As I will demonstrate later in this chapter, these human-nonhuman dynamics can be retooled to explore Anthropocene concerns just as science fiction's ones can. In my previous chapter, I detailed how Margaret Atwood's science fiction casts animals in the role of 'other,' but in this chapter I will demonstrate how N. K. Jemisin's fantasy gives this role to the Earth itself, to interrogate our species' relationship with our planet and prompt us to reconsider how we should think about nature.

Fantasy's capacity for reflection might seem less naturally suited to the task of writing about the Anthropocene than science fiction's, as the genre is premised on stepping away from climate change and other such threats that are rooted in the material facts of life on this planet. However, the Broken Earth trilogy demonstrates how the topic of the Anthropocene might be creatively reimagined through fantasy narrative. In the Broken Earth world, there is just one supercontinent, known as the Stillness, and a small proportion of the humans of this world—referred to as "orogenes," or derogatively termed "roggas"—have a hyper-developed organ in their brains, the "sessapinae," that grants them a supernatural connection with the Earth, allowing them to sense (or 'sess,' as the novels put it) and then manipulate its geological forces. While these supernatural abilities effectively constitute magic, Jemisin deliberately describes them using scientific—and, in particular, geological—concepts, prompting many critics to regard the Broken Earth trilogy as science fiction. However, Jemisin herself is adamant that the trilogy belongs in the fantasy genre, reasoning "the fact that I use science in my fantasy doesn't make it science fiction" (qtd. in Wei). For the purposes of this discussion, I will consider the trilogy as fantasy, because unlike climate-conscious sci-fi, it is not set on our Earth and therefore must consider the Anthropocene in a

less direct and more creative way. As I will show throughout this chapter, the ways in which Jemisin carefully crafts differences between her fictional world and our real one—as well as the way she draws parallels between the two—make her trilogy a valuable case study for considering fantasy's potential for climate-oriented thought experiments.

The Fifth Season, the first novel in Jemisin's trilogy, reveals that the ironically-named Stillness is a hotbed for dangerous geological events, with its people living in constant fear of earthquakes, tsunamis and volcanic eruptions. Furthermore, every few centuries or so, a catastrophic natural disaster called a 'Fifth Season' occurs, resulting in many millions of deaths and wiping out many of the Stillness' communities (or 'comms'). The trilogy begins with the onset of a Fifth Season that will be the worst and last that the Stillness faces: the very first line reads, "Let's start with the end of the world, why don't we?" (*Season* 1). This Season differs from the others in that it was deliberately triggered by a human—more specifically, an orogene. Feared and reviled for their supernatural powers, the orogenes of the Stillness are enslaved and oppressed, forced to live as part of the Fulcrum—a network of orogenes that serve the dominant Sanze Empire by using their orogeny to quell natural disasters—and constantly overseen by their violent watchdogs, the Guardians. It is in response to this cruel treatment that Alabaster, supposedly the most powerful orogene in the Fulcrum, rips a tear in the earth beneath the Stillness' capital, Yumenes, thus triggering the Fifth Season that will spread to end all of humanity. In the wake of this growing devastation, we follow Essun, an orogene woman whose life in hiding is ruined when her husband murders one of their children and flees with the other, Nassun, after discovering they are orogenes. As the world falls apart around her, Essun embarks on a journey to track down her husband and save her daughter. The novel also explores stories from Essun's past: one from when she was just a girl named Damaya, taken from her village by the Guardian Schaffa to train as an orogene at the Fulcrum, and another from when she bore the name Syenite and

travelled with Alabaster, her mentor, to fulfil contracts at the Fulcrum's bidding. In the second novel, *The Obelisk Gate*, Essun—now a leader in a secret community where orogenes and non-orogenes (referred to as 'stills') live together in peace—and her daughter Nassun—now travelling with Schaffa—are drawn onto opposing sides of a war between factions of the mysterious 'stone eaters' (immortal beings shaped like humans but made entirely of crystals) and the Earth itself. The final instalment, *The Stone Sky*, brings this conflict to its climax, with Essun fighting to activate an ancient machine to end the Fifth Season, while her traumatised but powerful daughter hopes to use the same machine to end humanity.

In what follows, I will argue that the Broken Earth trilogy employs fantasy to enable two significant critical interventions into debates about the Anthropocene. The first of these is to demonstrate the ability to consider the Anthropocene literally—as a geological concept—and thus offer a new form of planetary thinking. As outlined in my introductory chapter, the Anthropocene is generally defined as a new geological era characterised by humanity's capacity to affect the conditions of the planet. This is the definition that is commonly applied throughout ecocriticism and the humanities, allowing scholars and critics an accessible term for the era of anthropocentric climate change. However, this broad view of the Anthropocene tends to overlook or oversimplify the term's origin as a purely geological concept. Rather than extending so widely to encompass humanity's effects on 'the environment' as a whole, the original, geological definition of the Anthropocene was specifically interested in humanity's effects on the structure and substance of the planet itself. This conceptualisation of the Anthropocene, focused as much on earth the substance as Earth the world, rarely features in fiction or literature. But the Broken Earth trilogy, by replacing a humanity that indirectly effects the planet's surface via anthropocentric climate change with a fictional variant that directly interacts with and manipulates the earth via orogeny, shifts the focus of climate fiction away from the broader definition of the Anthropocene and closer to the

geological one. The second intervention made by the Broken Earth trilogy, I will suggest, is to highlight connections between racial violence and environmental exploitation. As Joshua Rivera puts it, Jemisin's novels take "the world as it is now—buckling under the weight of systemic racism, income inequality, and environmental disaster—and portray … it, through the lens of fiction, as what it truly is if left to momentum and entropy: the end of the world." That is to say that, like Atwood's use of sci-fi, Jemisin uses fantasy to interrogate the trajectories of our present world (including the trajectory of the ever-worsening climate crisis), and build an apocalyptic future to match them. But rather than simply extrapolating trajectories of climate change and racism, Jemisin actively intertwines these threads, highlighting parallels and connections between the two forms of injustice. As I will demonstrate throughout this chapter, this method allows Jemisin to craft a fictional world that serves as a reflexive thought experiment that provokes readers to reconsider assumptions about the environment, racism, and the different ways in which the Anthropocene is defined and represented.

2. Anthropocentrism and the Earth's Agency

Throughout the Broken Earth trilogy, Jemisin reframes the Anthropocene as human violence against the planet by treating the Earth not simply as a setting but as a character in its own right, with emotions and agency. As I will demonstrate throughout this section, Jemisin crafts this unconventionally sentient version of Earth to prompt readers to reconsider the question: "How should we think about Earth itself?" (Iles). Early in the trilogy's first book, it becomes apparent that the people of the Stillness view their Earth very differently than we do ours. When they speak of their planet, Jemisin's humans use the terms 'Father Earth' or 'Evil Earth'—the latter signalling their belief that Earth is "hateful" and "wants nothing more than to destroy the life infecting its once-pristine surface" (*Season* 146). This bitter view of Earth,

held by almost every denizen of the Stillness, is founded on the belief that the countless natural disasters and the catastrophic Fifth Seasons they must struggle to endure are deliberately conjured by 'Father Earth' in an attempt to wipe out humanity. As Rivera notes, Jemisin's society is one that has "endured environmental disaster after disaster for generations in a cycle that was irregular but always inevitable, so much so that people were born into the world believing the Earth hated them." Alastair Iles has remarked that Jemisin's depiction of Earth as such a "malign" force is "unusual." This is certainly the case when compared to certain real-world views of the Earth; 'Evil Father Earth' is effectively a total inversion of the popular term 'Mother Nature.' Where the latter conveys connotations of nurturing generosity and submission to human desires, the former is cruel, barren, and a fearsome enemy of humanity. In changing Earth's reputation in this way, Jemisin begins to challenge and unsettle readers' assumptions about the planet, effectively setting the stage for a criticism of anthropocentric attitudes.

Over the course of the Broken Earth trilogy, Jemisin gradually reveals that the cause of Father Earth's anger is humanity's anthropocentrism. *The Fifth Season* begins this process through excerpts of the Stillness' lore, presented at the end of each chapter. One such excerpt reads much like the Book of Genesis, telling us "there was a time before Seasons, when life and Earth, its father, thrived alike … Earth our father knew He would need clever life, so He used the Seasons to shape us out of animals … The people became what Father Earth needed, and then more than He needed. Then we turned on Him, and He has burned with hatred for us ever since" (*Season* 115). This ancient lore, unlike the more common practice in the Stillness of blaming Earth for natural disasters, attributes blame to humanity, hinting at some great betrayal. Later in the novel, another of the Stillness' legends frames the past in terms of a lost climate stability:

> According to legend, Father Earth did not originally hate life. In fact … once upon a time Earth did everything he could to facilitate the strange emergence of life on his surface. He crafted even, predictable seasons; kept changes of wind and wave and temperature slow enough that every living being could adapt, evolve; summoned waters that purified themselves, skies that always cleared after a storm … Then people began to do horrible things to Father Earth. They poisoned waters beyond even his ability to cleanse, and killed much of the other life that lived on his surface. They drilled through the crust of his skin, past the blood of his mantle, to get at the sweet marrow of his bones … [Eventually] Father Earth's surface cracked like an eggshell. Nearly every living thing died as his fury became manifest in the first and most powerful Fifth Season. (*Season* 379-380)

Responding to the above passage, María San Miguel has remarked that "despite the trilogy's fictional setting … [such] quotations undoubtedly have a disquieting resonance for twenty first-century readers" (475). Indeed, there are striking similarities between Jemisin's story of the betrayal of Father Earth and our own interactions with our planet. As such, one can see how many readers and critics have interpreted Jemisin's Stillness as not fantastical at all, but rather a possible analogue of our own world—a world rife with water pollution, species extinction, and oil drilling. Almost as unsettling as seeing these aspects of our real world reflected in Jemisin's 'broken Earth' is the way in which they are described. The Earth is given human features, which are all defiled: skin pierced, blood spilled, bone marrow sucked out. Through the gruesome nature of this passage, *The Fifth Season* begins the trilogy's attempt to challenge the ways in which readers think and feel about the material environment—to provoke sympathy for the earth and perhaps even shame over how our species is mistreating it.

This challenge intensifies in the trilogy's final book, *The Stone Sky*, as Jemisin elaborates on exactly how her fictional humanity betrayed Father Earth. This mystery is unravelled in a series of chapters set in the distant past of Jemisin's world, when a now-forgotten civilisation called Syl Anagist ruled the planet. Syl Anagist combines elements of capitalism and imperialism: having forcibly conquered the known world and developed highly advanced technology, this empire is determined to elevate their society further still by harnessing the power of the Earth's core to free the world "of scarcity and want," so that anything is possible for them, including "people living forever" and "travel to other worlds, far beyond our star" (*Sky* 259). But Syl Anagist can only achieve these lofty goals by siphoning the Earth's power through their Plutonic Engine—the crowning achievement of their civilisation's technological advances—which will "lock the raw magical flows of the planet into an endless cycle of service to mankind" (*Sky* 333). To Syl Anagist, this exploitation of seemingly inert matter is entirely justified: *"someone* must suffer, if the rest are to enjoy luxury. Better the earth, Syl Anagist reasons. Better to enslave a great inanimate object that cannot feel pain and will not object" (*Sky* 334, italics in original). But Syl Anagist's reasoning proves to be flawed. When the Plutonic Engine is activated, the Earth does feel it, and it does object, violently. After a climactic wrestle between the Earth and the genetically-engineered 'tuners' (the forebears of orogenes) that operate the Engine, the entire civilisation of Syl Anagist is destroyed, and the cycle of the Fifth Seasons begins as the Earth's retribution against humanity. Ultimately, the lesson offered by the Syl Anagist chapters is simple: "the world is the way it is because some arrogant, self-absorbed people tried to put a leash on the … planet" (*Sky* 313). Here, "the world" the narrator refers to is the Stillness, but this lesson can be applied just as easily to our real world: after all, capitalist methods of exploiting our world's resources resemble a "Plutonic Engine" in their similar drive to 'leash the planet.'

The Syl Anagist chapters also tell us that Father Earth's reputed hatred of humanity is not mere superstition. This sense of planetary agency is critical to Jemisin's depiction of a violated planet. When asked in an interview how she researched for the Broken Earth trilogy, part of Jemisin's answer was that she visited volcanoes. "I'm fascinated by them," she said, calling them "awesome demonstrations of the Earth's power and potential fury" (qtd. in Cunningham). This notion that natural disasters such as volcanic eruptions or earthquakes—which feature prominently throughout the Broken Earth trilogy—are not just geological events but also manifestations of the Earth's "fury" is a defining feature of the trilogy's Fifth Seasons. As the Syl Anagist backstory tells us, the Fifth Seasons are a punishment for humanity's hubris—for its failure to recognise the Earth as a living being worthy of respect and care. Implicit in this formulation is the notion that our real world's natural disasters might be viewed in a similar light, as expressions of the planet's pain and rebukes for our transgressions. In positing this reframing of the Anthropocene, Jemisin's novels advocate the idea of material agency—which ascribes "vitality, willfullness, and recalcitrance" to "nonhuman entities and forces" (Bennett 347). As philosopher Jane Bennett points out, "one moral" of material agency is that nonhumans "are vital players in the world" (349). In the Broken Earth trilogy, this is explicitly true, with Father Earth serving as the novels' fearsome antagonist, bent on torturing all of humanity.

By depicting Earth as a very deliberate and very violent actor in her story, Jemisin prompts us to consider two key questions. Firstly: how should we view the Earth? This question is raised most powerfully when Hoa, one of the Plutonic Engine's enslaved tuners, remarks that "no one thought of the Earth as alive in those days—but we should have guessed" (*Sky* 322). The implication here is that perhaps one day we, like Syl Anagist, will look back on our exploitation of natural resources and the resulting disasters and wonder how we could have been foolish enough to think the Earth was passive and unfeeling in all of it.

The second question raised is a related one: how might the Earth view *us?* Jemisin offers a possible answer, telling us her Father Earth "looks upon human beings and sees short-lived, fragile creatures, puzzlingly detached in substance and awareness from the planet on which their lives depend" (*Sky* 341). In raising both of these questions, *The Stone Sky* uses the imaginative scope of fantasy to challenge our assumptions about humanity and nature, to ask us to look more critically at our relationship with the planet, and to reframe nonhuman entities as beings that hold the same levels of consciousness and agency as human beings.

Jemisin's decision to position Earth as a character—and, more specifically, an antagonist—is also notable because it serves to bridge the gap between literary criticism's definition of the Anthropocene and the original, geological conception. This is because, as Father Earth is situated as the main source of conflict, Jemisin's characters become players not merely in an *environmental* story (as is the case in many climate novels) but also in a *geological* story. Jemisin's use of orogeny—a sci-fi/fantasy concept rooted, unconventionally, not in technology or wizardry but in rocks and heat—shapes her novels into a story with an unshakeably earth-bound focus. Even when, in the second novel of the trilogy, Essun's orogeny evolves into something more fantastical, fuelled by 'magic' instead of the more scientific means of redistributing heat, it is in the earth that this magic is found: in a moment of epiphany, Essun sesses it within rocks, "flitting between the infinitesimal particles of silicon and calcite" (*Gate* 360-361). By relentlessly keeping her stories' focus on earth (not just Earth), Jemisin goes beyond insisting upon the vitality of nonhuman entities by also providing an example of a narrative that considers the literal, non-metaphorised version of the Anthropocene—a primarily geological disaster—by framing rocks and earth as just as important as people.

3. Earth and Orogenes as Allies in Oppression

The notion that Earth has its own agency and sovereignty inevitably leads the Broken Earth trilogy to consider another critical question about the way we view and treat the planet: as Iles surmises, Jemisin's novels pose "the question of whether Earth should not be recognized as having its own rights." As I will demonstrate in this section, Jemisin's answering of this question relies on her use of fantasy to create the orogenes, whose supernatural connection to the Earth serves to undercut the dichotomy that separates human and planet. Furthermore, the bridging of this gap through the portrayal of the orogenes enables Jemisin to link exploitation of the environment to racism, by pointing out the ways in which these two injustices are intertwined. As I have already mentioned, orogenes (a fraction of the Stillness' population who can supernaturally interact with the Earth) are despised for their difference, yet forced to use their powers as members of the Fulcrum to protect the Sanze Empire from natural disasters. The Empire's treatment of orogenes brings to mind the oppression and discrimination of marginalised racial groups in our real world, and ultimately shapes the Broken Earth trilogy into a powerful criticism of racism and the many violations of human rights that stem from it. Here, Jemisin's use of fantasy is key: she crafts the geologically-rooted magic of orogeny so that its users are human but also hold identities that are powerfully bound to the Earth, so that readers are pushed to reconsider topics of both human rights and nonhuman rights.

In the first novel of the trilogy, we quickly learn that orogeny is more than just a form of magic; it is also something akin to a language—a method of communication between humans and the Earth. Orogeny, at its most basic level, is described as "listening to the Earth," which serves as another of the novels' signals that the Earth is alive—that is has something to say, and orogenes are capable of hearing it (*Season* 87). Despite their connection, the relationship between Earth and orogenes is seldom a peaceful one, as it is

tainted by the oppressive influence of the Fulcrum and the Sanze Empire. To be connected to the Earth—to be an orogene—is to be hated and either hunted or enslaved. As Alabaster explains, the people of the Stillness are taught that orogenes are "born evil—some kind of agents of Father Earth, monsters that barely qualify as human" (*Season* 124). The Empire strictly maintains the dominant narrative that orogenes are wild and inhuman, as this perception empowers them to send Guardians (who effectively serve as wardens and executioners) to round up 'feral' orogenes and bring them to the Fulcrum where they can be put to work. When Damaya (who will later become Essun) is taken from her home, her new Guardian, Schaffa, explains her situation as if she is little more than a tool:

> You're a gift of the earth—but Father Earth hates us, never forget, and his gifts are neither free nor safe. If we pick you up, hone you to sharpness, treat you with the care and respect you deserve, then you become valuable. But if we just leave you lying about, you'll cut to the bone the first person who blunders across you. Or worse—you'll shatter, and hurt many. (*Season* 38)

Here, the Empire's narrative is shown to 'dehumanise'—for lack of a better word—both orogenes and the Earth, treating them as equally dangerous forces that must be controlled. This serves as our first indication that orogenes and the Earth are victims of the same system of oppression. But despite this commonality, orogenes and Earth are far from allied; orogenes like Syenite are shown to be just as prone to cursing 'Evil Earth' as non-orogenes. Through this formulation, *The Fifth Season* establishes the complicated nature of the relationship between orogenes and Earth—they are both oppressed by the same empire, and while this should unite them as allies, the Empire's oppressive narratives ensure the opposite effect, driving orogenes to hate the Earth that could otherwise empower them.

When reading the Broken Earth trilogy, there can be no mistaking the fact that racism is the force that allows the Empire to contaminate orogenes' relationship with the Earth. It is not a traditional form of racism, as "racial differences exist [in the Stillness], but they have no cultural correlation with social status" (San Miguel 480). Instead, as San Miguel surmises, "in the Broken Earth trilogy, race … [is] displaced onto a different figure of otherness more suitable for the speculative genre: the posthuman being" (480). In this way, Jemisin follows a long tradition of fantasy writers exploring issues of human rights by writing about humanity's mistreatment of not-quite-human beings (elves, dwarves and mages are often depicted as victims of discrimination). But Jemisin differs from more conventional fantasy depictions of injustice by forging powerful connections between her orogenes and real-world marginalised racial groups. Jemisin quickly begins to link the two groups in readers' mind by introducing us to the term "rogga"—an unofficial name for orogenes, a "dehumanizing word for someone who has been made into a thing" (*Season* 140). As Lizette Gerber has noted, this slur is deliberately crafted, with its double 'g,' to resemble a real-world slur, the 'N-word,' so as to alert us to the similarities between the racism of the Stillness and that of our world (2). As several commentators have noted, similarities with America's history of slavery are abundant in *The Fifth Season*: orogenes are segregated from the rest of the world and kept penned in at the Fulcrum; they are exploited as manual labour; and they are told who they can and cannot breed with. At first glance, these atrocities appear to have little in common with the ways in which Earth is oppressed. But the underlying cause of the two manifestations of oppression is ultimately the same. Just as orogenes are vilified and exploited, so too is the Earth, and in both cases the process of exploitation is founded on the assumption that the subject is less than human.

We can see this assumption at work in the Syl Anagist era, as these chapters serve to demonstrate how the Stillness inherited its systems of cruelty toward both orogenes and

Earth. In Syl Anagist, the Plutonic Engine's tuners, who are effectively the first generation of orogenes, were "stripped," via genetic engineering, "of much that would've made [them] human"—their emotions, sex drive and even their height have been suppressed, to make the tuners into pale, diminutive oddities that can be easily reviled by the Sylanagistine public (*Sky* 44). Syl Anagist's motives for such a cruel design plan become clear when we are told of the empire's history of conflict with a race called the Niess:

> Perhaps it began with whispers that white Niess irises gave them poor eyesight and perverse inclinations, and that split Niess tongues could not speak truth. That sort of sneering happens, cultural bullying, but things got worse. It became easy for scholars to build reputations and careers around the notion that Niess sessapinae were fundamentally different, somehow—more sensitive, more active, less controlled, less civilized—and that this was the source of their magical peculiarity. This was what made them not the same kind of human as everyone else. Eventually: not as human as everyone else. Finally: not human at all. Once the Niess were gone, of course, it became clear that the fabled Niess sessapinae did not exist. … This was intolerable; more than intolerable. After all, if the Niess were just ordinary human beings … the world built on their inhumanity would fall apart. So … they made us. (*Sky* 210-211)

More than simply highlighting the twisted cruelty of Syl Anagist, this passage serves a key role by revealing "the link between the imperialist aspirations of Syl Anagist and the dehumanisation of the Niess" (San Miguel 480). The present-day Stillness inherits the same process of constant oppression, applying it to orogenes, who are taught "they must earn the respect which everyone else receives by default" (*Season* 76). As such, San Miguel has concluded that "structural oppression and violence against orogenes can be traced back to an empire's drive to conquer and dominate others" (480). But this is only half of the picture. As well as the Niess, the Earth itself is a victim of Syl Anagist's ruthless imperialism, as the

empire attempts to use technology to enslave it just as they used genetic engineering to shackle the tuners. With this in mind, it becomes clear the oppression of both people and planet stem from the same desires.

Jemisin crafts links between her world's Syl Anagist past and Stillness present to demonstrate how these oppressive imperialist attitudes and behaviours are passed down through generations. While the people of the Stillness acknowledge Earth's consciousness in a way Syl Anagist never did, they still inherit their forebears' desire to exert control over the planet—a desire that drives the Fulcrum to build a 'node network,' a technological solution that is less ambitious than the Plutonic Engine but equally oppressive of the orogenes it enslaves: "All over the continent—at whatever points the senior orogenes have determined it best for manipulating nearby faults or hot spots—there is an outpost. Within that outpost is stationed a Fulcrum-trained orogene whose sole task is to keep the local area stable" (*Season* 119). Syenite initially takes a sanguine view of this job: "At least they can save lives, even if they're doomed to spend their own lives in relative isolation and obscurity" (*Season* 119). But when Alabaster takes Syenite to visit one of these node stations, we learn along with her that node maintainers suffer from much more than isolation and obscurity. At the heart of the station, Alabaster reveals the node maintainer's body is integrated into a horrific machine: "The body in the node maintainer's chair is small, and naked. Thin, its limbs atrophied. Hairless. There are things—tubes and pipes and *things* … going into the stick-arms, down the goggle-throat, across the narrow crotch" (*Season* 139, italics in original). The orogene, a mere child, is kept alive in this state—"immobile, unwilling, indefinite"—so that the Sanze Empire can draw on their orogenic power without fear of the victim rebelling or losing control (*Season* 140). Crucially, the circumstances that the Empire use to justify their abuse of technology and exploitation of orogenes—that is, the threat of catastrophic natural disasters—are the same circumstances that we in the real world face increasingly as the

conditions of the Anthropocene worsen. Through this, Jemisin's novels reflects our reality to ask us if, as our world begins to experience its own Fifth Season-level disasters due to climate change, we too will adopt a philosophy of 'the ends justify the means' as we deploy technological solutions to mitigate the damages dealt to our way of life. Furthermore, the parallel subjugation of orogenes and Earth caused by the node stations urges us to consider both the human and nonhuman costs of such an approach.

But Jemisin is not content to merely depict orogenes (along with the real-world racial groups they represent) and the Earth as fellow victims. Instead, in a key moment of *The Fifth Season,* Jemisin shifts Father Earth out of his usual role as an antagonist and allies him with Alabaster, the novel's deuteragonist and the most powerful orogene in the Stillness. Determined to end the suffering of his fellow orogenes by whatever means necessary, Alabaster allies with Father Earth so that the two might fight back in tandem against the system that oppresses them both. Because he eventually overcomes the biases cultivated by the Fulcrum's oppression and chooses to find value in his ability to know the Earth, Alabaster's orogeny evolves into a clearer system of dialogue with the planet—one with space not only for listening to one another, but also for an active relationship. The Earth, still determined to punish humanity after Syl Anagist's betrayal millennia prior, seeks renewal through destruction just as Alabaster does. And so the two become allied, with Father Earth empowering Alabaster's orogeny to trigger a Fifth Season strong enough to endanger all human life on the planet. When Alabaster performs this act, the nature of his connection with the Earth is powerfully expressed: "he reaches up. For power. He takes all that, the strata and the magma and the people and the power, in his imaginary hands. Everything. He holds it. He is not alone. The earth is with him" (*Season* 7). Alabaster chooses to unleash this power in the capital, Yumenes, and specifically targets the Fulcrum headquarters, so that while the rest of humanity will die a slow death as the effects of his orogeny spread, the establishment that

enslaved him and his fellow orogenes is destroyed in an instant. In this way, the oppression of the Earth and the oppression of orogenes—twin injustices that have existed side-by-side, interrelated, for millennia—are both ended simultaneously, in a single act made possible by an alliance between the two victims.

The stories of the Broken Earth trilogy ultimately depict two of the greatest injustices of our real world—the oppression of racial minorities and the short-sighted exploitation of our planet's resources—as being motivated, perpetuated, and finally cured in the same ways. By setting these injustices side-by-side and insisting on their similarity, the novels ask us to consider questions of human and nonhuman rights as interrelated and equally important. As Iles puts it, Jemisin's novels "are a singular call for racial and social justice as a way to protect both human nature and non-human nature." This call is empowered by Jemisin's clever use of fantasy's capacity for imagining new human-nonhuman dynamics. By conjuring orogenes as supernaturally-charged posthuman beings that echo oppressed racial groups in our real world and then tying them to Earth via orogeny, the Broken Earth novels make the connections between racism and exploitation of nature visible and tangible, powerfully urging us to reconsider the ways both people and planet are exploited and abused.

4. The Ethics of the Broken Earth Trilogy's Three-Sided War

Like many future-focused climate novels, the Broken Earth trilogy pushes us to consider not only how humanity might be able to continue in a world of ecological ruin but also if our species even deserves such continuation, given that the ruin that threatens our existence is entirely of our own making. Utilising fantasy's penchant for large scale conflict with nonhuman forces, Jemisin explores these ethical questions through what her characters describe as "a three-sided war" over the future of humanity (*Gate* 166). In this section I will

discuss how Jemisin's crafting of this conflict further connects the Broken Earth world's crisis with our real-world Anthropocene, as well as how the war's climax marks a point where the trilogy's literalising of the Anthropocene falters. Explaining the three-sided war to Essun, Alabaster tells her, "We're the problem, you see—people," and the three sides of the war are each "trying to decide what should be done with us" (*Gate* 167). The first faction is populated mostly by stone eaters—enigmatic, immortal beings shaped like humans but made entirely of crystals (we learn in the last book of the trilogy that the stone eaters are in fact the Plutonic Engine's tuners and their descendants, cursed by Father Earth for their attempt to enslave him). These stone eaters, led by one known as Steel, seek the complete destruction of the planet, to end the fruitless cycle of humanity's struggle to endure the Fifth Seasons, and to free themselves from their miserable immortality. The second faction is that of Father Earth, who works to maintain the punishing cycle of the Seasons and 'neutralise' humanity by influencing the Guardians (via 'corestones' implanted in their skulls) to keep orogenes oppressed and submissive. The third and final side of the conflict is championed by Alabaster. As he explains his role in the conflict to Essun, we learn that destroying the Fulcrum and setting off the worst-ever Fifth Season was not his ultimate goal but rather the first step in a larger plan. Alabaster has learned that "Father Earth hates [humanity] because he cannot forgive the loss of his only child"—the moon, which was flung out of orbit forty-thousand years ago during the battle over the Plutonic Engine (*Gate* 103). Crucially, Alabaster has also learned that the moon is now drifting back toward the planet, and a well-timed and extremely powerful act of orogeny could 'catch' the moon and return it to Earth's orbit, thereby appeasing Father Earth and potentially ending the Fifth Seasons. So, the third faction of the three-sided war is "those who want a truce, people and Father Earth agreeing to tolerate one another" (*Gate* 172). Ordinarily, this final option would inevitably appear as the most desirable conclusion to the trilogy—after all, it is the only option where humanity is

saved. But, as I will explain in the remainder of this section, Jemisin deliberately problematizes this assumption, placing her protagonists on different sides of the three-sided war and ultimately pushing us to consider if her fictional world (and, by reflection, our real world) ought to be granted a second chance, or if it is too broken to be fixed.

While *The Fifth Season* presents Essun (along with her past selves, Damaya and Syenite) as its sole focal character, the latter two books of the trilogy follow both Essun and her lost daughter, Nassun, as dual protagonists. Though readers are certainly positioned to support Nassun during her struggle to survive in a world in which both people and planet want to kill her, the violence and trauma she has experienced as an orogene means she is not on the pro-human side of the three-sided war. Although she is aware of the possibility of a truce with Father Earth, Nassun reasons that "fathers will still try to murder their orogene children, won't they? Even if the Moon comes back. Nothing will ever stop that" (*Sky* 41). So, when Nassun is informed of the Obelisk Gate—a network of ancient devices that can amplify orogeny to a world-altering degree—which could allow a powerful orogene like herself or her mother to either catch the moon or end the world, she figures her choice is between "the cruelty of the status quo, or the comfort of oblivion" (*Sky* 302). The choice is "clear to her"; she "can't take the cruelty, the endless suffering" of her world, and decides to bring it all to a "quick and merciful" end (*Sky* 302, 338). As San Miguel notes, readers are not positioned to consider Nassun's approach misguided or immature; instead "the privileging in the series of marginalised characters' perspectives"—namely oppressed orogenes such as Essun, Nassun, and Alabaster—"undoubtedly promotes reader identification, to the extent that it arguably makes one wonder … whether life on the Stillness does deserve saving, and whether there is any hope of regeneration" (478). Indeed Jemisin's writing at times seems to endorse the notion that destruction is the only cure for such a broken world: in the prologue of *The Stone Sky*, she writes "some worlds are built on a fault line of pain, held up by

nightmares. Don't lament when those worlds fall. Rage that they were built doomed in the first place" (*Sky* 7). While one could limit this diagnosis to the world of the Stillness, as I have already discussed, the forces of racism and environmental exploitation that have broken Jemisin's fictional earth are reflections of our real world. As such, when we consider just how justified Nassun's approach is, we are also led to consider if our own world is built on 'fault lines of pain' and if we in the Western world, like the people of the Stillness, are earning our own execution.

But just as Jemisin's war has many sides, so too does her trilogy's argument on the ethics of life in the Anthropocene. While Nassun's story attests to humanity's inability to change either their relationship with Earth or each other, her mother Essun offers a more hopeful perspective. In *The Obelisk Gate,* Essun joins a community called Castrima, where orogenes and 'stills' (non-orogenes) live together peacefully. The community's headstrong and idealistic leader, or 'headwoman,' Ykka, presents the trilogy's most positive endorsement of humanity, insisting "Stills *learned* to hate [orogenes]. They can learn differently" (*Gate* 294, italics in original). The former of these two statements is supported elsewhere in the trilogy, when we are told the oppression of orogenes "is the way of the world, but it isn't. The things that happen to orogenes don't just happen. They've been *made* to happen, by the Guardians, after years and years of work on their part" (*Sky* 178, italics in original). The lesson here is that the racism of the Stillness is not natural or instinctual, but artificial, fostered by malevolent forces and passed on through generations of people being taught all the wrong lessons about orogenes. Implicit in this formulation is the suggestion that our real world's systems of oppression—both those that target race and those that target nonhumans and the earth—are similarly artificial: man-made but not 'human nature.' Ultimately, while Nassun decides stills will "just go on being scared [of orogenes] forever, and we'll just go on living like this forever," Essun gradually comes to believe in the coexistence she sees in

Castrima and resolves to "catch the Moon, and perhaps earn humanity a second chance" in the hopes that it can be redeemed (*Sky* 88, 384).

These two divergent appraisals of humanity's value finally come into direct conflict at the trilogy's climax, when Essun and Nassun come face to face and must fight over control of the Obelisk Gate. Perhaps surprisingly, in this struggle, it is Essun's will to save humanity that falters. Realising that a prolonged orogenic battle would kill her daughter, Essun "give[s] up," because, "more than anything," she wants her last surviving child to live (*Sky* 385). As she relinquishes control, the power of the Obelisk Gate kills Essun, turning her to stone. Nassun is so moved by her mother's sacrifice that she abandons her plan and fulfils her mother's dying wish, using the Obelisk Gate to catch the moon and thereby earn a truce between humanity and Father Earth. Furthermore, in the aftermath, when the stone eater Hoa meets Nassun, he tells her, "Lynching was never the only option. The nodes were never the only option. All of these were choices. Different choices have always been possible" (*Sky* 395). With these words, the trilogy concludes on a surprisingly hopeful note, insisting that humanity is capable of redemption and salvation. In reaction to this incongruous spark of hope, San Miguel has posed the question of "whether, against all odds, the Broken Earth trilogy might be said to put forward a humanist message, as happens in countless disaster cultural products where the values of humanism stand amid all the post-apocalyptic ruin" (479). Indeed, it does seem that, at the last moment, the Broken Earth trilogy turns from its scathing criticism of humanity's worst injustices to an exaltation of its capacity to endure. Crucially, the "end of the world" declared in the trilogy's very first page never truly comes to pass (*Season* 1). In this, the trilogy's geological story is problematically thwarted and overtaken by a very human story. The final battle of the trilogy is fought between two humans, with Father Earth—previously a fearsome antagonist—relegated to the role of bystander as his fate is decided by Essun and Nassun. Such an ending marks a sudden switch

from one vision of the Anthropocene—the geological one, where the earth is given prime importance—to an 'environmental' Anthropocene, which focuses more on humanity's actions and responsibilities. In a sense, this shift robs Father Earth of his power as an active character; rather than exerting control over the trilogy's final pages, he is left to simply accept the truce offered by the stone eaters on behalf of humanity (see *Sky* 392). Just as Nassun is forced to "choose one ending or the other" for humanity and is urged by Schaffa to "make the end you need," Jemisin seems to choose the ending that we—the real world's humanity—need: an ending that is hopeful and human, even if this hope comes at the cost of stepping away from the geological perspective Jemisin has so carefully spotlighted until her trilogy's conclusion (*Sky* 92). While this shift of focus leaves Jemisin's case for nonhuman agency unfinished, ultimately, the urgency of the Broken Earth trilogy's message remains unscathed: the need for humanity to re-evaluate its injustices—its abuses of earth and people—and change before it is too late is illustrated viscerally through every moment of Essun and Nassun's journeys. Through this, Jemisin's Stillness relentlessly fulfils fantasy's potential of reimagining and representing our own world's faults and the threats they pose to our future.

Chapter 3: Realism and Barbara Kingsolver's *Flight Behaviour*

> People can only see things they already recognise.
>
> Barbara Kingsolver, *Flight Behaviour*, p. 282.

1. Introduction

While the genre of science fiction holds a rich and extensive catalogue of texts that address the Anthropocene, such concerns have been explored far less frequently by realist fiction. This lack of engagement is perhaps best surmised by Richard Kerridge's oft-quoted lament: "Where are all the rigorously realist novels, with present-day settings, dealing with people's emotional responses to the threat of climate change?" ("Ecocritical Approaches" 373). There have been a number of explanations for realism's perplexing aversion to the topic of climate change. Amitav Ghosh offers a particularly detailed theory in his book *The Great Derangement*, where he ultimately lays blame on realism's reliance on norms. To illustrate this point, Ghosh tells of how, on March 17, 1978, when he was studying in Delhi, he was walking from his university's library back to his room when he was suddenly caught in the path of a cyclone (17-19). Ghosh goes on to say that, despite his best efforts, he has been unable to translate this personal experience into inspiration for a novel because "a scene in which a character is walking down a road at the precise moment when it is hit by an unheard-of weather phenomenon" would be met with incredulity from readers (30). Realist novels, Ghosh explains, have a stricter standard of probability than reality itself. "This is why," Ghosh tells us, "it is commonly said, 'If this were in a novel, no one would believe it'" (29). As such, to remain 'realistic,' realist novels perform what Ghosh calls the "banishing of the improbable and the insertion of the everyday" (23). But this prioritisation of probability has become an obstacle preventing realist novels from addressing the unpredictabilities of climate

change. As Ghosh puts it, the Anthropocene is "an era that will be defined precisely by events that appear, by our current standards of normalcy, highly improbable: flash floods … persistent droughts, spells of unprecedented heat … and, yes, freakish tornadoes" (30). Therefore, realism's unwillingness to depict supposedly 'unrealistic' events may explain why the genre has been so slow to enter the realm of climate change writing.

Further explanation can be found in two of realism's most fundamental characteristics: firstly, that it is bounded by the present and, secondly, that it is bound to humans. While science fiction gives licence to novels like the MaddAddam trilogy to imagine the dramatic, catastrophic consequences of climate change that may unfold in the future, realist fiction is limited to the ecological damages that have already become reality. Rob Nixon has described the existing processes of environmental damage as "slow violence," meaning "violence that occurs gradually and out of sight" (2). The "relative invisibility" of this form of loss poses a particular challenge: "how can we convert into image and narrative the disasters that are slow moving and long in the making, disasters that are anonymous and that star nobody, disasters that are attritional and of indifferent interest to the sensation-driven technologies of our image-world?" (Nixon 2, 3). In addition to its invisibility, the scope of present-day climate change is also difficult to depict because so many of its victims are nonhuman. Realist fiction, being built upon exploring what is ordinary and within our realms of understanding—what is 'knowable'—has evolved to tell deeply personal human stories. As such, realism is inherently anthropocentric and therefore ill-equipped to tell *eco*centric stories of nonhuman loss.

In light of these apparent deficiencies, there have been many "pessimistic assessments … of the novel's ability to meet the representational challenges posed by the pressing planetary problem of climate change" (Craps and Crownshaw 1). However, aside from its

various limitations, realism also has potential advantages it can bring to the field of climate writing. For instance, being situated in grounded, present-day settings means the realist novel is well-suited to stressing the urgency of the environmental crisis by highlighting the damage already occurring in our real world, rather than extrapolating future consequences or imagining more dramatic forms of disaster. Furthermore, as Trexler and Johns-Putra point out, the challenges of writing about climate change necessitate innovations in literary form, and as such it can be argued that literary realism, with its long-standing history of innovation, should, theoretically, be "best placed" to provide the needed "innovative responses" (196). In this chapter, I will explore the potential of realism to engage with the Anthropocene, and climate change in particular, by considering Barbara Kingsolver's *Flight Behaviour,* because it is a novel that not only makes full use of these advantages of the genre, but also takes realism's greatest limitation—its inherent anthropocentrism—and turns it into a strength.

Flight Behaviour has been hailed as one of the first realist novels to explore climate change. Even as Ghosh explains the obstacles blocking realism from engaging with climate change, he cites *Flight Behaviour* as an example of how "these challenges can be, and have been, overcome" (79). Similarly, Bartosch describes the novel as "one of the most successful attempts at describing climate change" (Bartosch, "Scale" 9). I will argue that Kingsolver's novel not only successfully represents the nebulous issue of climate change within a realist framework, but also highlights the conceptual challenges of doing so. This occurs in two parts. Firstly, *Flight Behaviour* offers an exploration of the general difficulties of conceptualising climate change, by which I mean converting it from an unwieldy, abstract idea into a commonly understood and accepted concept. This is achieved through a sustained engagement with climate change denial, and the 'culture war' behind it, as well as the problematic neutrality of the scientific sphere. Secondly, the novel also serves as a powerful demonstration of the difficulties that literature—and, in particular, realism—faces in its

attempts to conceptualise climate change. These difficulties are highlighted by the methods Kingsolver employs to ensure her story—despite being realist and therefore anthropocentric—represents climate change as not just a human concern, but a nonhuman one also.

Kingsolver's discussion of the climate crisis—and the difficulties in understanding and conceptualising it—is built upon two entangled narrative, one anthropocentric and the other ecocentric. *Flight Behaviour*'s human narrative follows Dellarobia Turnbow, a frustrated farm wife living in the fictional rural Appalachian community of Feathertown, Tennessee. Dellarobia quickly earns our sympathy, as we read of how she is suffocated by her loveless marriage to the well-meaning but chronically lethargic Cub and exhausted by her endless responsibilities as a stay-at-home mother of four-year-old Preston and two-year-old Cordelia. The novel begins with Dellarobia launching an impulsive attempt at escaping her unhappy life, climbing the mountain on her in-laws' property bound for an illicit romantic rendezvous. But, during her climb, Dellarobia is waylaid by an inexplicable sight: what appears to be a silent, harmless fire spreading through the mountain's trees. It is only upon revisiting the spot with her glasses on that Dellarobia realises the trees are not home to such a miracle but to a multitude of monarch butterflies: "the fire was alive, and incomprehensively immense, an unbounded, uncountable congregation of flame-coloured insects" (Kingsolver 53). These butterflies cause quite the stir in the Feathertown community, inspiring awe in the local church and its charismatic pastor, Bobby Ogle, while also attracting many admiring tourists and thereby disrupting the plans of Dellarobia's in-laws, Bear and Hester, who had hoped to clear-cut the forest to raise some much-needed income. Among those drawn to the butterflies is Ovid Byron, a charming lepidopterist who explains to Dellarobia that the butterflies have arrived in the Appalachians because a natural disaster has rendered their usual roosting place in Mexico uninhabitable. This has put the butterflies at risk of extinction,

as they are ill-equipped to survive the harsher conditions of winter in the Appalachians, and their struggle for survival forms the second, ecocentric storyline that runs in parallel to Dellarobia's. The two plots become linked as Dellarobia comes to work as Ovid's assistant as he studies the butterflies. The human narrative of *Flight Behaviour* can be regarded as a *bildungsroman,* as Dellarobia's interactions with the butterflies educate her regarding the dangers of climate change and awake in her a passion for science and nature. My analysis of the novel will consider how Kingsolver uses realism to set Dellarobia's bildungsroman story alongside the butterflies' struggle for survival, thereby intertwining anthropocentric and ecocentric concerns to highlight the challenges of conceptualising climate change.

2. Denial, Religion and Class

Among the most pressing obstacles to a proper conceptualisation of climate change is the fact that, despite a wealth of scientific evidence, people still choose whether to accept or reject its very existence. In response to this, Kingsolver devotes *Flight Behaviour* to interrogating both climate change denial and the forces that enable it; her novel seeks to answer Garrard, Handwerk, and Wilke's question of "why does it seem that widely accepted science … [has] such limited effect on the various public audiences that they attempt and need to reach?" (149). This is a question that realism is uniquely positioned to consider. The genres that dominate the field of climate fiction (most notably science fiction and dystopia) are largely incapable of examining climate change denial, as their stories typically take place in devastated imagined or future worlds, where there can no longer be any doubt of the reality of climate change. But realism operates in the here and now, facing the doubts and fears of our present-day world. Kingsolver's novel is committed to utilising realism's capacity for investigating climate change denial, with its very title serving as an allusion to the issue. As

Dellarobia reasons, "people are just scared to face up to a bad outcome. That's just human. Like not going to the doctor when you've found a lump. If fight or flight is the choice, it's way easier to fly" (231). This additional meaning of the title signals that the novel is "a study of human 'flight behaviour,'" and, specifically, "the public's flight before reality, in denying the necessity to change patterns of production and consumption" in response to climate change (Goodbody 19).

Flight Behaviour's setting and the characters that populate it offer a 'case study' in climate change denial. Feathertown embodies the typical attitudes of poor, white rural America (specifically southern Appalachia, where Kingsolver lives (see Walsh)), with its people exhibiting a strict reliance on a Christian understanding of the world and an intense scepticism of city-dwellers and scientists. Feathertown's community is entirely composed of God-fearing Christians, with its church serving as its heart. Although she is viewed with suspicion for applying too much scrutiny to the Bible, Dellarobia is no exception, and when she first encounters the flock of butterflies she assumes they are "a vision of glory to stop her in the road" and prevent her committing the sin of adultery (15). When news of the butterflies reaches the church, it is quickly decided that they are a blessing from God, with the local pastor declaring to Dellarobia "your family has received special grace" (72). But it is not long until Ovid Byron and his team of scientists arrive to study the butterflies and explain to Dellarobia that their arrival was caused by climate change rather than divine intervention. This news comes as a blow to Dellarobia, prompting her to wonder "why did the one rare, spectacular thing in her life have to be a sickness of nature?" (149). But while Dellarobia comes to accept this bitter truth, those around her cling to the notion of the butterflies as "special grace," resisting any suggestion that climate change is responsible, or even real. This resistance is perhaps best summarised in Dellarobia's husband Cub's assertion that "weather is the Lord's business"—a popular method of deflection that at once absolves humanity of

blame and encourages us not to dwell on such things, as they are simply above our station (261). Such instances of stubborn close-mindedness have prompted Axel Goodbody to conclude that "religion emerges as a form of denial" in *Flight Behaviour*, with Feathertown's Christians "cling[ing] to traditional values" and relying on a "blind trust in providence" (17). In this light, religion enables Feathertown's residents to bury their heads in the sand and avoid the reality of the climate crisis.

However, while it is certainly true that *Flight Behaviour* shows religion to be connected to Feathertown's climate change denial, religion also manifests as a motivator of conservationist actions in some of the novel's characters. When Ovid Byron explains that the butterflies face near-certain extinction, Dellarobia responds with the words "one of God's creatures of this world, meeting its End of Days" (229). Dellarobia concedes that these are "not words of science… but it was a truth she could feel" (229). Here we see that, instead of inciting denial, religion provides Dellarobia with a way to understand the butterflies' plight and feel profound sympathy for them—a sympathy that motivates her to take action as she commits herself to working alongside Byron and his team. In this sense, religion is a positive, driving force, serving the exact opposite function in Dellarobia as it does in her husband. Crucially, this more laudable side of religion is not limited to the novel's protagonist. In deciding that the butterflies are a blessing from God, the local church also decides that they are worth protecting. Pastor Bobby Ogle epitomises this belief, and, in the end, it is he who puts a stop to the plan to clear-cut the forest that the butterflies now call home. At the deciding moment of the argument over the clear-cutting, Dellarobia's father-in-law Bear accuses Ogle of being a "tree hugger," to which the pastor responds "Well now, what are you … a tree puncher? What have you got against the Lord's trees?" (403). Remarkably, this is the moment that saves the butterflies: "suddenly Bear was defeated and Bobby was beaming" (404). In dissuading Bear, Ogle has succeeded where waves of environmentalist protestors

have failed. As such, Pastor Ogle's Christian belief that the trees are under God's rule becomes the novel's most effective conservationist force—just as Christianity's belief that the *weather* is under God's rule is shown to be the most popular rationale for climate change denial.

Kingsolver frames Feathertown's climate change denial as entangled not only with its Christian religion but also with its poverty. Kingsolver draws our attention to the connection between class and climate change attitudes in a striking exchange between Dellarobia and a middle-class activist named Leighton Akins who has journeyed to the butterfly site hoping to convince visitors to sign his sustainability pledge. Akins' list of tenets begins with a call to "bring your own Tupperware to a restaurant for leftovers, as often as possible" to which Dellarobia replies "I've not eaten at a restaurant in over two years" (327). This stuns Akins, and the disparity between his life and Dellarobia's only becomes clearer as they move down his list: when Akins encourages her to use Craigslist to buy used products, she tells him she doesn't own a computer; and the list's final item, "fly less," comes across as laughable as Dellarobia, of course, never flies at all (329). It is clear that, while Dellarobia and Akins both care for the environment, the class divide between them makes it impossible for them to understand climate change in the same way. They are, in effect, on different sides of what Kingsolver has called a "culture war" (qtd. in Walsh). Dellarobia and her family are constructed as a powerful representation of the lower-class side of this divide, being a family that "produces a lower-impact carbon footprint and is taught that climate change is a hoax, but who then suffer more from the extravagances of the upper-class's proclivity to burn fossil fuels" (Rosenthal 278). The asymmetry of this 'culture war' is a primary concern for Kingsolver. In explaining her motivations for writing *Flight Behaviour,* she has said "the people most affected by climate change already are people among whom I live: rural conservative farmers. And it strikes me that these are the same people who are least prepared

to understand and believe in climate change and its causes" (qtd. in Walsh). The Turnbows and the wider Feathertown community exemplify this, as their side of the cultural divide holds the smallest share of culpability for climate change, the largest share of the present-day dangers of climate change, and the greatest proportion of climate change denial in America. Meanwhile, Akins and the middle- and upper-classes he represents are certain of climate change's existence but experience few of its consequences and contribute most significantly to its development.

As different as the two sides of the 'culture war' are, Kingsolver is determined to treat both with understanding throughout her novel. While Hector Tobar has claimed that *Flight Behaviour* amounts to a "morality tale" that patronises the ignorance of the more conservative states of America, Kingsolver's portrayal of the class divide is not so simple. Kingsolver has said that she feels "profound sympathy for everyone in [*Flight Behaviour*] … that includes the people who come down on both sides of this culture war" (qtd. in Walsh). This is evident in how Kingsolver's protagonist plays a crucial role in mediating conflicts between the two sides of the cultural war; Dellarobia belongs to the lower class but her "inherent inquisitiveness," as Johns-Putra puts it, drives her to seek to understand as much as possible of the educated, middle class perspective offered to her by Ovid Byron and others (*Contemporary* 158). This drive eventually lands Dellarobia a job assisting Byron and his team in their work with the butterflies. In this co-worker relationship, they have numerous discussions of both climate change and Feathertown's climate change denial, and we see through these conversations what can be achieved when members of different sides of the culture war listen to one another. Dellarobia becomes convinced of the danger of climate change while Byron comes to understand the cultural forces behind climate change denial. In a particularly striking exchange, Byron suggests denial stems from "refusing to look at the evidence" (282). Dellarobia defends her community by arguing "It's not that we're all just

lazy-minded … People can only see things they already recognize" (282). In exchanges such as this, we see that Dellarobia both absorbs Byron's scientific knowledge and pushes back with her own rural-world insights, effectively fighting for—and highlighting the value of—both sides of the culture war: she "not only straddles the two communities; she facilitates the reader's sympathy with both sides" (Johns-Putra, *Contemporary* 158).

But one cannot forget that Dellarobia breaks the terms of this culture war, becoming something of a turncoat or double agent as she steps away from Feathertown's culture of climate change denial. At the end of the novel, Dellarobia's 'conversion' is so complete that she decides to leave her husband and Feathertown behind and study to become "some kind of scientist" (426). Goodbody has applied Bill Niven's definition of a "green *bildungsroman"* to the novel, seeing it as an inversion of the typical bildungsroman, which operates as "a story of the formation and education of a young person, focusing on their psychological and moral growth from youth to adulthood, and their integration into society" (11). In a green bildungsroman, there is a *dis*integration of sorts, involving "the gradual disengagement of a fully adapted individual from the dominant social, intellectual and professional norms"—a process defined by both learning and "unlearning," as the protagonist comes to "question and even discard accepted wisdoms" (Niven 198). This is certainly the case for Dellarobia, who comes to reject Feathertown's norms and local wisdoms (most notably that "God works in mysterious ways" or "the weather is the Lord's business") in favour of a more informed view of the world around her (Kingsolver 261). However, while Dellarobia's personal growth and entrance into the scientific world is indeed a powerful and inspiring one, showing readers the potential for climate change denial to be undone in those willing to listen to the opinions of outsiders, it is just one side of a carefully balanced equation. As I will show in the following section, Kingsolver also argues that climate change shows the scientific world is in need of a change of heart.

3. Science and Hope

Denial is just one of the challenges of conceptualising climate change that realism is best-suited to approach thanks to the genre's alignment with the present-day world. Aside from investigating the 'culture war,' Kingsolver also highlights how the scientific sphere, which should serve as one of the greatest contributors to the process of conceptualisation, is in fact limiting this process through its self-imposed neutrality. As I will demonstrate in this section, Kingsolver frames her examination of this issue within a wider discussion of whether hope can, and should, be maintained in the face of impending ecological collapse. In this discussion, Ovid Byron and the scientific community are framed as proponents of a form of detached pessimism, while Dellarobia comes to represent a determined hopefulness. Realism's rootedness—its connection to real-world, present-day concerns—puts the genre in a powerful position to consider such a conflict between hope and hopelessness in the Anthropocene. But this opportunity also comes with a matching limitation: realism is well-placed to consider the anxiety of the present, but lacks the power of future-focused genres (most notably science fiction) to imagine future loss—a concept often too distant and abstract to be powerfully expressed. I will argue that, as well as utilising the opportunities of realism's rootedness, Kingsolver also circumvents this corresponding weakness, by building Dellarobia's hope around her relationship with her son.

Much like the topic of climate change denial, the question of how one can maintain hope amidst the threats of the Anthropocene is given voice via Dellarobia's conversations with Ovid Byron. In these conversations, Byron speaks for the scientific community—a group that Kingsolver approaches with the same even-handed blend of sympathy and criticism that she applies to religion and both sides of the culture war. Aside from serving his

crucial purpose as a provider of scientific information about the butterflies and their struggle with climate change, Byron is also a character defined by both passion and compassion. It is abundantly clear that Byron feels great sympathy for the butterflies he studies; after watching his mood turn sombre during the course of his work, Dellarobia concludes that, for him, studying the butterflies' imminent extinction means watching as "the one thing most beloved to him" dies (229). Furthermore, his heartbroken affection for the butterflies translates into grave fear regarding the worsening effects of climate change: he confesses that reports on the crisis keep him awake at night (279). Crucially, this passion for the living systems of our planet—no doubt indispensable in the fight against real-world climate change—is something Byron can pass on to others, including Dellarobia's son, Preston. At their first meeting, Byron is impressed by four-year-old Preston's inquisitive mind, and declares to him "a little bird tells me … that you are a scientist" (118). Much later, after Preston has devoted himself to learning all he can about butterflies and other animals, Dellarobia reflects on Byron's kind remark to her son and realises that moment had "changed Preston's life" (353). Given his power to encourage others like Dellarobia and Preston—who otherwise might have thought themselves incapable of any scientific pursuits—it is no surprise that Greg Garrard has referred to Ovid Byron as a "scientist-hero" ("Conciliation" 305). Byron's passion for science and the effects it has on those around him instils *Flight Behaviour* with a sense of hope that the scientific world can inform and inspire even in the face of climate change and the anxieties and denials that have come with it.

But, as likeable as he is, Ovid Byron also comes to represent the flaws Kingsolver sees in the scientific sphere—most notably its insistence on objectivity and the pessimism this creates. In a discussion with Dellarobia on whether the butterflies' appearance in Feathertown ought to be considered beautiful or terrible, Byron answers, "Terrible, beautiful, it's not our call … We are scientists. Our job here is only to describe what exists" (148).

While such objectivity is a fundamental criteria of scientific research, instrumental in limiting the influence of bias, *Flight Behaviour* demonstrates how it can also be extremely detrimental. When Dellarobia hears of Feathertown's leaders sitting together at a local news team's desk, planning to turn the butterflies' new roosting place into a tourist attraction similar to Disneyland, she feels "Ovid Byron should be sitting at that desk" because without him "nobody was asking why the butterflies were here" (212). Dellarobia raises this point later in the novel: when Byron says "I like to think academics … can talk to both sides," she replies, "Could, maybe. But you're not. You're always telling me you're not even supposed to *care,* you just measure and count" (323, italics in original). Byron responds diplomatically, explaining that if scientists "tangle too much in the public debate, our peers will criticize our language as imprecise, or too certain. Too theatrical … Having a popular audience can get us pegged as second-rank scholars" (323-324). Here, we see that Byron's objectivity, imposed by the expectations of the scientific community, is keeping him from engaging directly with the forces set to determine the butterflies' fate—forces that are eager to exploit the butterflies for economic gain and blind to the ecological issues at stake. This tenet of neutrality effectively positions scientists above the realm of culture and its conflicts; although scientists, with their education and their convictions regarding the reality of climate change, inherently belong to the middle- and upper-class side of the 'culture war,' Byron's behaviour illustrates that they hold a very passive role in this conflict, refusing to make active attempts at 'converting' or 'defeating' members of the opposing side. As well as this demobilising passivity, the scientific community's imposed objectivity is also shown to lead to pessimism regarding the Anthropocene. When Dellarobia expresses difficulty in believing the apocalyptic ramifications of climate change, Byron replies "for scientists, reality is not optional" (283). What this means is that, for him, to hope for any non-apocalyptic outcome is a form of avoidance, tantamount to burying one's head in the sand. In this mind-set, where

Byron can only put faith in scientific evidence and hauntingly grim reports, 'realistic' thinking inevitably leads to a pessimism that accords with the scientific mandate to "only to describe what exists" rather than try to be "superheroes saving the patient [the planet] with special powers," because all the signs suggest a miracle would be needed to avert disaster now (148, 228). Ultimately, although Ovid Byron is shown to have great power to inspire a next generation, his capacity to respond to the threat of climate change is limited by his insistence on neutrality and extreme realism.

Through Dellarobia's relationship with her young son, Preston, Kingsolver resists the professional pessimism of the scientific world and insists on maintaining hope despite the growing dangers of the Anthropocene. Johns-Putra has noted that "future generations are a prominent theme in present-day cli-fi, with parentage used to express this" ("Literature" 269). *Flight Behaviour* is a powerful example of this, with Dellarobia's responsibilities as a mother becoming entangled with her growing fears regarding the climate crisis. The novel makes this relationship between parenthood and climate change explicit at certain points, as when Byron likens the planet's rising temperature to a sick child: "Think of a child's temperature elevated by two degrees. Would you call it normal?" (279). But the most crucial instance where parenthood and climate change are connected comes when Dellarobia learns from a Mexican refugee in Preston's preschool class that, in Mexico, people believe monarch butterflies are embodiments of the souls of dead children (359). With this in mind, Goodbody reasons that "the threat to… [the butterflies'] survival thus serves as a poignant reminder of the fate of future human generations facing the consequences of climate change" (20). In this way, the ecocentric struggle of the butterflies is given an anthropocentric dimension—with nonhuman loss expressed and understood in terms of human loss. Like the butterflies, Preston also becomes a symbol of endangered future generations. Inspired by Byron, Preston grows enamoured with the idea of being a scientist himself one day, and this stirs in Dellarobia "an

entirely new form of panic as she watched her son love nature so expectantly, wondering if he might be racing toward a future like some complicated sand castle that was crumbling under the tide" (247). Dellarobia's fear that climate change might doom her son's dreams gives rise to desperation and anger. At first, this manifests as a simple resistance to Byron's pessimism, with Dellarobia responding to his apocalyptic forecasts with "I'm not saying I *don't* believe you, I'm saying I *can't*" (283, italics in original). But over time this resistance evolves into an outright rejection. Even as she learns more about the realities of climate change, Dellarobia, somewhat paradoxically, becomes less willing to accept the idea that the planet is doomed to total ecological collapse. When Byron suggests it is "too late" to implement a new system of educating about climate change in kindergartens, she replies, "Don't say that, 'too late.' I hate that. I've got my kids to think about" (321). This remark highlights the crux of Dellarobia's new form of denial—not a denial of climate change's existence, but a denial of hopelessness. This denial, which motivates rather than de-motivates action, is founded on Dellarobia's need to believe her children will inherit a world in which they can thrive—especially Preston, with his intense love of nature.

The conflict between Dellarobia's hope and Byron's detachment comes to a head later in the novel, when television news reporter Tina Ultner visits the Turnbow farm looking for an interview. Dellarobia, determined to get the truth about the butterflies' situation to the public, insists that Ultner interviews Byron instead of her. Despite his rule of avoiding cameras, Byron agrees, and as soon as Ultner frames a question with the statement that "scientists of course are in disagreement about whether … [global warming] is happening, and whether humans have a role," the scientist-hero's insistence on objectivity disappears (366). He launches into an impassioned tirade, tearing apart Ultner's assertions that climate change science is mere "contention" (366). And while Ultner, of course, does not air the interview, Dellarobia's friend Dovey captures the entire exchange on her phone and posts it

online, where it quickly goes viral. As Byron's passion has finally been mobilised against climate change denial, this might be considered a successful foray into the culture war. However, the novel never confirms whether or not the recording convinces anyone in Feathertown to re-evaluate their view of science and climate change, and it must be conceded that the odds seem slim in this regard, since it is likely that many of the town's residences, like Dellarobia, do not even have access to the internet. But even if its effects are limited in this respect, Byron's speech is notable for demonstrating what can be achieved when scientists step outside the boundaries of neutrality.

Dellarobia's intervention in Byron's trajectory of objective and passive research completes Kingsolver's critique of the scientific world's attitude regarding climate change. It is only when Dellarobia's "ethical stance based primarily on hope" redirects Byron's more rigid stance that climate change denial is dealt a blow—albeit a limited one (Johns-Putra, *Contemporary* 160). As such, *Flight Behaviour* ultimately argues that science's virtues—represented by Byron's capacity to inspire—are being held back by a misguided insistence on objectivity and an unwillingness to interact with cultural forces. As Johns-Putra puts it, the novel suggests "science should be imbued with parental hope and care" (*Contemporary* 160). In bringing this lesson, Kingsolver makes good on realism's capacity to explore the present-day issues of climate change—most notably, the difficulty and necessity of maintaining hope. But just as central as that hope is fear, shown in Dellarobia's panic regarding her son's uncertain fate. In highlighting Preston and his endangered dreams of being a scientist, Kingsolver escapes realism's limitation of present-day rootedness by powerfully gesturing toward the future. The abstract notion of future loss—both human and nonhuman—is bound up in Preston, and thereby personalised into something we can more easily consider and feel for.

4. Human and Nonhuman Entanglement

As I have demonstrated in the previous two sections, *Flight Behaviour* offers a powerful discussion of the forces that have thus far prevented full conceptualisation of the climate crisis: namely the culture war and the denial it reinforces, and the neutrality of the scientific sphere. But the novel also contributes a unique demonstration of the challenges that literature—and, in particular, realism—faces in its attempts to bring clarity and understanding to the topic of climate change. Ghosh notes that "the literary imagination … [is] centered on the human" and "inasmuch as the nonhuman … [has been] written about at all, it was not within the mansions of serious fiction but rather in the outhouses to which science fiction and fantasy… [have] been banished" (72). Here, Ghosh points out that realism (which he calls "serious fiction") has very rarely ventured into writing about nonhumans. This is because realism writes about the knowable and we know what it is to be human far more than we know what it is to be nonhuman. Consequently, as I have already argued, realism is inherently anthropocentric, and ill-suited for ecocentric writing. Nevertheless, Kingsolver makes the attempt, and in doing so she both highlights this obstacle to realist climate writing and presents an innovative solution. This solution comes in the form of a balancing act—a balancing of anthropocentric and ecocentric components within *Flight Behaviour*, which is represented in the novel's title. Dellarobia reflects on the trajectory of her life and remembers her mother's assessment that she lives by just "flying from pillar to post" (254), so that the idea of "flight behaviour" is linked both to the nonhuman concern of the butterflies' loss of their usual roosting place and to the human concern of Dellarobia's unfulfilling life. In this section, I will discuss how this entanglement successfully 'personalises' a nonhuman story by situating it very closely to a traditional realist, human narrative.

This personalisation through entanglement is perhaps Kingsolver's greatest tool in overcoming the limitations of realism, as it allows her to direct our thoughts and sympathy toward nonhuman subjects—most often the butterflies, but at times the environment more generally—throughout the novel without ever stepping away from the more conventional characteristics of the human plot. The connections between the butterflies and humanity can be seen both in specific instances and in the trajectory of the novel's plot as a whole. The smaller-scale connections between the human and the nonhuman come like flourishes of Kingsolver's pen, manifesting in quick similes or off-hand thoughts: trees losing their leaves too early are "like a chemo patient losing their hair" (49); the butterflies' disrupted flight pattern is likened to protestors who were "sent … to the wrong address" (245); the butterflies' imminent extinction reminds Dellarobia of her stillborn first baby, as she thinks they "would pass through this world like that baby … while most people paid no attention" (229). In all of these cases, human and nonhuman subjects are set side-by-side, a process that serves to lessen the divide between the two—to prime readers for thinking and feeling about the butterflies in the same ways they think and feel about Dellarobia or Preston or Ovid.

But beyond these moments where human-nonhuman connections are brought to the forefront, there is also a more constant link beneath the surface, as the novel's dual plots—the human and nonhuman—develop in parallel, always relying on one another. Dellarobia's discovery of the butterflies makes her famous in her community, and leads her to step outside the often-suffocating boundaries of stay-at-home-motherhood as she works as an assistant to Ovid and his team. As such, Dellarobia notes that "the size of her life had doubled out" due to her encounter with the butterflies (342). But this comes with a fear that, if the butterflies die out or the town loses interest in them, Dellarobia's life would start "folding back in" (342). This moment makes the narrative entanglement of Dellarobia and the butterflies' different 'flight behaviours' explicit: Dellarobia relies on the butterflies for her development, just as

they need her and Ovid to speak out for them. This mutual reliance solidifies a sort of narrative bond between Dellarobia and the butterflies, binding their struggles together and suggesting they will ultimately meet the same fate. On the one hand, this strategy of entanglement allows a traditional realist plot to steer the novel, winning readers' engagement by conventional means. On the other hand, Kingsolver's human-nonhuman entanglement also enables a spreading of sympathy. As readers feel for Dellarobia in her loneliness and frustration and (as discussed in the previous section) her fear for the future of her children, some of that emotive energy is also applied to the butterflies whose perilous situation is set alongside Dellarobia's, framed as equally tragic. And this sympathy for nature, one can hope, may translate into motivation to oppose climate change. Therefore, in a sense, Kingsolver's entanglement of human and nonhuman stories is her greatest weapon against the climate crisis.

However, this technique has its issues, with the entanglement of human and nonhuman narratives at times being as problematic as it is powerful. The two sides of the entanglement exist in a delicate balance, and given that realism—and indeed novels in general—has a strong bias toward the anthropocentric, the nonhuman narrative is constantly in danger of being absorbed into the human one, to become a mere symbol reflecting the concerns of Dellarobia and those around her. Johns-Putra explains that *Flight Behaviour* can be read as either succeeding or failing in maintaining this balance: "on one reading, Kingsolver's narrative … is stubbornly anthropocentric, engendering a sympathy for the fate of non-human species and ecosystems but subsuming these within a greater sympathy for and interest in the future of the humans of the novel," but there is also room for "an alternative and radically ecocentric reading, in which the flourishing of the non-human is of ultimate significance" (Johns-Putra, *Contemporary* 140, 155). Considering which interpretation fits best is of utmost importance, because Kingsolver's success or failure in telling a nonhuman

story has a bearing on how successfully realism can be adapted to the task of climate change writing.

In deciding which of Johns-Putra's readings is most appropriate, the question becomes whether the butterflies are granted sufficient value in and of themselves or if the novel only values them as symbols of human loss. The examples of connections between human and nonhuman struggles considered above (the butterflies representing dead children, or being likened to lost protestors, or their deaths being compared to that of a stillborn baby) can all be seen as examples of the pathetic fallacy, relegating the butterflies to a symbol for human grief or confusion or loss. However, the reverse could also be said: the human sides of the comparisons are being used to express nonhuman loss—to put it in terms we can fully understand, without detracting from its gravity or its difference. *Flight Behaviour* is riddled with scenes in which the human characters—most frequently Dellarobia and Byron—discuss and marvel at the beauty and delicate intricacies of the butterflies. Furthermore, the butterflies engender scientific as well aesthetic wonder. Dellarobia is astonished to learn that different phases of the butterflies' migration last multiple generations, so the butterflies that make the return trip to the summer roosting place are doing so without ever having been there before, relying not on memory but on cues from the environment around them. This is "not like marbles rolling from one end of a box to the other and back," Dellarobia realises, "this was a living flow, like a pulse through veins, with the cells bursting and renewing themselves as they went" (146). This thought fills her "with strong emotions that embarrassed her, for fear of breaking into sobs … How was that even normal, to cry over insects?" (146). Here we see not only an instance of the butterflies inspiring wonder but also a very emotional response to it. This is a response that, as Dellarobia remarks, is not normally directed at nonhumans. And yet the novel frames it as entirely justified, both by the butterflies' awe-inspiring qualities and by the hopelessness of their situation. In this sense, the novel seems to be

making the case that butterflies—and other nonhuman beings—are indeed worth crying over. An anthropocentric reading of *Flight Behaviour*, in which the butterflies are only "enablers of a human story of loss, determination, and hope" neglects this dimension of the novel entirely (Johns-Putra, *Contemporary* 161).

Nevertheless, the problem remains that the human side of the novel is, perhaps inevitably, bound to attract more attention than the nonhuman side. As Timothy Clark has argued, "even with … [*Flight Behaviour*'s] focus on such spectacular insects, readers' imaginations are still so much more easily engaged and drawn in by the human drama, with its humour, suspense, love interest and psychological identification, than by the environmental one, concerned with insect behaviour, largely invisible ecological and population dynamics, climate projections and slow-motion ecocide" (Clark 178). Here, Clark's concerns are reminiscent of Nixon's warnings regarding the 'slow violence' of climate change and the difficulties writers face in depicting such invisible loss in interesting and engaging ways. As I have argued, Kingsolver manages to craft an engrossing story around a nonhuman narrative of slow violence by entangling it with a human one. But Clark's comments highlight a flaw in this relationship: the human side draws a far greater amount of the reader's attention and investment. Building on his criticism, Clark asks, "Is the human imagination really so depressingly enclosed, able to be captivated only by immediate images of itself?" (178). Kingsolver's method of eliciting interest in and emotion for nonhumans by situating them as closely as possible to humans seems to suggest the answer is yes, and realism must adapt to this particular challenge as it cannot be completely overcome. Ultimately, while it does not offer a perfect solution to the representational difficulties of slow violence—by which I mean it does not craft an entirely ecocentric story that can stand on its own without any human characters or concerns—*Flight Behaviour* does succeed in applying the realist narrative form to an important nonhuman story. Furthermore, Kingsolver

works hard to ensure the balance between the two 'flight behaviours' of the novel is maintained, as her butterflies are granted intrinsic, nonhuman value aside from the value derived by their connections and comparisons with humanity. However, as I will argue in the following section, this balance does not last through the novel's final pages.

5. Entanglement at the Endings

Much like her protagonist, Kingsolver refuses to relinquish hope at the conclusion to her novel, ending both the human and nonhuman narratives on surprisingly uplifting notes. As I have already mentioned, the human narrative culminates in a sort of liberation for Dellarobia—a completion of her 'green bildungsroman' development—as she resolves to leave her husband and enrol in college to begin studying science in earnest. This is revealed in a moving scene where Dellarobia explains these decisions to Preston and tells him that, while the divorce of his parents will not be easy for him, "migrating" between his father's home and his mother's "like the monarchs" will make him "sturdy"—that he will "grow up ready for anything" (426-427). As it effectively completes Dellarobia's journey of learning and liberation, this scene could have functioned as an uplifting end to the novel, but, as Johns-Putra points out, this would end things "on a deeply anthropocentric note" (*Contemporary* 162). Instead, one more scene follows Dellarobia's conversation with Preston, and while this scene does bring an ecocentric dimension to the novel's conclusion, it also destabilises the delicate balance between the human and nonhuman narratives of *Flight Behaviour*.

The final scene brings Kingsolver's entanglement of the anthropocentric and the ecocentric to its logical—but problematic—conclusion, as Dellarobia and the butterflies share

similarly uncertain but ultimately hopeful futures. This scene depicts how the strange weather present throughout *Flight Behaviour* culminates in a flood that overcomes the Turnbow farm. As the waters rise, Dellarobia climbs to higher ground in time to witness the surviving butterflies—a surprisingly great multitude of them—take flight and begin their spring dispersal, having miraculously survived their forecasted extinction. This ending, biblical in spectacle and ambiguous in tone, has drawn a range of different interpretations from critics. While many see the survival of the butterflies and Dellarobia's liberation from her unhappy marriage as signals of hope, others regard the flood as a tragic ending. Some critics have even gone as far as suggesting that, although Dellarobia is very much alive when the novel ends, she is doomed to die as the floodwaters rise. Linda Wagner-Martin argues that, "Dellarobia, like the butterflies, has no more choices. While the reader does not know how much of her family dies in the flooding, it seems clear that Dellarobia does not survive. And in the blending of the natural world with the human, the novel makes its sadly realistic point: *extinction* is the plotline for the butterflies" (197, italics in original). While such an ending would form a powerful representation of the destructive threat posed by climate change, I find such a tragic interpretation ultimately unconvincing, as the final scene unfolds with none of the foreboding one might expect when reading a protagonist's last moments. Instead, as Dellarobia watches the flood from the highest point of her farm's pasture, "her fascination transcended ordinary fear and safety" (Kingsolver 431). As such, there is very little panic or grief in these pages, with Dellarobia taking note of the wreckage with the tone of an impassive observer: she watches a floating section of roof move "with such ponderous, unhurried purpose it seemed to be yielding to a migratory urge. She noted that her station wagon was also following the call, relocating itself gently without a driver in an eastward direction" (431). Given this calm style of narration, it seems unlikely that Dellarobia is moments from death. A more plausible claim in the tragic reading of Kingsolver's ending is

that the flood represents "a significant 'defeat' of some kind for Dellarobia" (Johns-Putra, *Contemporary* 163). But again the tone of the scene resists this interpretation. Even as she watches her home buckle under the rising water, Dellarobia relates the destruction with clear detachment: "soon the whole thing would drift away from its anchored steps and cement-block foundation, departing as gently as an ocean liner. Then it would not be a home, but a rigid, rectangular balloon with siding and shingles and weather-stripped doors, improbably serene" (432). That Dellarobia sees gentleness and serenity in the destruction of her house shows that this is not a lament but a peaceful observation. This is because Dellarobia, with her plans to move away to college, has already let go of her home in Feathertown. As such, this is less of a defeat for Dellarobia and more of a washing away of her unhappy past. The ending of *Flight Behaviour*'s human narrative, then, remains an uplifting one, even in the face of the flood.

The end to the novel's nonhuman narrative, marked by the successful spring dispersal of the butterflies, matches this hopefulness. As Christopher Lloyd and Jessica Rapson note, the butterflies' dispersal seems to occur out of "sympathy" for Dellarobia's own 'taking flight' as she leaves her old life behind (921). Indeed, just as the butterflies' struggle has run parallel with Dellarobia's throughout the novel, the two stories both culminate in a new sense of freedom and hope. Goodbody describes the butterflies' dispersal as "a reprise of the opening scene of the book, suggesting that violent change may also bring rebirth" (20). Kingsolver's depiction of the exodus certainly mirrors the beauty and wonder of Dellarobia's first encounter with the butterflies: "The vivid blur of their reflections glowed on the rumpled surface of the water, not clearly defined as individual butterflies but as masses of pooled, streaky color, like the sheen of floating oil, only brighter, like a lava flow. That many" (433). And this beauty is also framed as a sort of victory, as, crucially, Dellarobia judges that there are "maybe a million" butterflies taking part in the exodus, a number that allows the

butterflies to stave off extinction (433). With this in mind, *Flight Behaviour* certainly seems to end its human and nonhuman narratives on hopeful notes, granting both parties a sort of rebirth.

However, while the hopefulness of the novel's final scene does create a pleasant endpoint, it is also problematic in its implications for Kingsolver's handling of the climate crisis. As with any work of climate fiction, *Flight Behaviour* faces the critical issue that including too much hope, especially at a story's ending, may lessen the urgency readers feel around climate change. Some critics have argued that *Flight Behaviour* suffers from this effect, falling short at the last hurdle as the hopefulness of its ending undoes some of its work to stress just how grave a threat climate change is. Garrard suggests that the novel's ending is "problematic" because of the "transformation of the monarch character from a symbol of fragility to one of resilience, which complements—perhaps too reassuringly—Dellarobia's" ending ("Conciliation" 309). This transformation is indeed troubling. As symbols of fragility—beautiful creatures on the verge of extinction—the monarchs neatly represented the threat climate change poses to nonhumans. As symbols of resilience—survivors having escaped the clutches of climate change—the monarchs have the opposite effect, imbuing nonhumans with a certain toughness, which effectively lessens the need for us to actively protect them. Debra J. Rosenthal has suggested that a "possible unintended takeaway message from the novel is that climate change might not be all that bad" (280). I do believe this to be an overstatement of the problem—Kingsolver's skilful exploration of climate change throughout the rest of the novel cannot be entirely undone by the ending's hopefulness—but it is true that the ending somewhat "undermines the urgency to stop anthropogenic climate change" (Rosenthal 280). This begs the question of why the butterflies' ending had to match Dellarobia's so neatly. Clark offers an explanation, stating that "because the monarch butterflies acquire so many personal associations for Dellarobia at

a crucial point in her life, their final fate becomes increasingly impossible not to be read as symbolic of her personal trajectory" (177). This can be seen as an unfortunate side-effect of the entanglement of human and nonhuman narratives: the two become so entangled that they cannot be split apart, because one side will always be read as a mirror or symbol of the other. Dellarobia and the butterflies have become so connected that any hope or hopelessness applied to one side would leak into the other. As such, perhaps it is inevitable that *Flight Behaviour*'s two narratives end on a similar note of rebirth and hopefulness.

But the hopefulness of the novel's ending is not complete. To end this section without making note of this would be to oversimplify the work Kingsolver does throughout her novel to explore the complex issue of hope in the Anthropocene. Crucially, the hopefulness of the final scene is complicated by what has preceded it. This is the case with the last line of the novel, describing the butterflies' exodus: "above the lake of the world, flanked by white mountains, they flew out to a new earth" (433). While, on the surface, this seems an uplifting final sentence, an earlier conversation between Dellarobia and Byron suggests the opposite. Here, Dellarobia asks where the butterflies would go if they were to survive the winter, and Byron uses the same phrase we find in the novel's closing sentence: "Into a whole new earth," he says, "different from the one that has always supported them … This is not a good thing, Dellarobia. A whole new earth" (325). Dellarobia can only agree, thinking "a world where you could count on nothing you'd ever known or trusted, that was no place you wanted to be" (325). With this moment in mind, it becomes clear that, despite the misleading calm ambience of the novel's final scene, its mention of a "new earth" is a gesture toward danger rather than hope. Byron offers another crucial hint earlier in the novel, when Dellarobia asks if the butterflies' appearance in Feathertown is really so bad: "they're beautiful," she says, "we don't get a lot of bonuses around here" (147). In response, Byron warns that "terrible things can have beauty" (147-148). This advice is integral, as it brings to our attention a more

subtle form of denial—a willingness to be misled by beauty. As she walks through her farm's pastures in summer, Dellarobia thinks of "how much was obscured in summer by leaves. With all those reassuring walls of green, a person could not see to the end of anything. Summer was the season of denial" (257). With this observation, Kingsolver highlights how even an environment slowly collapsing under the pressures of climate change can be beautiful, and how this beauty can blind us to the grim realities of the Anthropocene if we let it. Dellarobia recognises this risk in studying the butterflies: "they were so beautiful, that was the thing. The hardest work of all was to resist taking comfort" (422). But even as Dellarobia shows her awareness of the pitfall of taking comfort in nature's beauty, within the same chapter, she seems to succumb to the trap, viewing the entrancing sight of the butterflies' successful dispersal at the novel's conclusion with calm hope. Garrard argues that this hopefulness does not undermine the novel's urgent plea for action against climate change by suggesting "there are enough reminders" that "ecological harm can be beautiful" and "we are not to mistake the butterflies' mere survival for 'being saved'" ("Conciliation" 310). Indeed, as I have demonstrated, there are a range of hints spread throughout the novel that can remind us of this important caveat to the butterflies' survival. However, the connections between these earlier warnings and the ending can certainly be missed. The hopefulness of the final scene is immediately apparent, while the warnings against finding hope in beauty are, upon reaching the novel's final pages, distant and subtle. As a result, a certain de-stressing of climate change remains as an unintended consequence of *Flight Behaviour*'s ending—not serious enough to undo Kingsolver's work of exploring the gravity of both climate change and climate change denial, but certainly serious enough to be considered a flaw in her otherwise effective entanglement of human and nonhuman narratives. This flaw is of particular note because it demonstrates just how perilous the challenges of attempting to

conceptualise climate change are, as even Kingsolver's clever tactic of personalisation through entanglement comes with setbacks of its own.

All in all, *Flight Behaviour* represents a full engagement with both the opportunities and limitations that realism can bring to the field of climate fiction. Rooted firmly in the here and now—the 'knowable' present—realism is the ideal genre for considering the issues and anxieties of our modern society. Kingsolver makes full use of this, directing realism toward the issue of climate change denial and the struggle to maintain hope in the face of such a crisis. In tackling these concerns, Kingsolver highlights the grave challenges of conceptualising climate change, shedding light on the 'culture war' that feeds denial and on the problematic consequences of scientific neutrality. Remarkably, while Kingsolver uses realism's rootedness to empower her discussion of these issues, she also resists the limitation of this focus on the knowable present, effectively gesturing into the future through Dellarobia's hopes and fears for her children. And while she highlights these very human concerns, Kingsolver also demonstrates a method in which literature can, at least in part, overcome its own challenges of conceptualisation by expertly weaving a nonhuman narrative into her novel, thereby bending realism's inherent anthropocentric form to an ecocentric purpose. Although this entanglement is ultimately marred by the excessive optimism of the novel's ending, it forms a powerful example of how realism, in spite of its biases, can be adapted for use against the growing climate crisis.

Chapter 4: Satire and Ian McEwan's *Solar*

> Virtue can motivate individuals, but for groups, societies, a whole civilisation, it's a weak force.
>
> Ian McEwan, *Solar*, p. 149

1. Introduction

The final form of writing I will discuss is satire, which can be broadly defined as "the process of attacking by ridicule," and typically involves employing humorous modes of writing such as irony, parody, slapstick comedy, and grotesque imagery (Hodgart 7). As such, a connection between satire and the Anthropocene may seem unlikely or misguided. After all, it can be argued that the climate crisis—as grave a threat as it is—ought not to be approached with any form of humour or mocking. Yet it can also be argued that the causes of climate change are particularly well-suited to satirical treatment. Satire is, after all, as Matthew Hodgart puts it, generally deployed out of "irritation at the latest examples of human absurdity, inefficiency or wickedness," and these three qualities can be found in abundance in our species' excessive burning of fossil fuels (10). Satire effectively "uses humor as a weapon, attacking ideas, behaviors, institutions, or individuals by encouraging us to laugh at them" (Bore and Reid 454). Critically, this means the 'weapon' of humour can be directed at a specific target, so that satire can, potentially, ridicule and attack the "behaviors, institutions, or individuals" behind climate change without rendering the entire topic of climate change a humorous affair.

In recent years, critics and scholars have begun to question the assumption that climate change ought not to be laughed at. Rather than worrying that a humorous approach might trivialise a grave threat, some have suggested that imbuing climate-conscious fiction with some degree of humour may produce more positive results than negative ones. For

example, Inger-Lise Kalviknes Bore and Grace Reid's detailed study of how a humorous play concerned with climate change impacted its audience concluded that "satire can promote active and positive engagement with climate change debates" by both prompting "audience reflection, investigation, and action" and helping "audiences manage feelings of fear, helplessness, and guilt, which may otherwise prevent them from taking action" (454, 456). In other words, while "fearful" and "shocking" stories about climate change can "distance or disengage individuals from climate change" by leaving them "feeling helpless and overwhelmed" (O'Neill and Nicholson-Cole 375), satire's "use of comic elements may help prevent these specific barriers" (Bore and Reid 458). As such, it is possible that satirical works of climate fiction, which employ an atypically light-hearted and humorous tone, might have more success in mobilising or motivating people to react to climate change than the grim narratives that have become customary.

Critics have also advocated for light-hearted, satirical writing about climate change in the hope that such fiction might avoid the related issue of 'doom fatigue.' Courtney Traub describes a "general cultural fatigue towards the pathos, gloom, and doom so prevalent in contemporary fiction about environmental risks" (86). She goes on to note that "grimly apocalyptic" perspectives have come to dominate popular fiction around the climate crisis, with doom narratives "so pervasive as to feel entirely predictable" (87). In light of this, more playful, humorous climate narratives can be regarded as a breath of fresh air, one which readers and audiences may be more likely to embrace and respond to. As I will demonstrate throughout this chapter, the genre of satire offers an avenue to generate this refreshing, 'light-heart' effect while still presenting a meaningful critique of the forces behind climate change via its 'attack through ridicule' approach. Traub highlights the genre's potential, arguing that, while "pathos tends to inspire a sense of paralysis," satirical novels "hedge against such paralytic responses by doing something unexpected: they make us laugh" (86-87). One of the

two satirical novels Traub praises for achieving this is Ian McEwan's *Solar,* which will serve as the focus of this chapter. A thoroughly comedic novel, *Solar* is "set … starkly apart from the jeremiads commonly associated with cli-fi" (Traub 89). As I will discuss, the novel's decidedly non-apocalyptic, satirical critique of the ways in which the Western world has responded (and continues to respond to) the threat of climate change effectively uses "comedy to sneak grimmer matters past the reader's defences" (Tayler).

Given McEwan's standing as one of Britian's most accomplished and incisive novelists, there was much anticipation among ecocritics leading up to *Solar*'s release. As Katrin Berndt summarises, "before its publication in 2010 … *Solar* was hailed as a major literary contribution to the climate change debate" (85). Many critics "dared to hope that McEwan's climate change novel would be a pivotal, if not decisive, influence on public opinion" (Garrard, "Apocalypse Not" 123). Indeed, Greg Garrard published an excited 'anticipatory review' of the unpublished work, in which he suggested *Solar* would "provoke a fundamental shift in ecocritical assumptions" (Garrard, "Future" 718). However, while some reviewers have praised *Solar*'s humour as a clever "way around the moral gravity" of climate change (Rahmstorf), the novel has received a largely disappointed reception from critics. In particular, reviewers took issue with "McEwan's choice of satirical allegory as a genre," which Garrard found to "limit" the value of the novel ("Apocalypse Not" 123). More generally, the "humorous elements" of the satirical narrative have been criticised for failing to "do justice to the goal of increasing public awareness of the serious threat that global warming presents" (Berndt 85). In this chapter, I will analyse McEwan's use of satire to highlight how the genre can empower attacks against the forces and attitudes that contribute to the climate crisis, but I will also suggest that the genre is ill-equipped to offer persuasive alternatives or solutions.

McEwan's satire is focused on its protagonist, Michael Beard, a corpulent British physicist. As summarised by Berndt, Beard serves as an "exaggerated parody of the conflicting desires that come with being human," but he can be considered more accurately as representative of Western society in particular (88). Lazy, cynical, and rendered morbidly obese by an inability to resist his habits of overconsumption, Beard is an especially striking symbol of Western baby boomers' culpability for, and apathetic response to, climate change. Giving his satire even more of an edge, McEwan positions his protagonist as a renowned scientist who is utterly self-serving and apathetic. Having won a Nobel Prize for his work in the field of theoretical physics in his younger years, the middle-aged Beard presented in the beginning chapters of *Solar* now coasts on his past success: "two decades had passed since he last sat down … to do some thinking, to have an original hypothesis … He lacked the will, the material, he lacked the spark. He had no new ideas" (14-15). Entirely opposite to the scientist-hero Ovid Byron, whose portrayal is central to the ultimately hopeful depiction of science in *Flight Behaviour* (discussed in the previous chapter), McEwan's protagonist regards climate change primarily as a means for personal advancement.

Beard is slowly stirred into action after accepting a position heading a government research centre intended to combat climate change with new technological innovations—though Beard himself is "unimpressed by … the wild commentary that suggested the world was in 'peril'" (15). At 'the Centre,' Beard meets Tom Aldous, an enthusiastic young postdoc eager to convince the station's management, and Beard in particular, that the way to save the planet is through artificial photosynthesis technology. Aldous proves to be a genius, his ideas revolutionary, but after Beard catches him having an affair with his wife, the young visionary, in a panicked rush, trips over a polar bear rug and fatally cracks his skull on a coffee table. After framing another of his wife's lovers, a builder named Tarpin, for murdering Aldous, Beard goes on to claim Aldous' unpublished research as his own. Despite

a string of misadventures—including a trip to the North Pole, numerous romantic entanglements, and a scandal where Beard is labelled a "neo-Nazi" for careless remarks about women in the field of science (137)—Beard, in the final pages of the novel, is poised to launch a ground-breaking solar energy plant in New Mexico. But Beard's triumph is interrupted when, in a "tragicomic climax," the consequences of his plagiarism, his framing of Tarpin, his illicit affairs, and his overconsumption all catch up with him (Berndt 97): a legal case is mounted against him by the British government, Tarpin emerges from prison to vandalise his solar plant, and Beard's girlfriend Melissa confronts him over his unfaithfulness. The novel ends with Beard experiencing "an unfamiliar, swelling sensation" in his heart—a feeling which many critics have considered to mark a heart attack, inferring that Beard dies just as the novel closes (279).

The persona of Michael Beard is undoubtedly the constant focus of *Solar*, and the picture of 'human nature' that he paints is the primary target of McEwan's satirical criticism. However, in addition to this, I will also consider how *Solar* uses the attack-through-ridicule format of satire to challenge assumptions about two sides of an ideological divide that is highlighted by climate change: the side of the sciences, and the side of the humanities (a dichotomy that also featured prominently in Atwood's MaddAddam trilogy, as discussed in Chapter 1). Specifically, I will highlight how *Solar* mocks notions that suggest either the sciences (which Beard aligns with) or the humanities (which Beard frequently derides) hold the key to addressing the issue of climate change. Finally, after examining the ways in which *Solar* discredits 'human nature', the sciences, and the humanities, I will consider and critique an alternative, more hopeful reading of the novel that centres on viewing Beard not as representative of humanity as a whole, but as a particular subset—namely white, male, baby boomers—whose way of thinking about climate change is shown to be destructive, outdated and soon to be overcome by more progressive alternatives.

2. Michael Beard and 'Human Nature'

In his description of satire, Hodgart asserts that "the perennial topic of satire is the human condition itself," reasoning that the genre seeks to expose humans as "weak and mortal creature[s]" (10). *Solar* wholly lives up to this appraisal of satire, devoting itself to highlighting and criticising the worst of humanity's vices through the allegorical formulation of its protagonist. As Richard Kerridge has noted, "the novel's main strategy, in relation to the political, ethical and psychological questions raised by climate change, is to make Beard a comically excessive figure but nevertheless a broadly representative one" ("Single Source" 155). McEwan is not coy about his intention for Beard to serve this representative role; he goes as far as making the allegory explicit when Beard remarks of himself that he "comfortably shared all of humanity's faults" (171). The ultimate goal of McEwan's humorously exaggerated representation of these faults—most notably Beard's gluttony, greed, selfishness, and lust—is to "confront society with its weaknesses, satirically exposing self-indulgence, corruption, and the dangers of unrestrained consumption that distinguish twenty-first century culture" (Berndt 86). As I will demonstrate, the humour of satire is vital to achieving this confrontational effect. This is because, much like the distancing effects achieved by speculative genres such as science fiction and fantasy (discussed in Chapters 1 and 2), the comic exaggeration of humanity's real vices through the fictional figure of Beard "lets us see the familiar defamiliarized," giving us a fresh view of the environmental costs of ordinary human flaws to which we typically wouldn't give a second thought (qtd. in Berndt 88). In the remainder of this section, I will consider how McEwan's depiction of each of Beard's crippling flaws contributes to a satirical critique of 'human nature' and how humour empowers this critique.

Beard is constructed as a symbol of capitalist overconsumption in all its forms, and the most overt manifestation of Beard's various insatiable appetites is his increasingly extreme obesity. As Berndt has noted, the "physical humour" of Beard's comically disproportioned body "exaggerates moral weakness and human indulgence in vice" (88). *Solar* is littered with instances in which Beard partakes in all manner of 'human indulgences,' whether it be food—one scene describes his "infatuation" with salt-and-vinegar crisps (122)—alcohol, or sex (a veteran of five failed marriages, Beard habitually cheats on any woman with whom he enters a romantic relationship). Significantly, there is no point at which Beard is redeemed. Although he does come to work toward the noble goal of combating climate change, Beard does this simply to satisfy his own selfish urges. His motivations are evidenced through free indirect discourse, such as when he reflects that all he seeks from the solar plant endeavour "beyond a reasonable return, was sole attribution"—the former phrase signalling his appetite for money and the latter his appetite for glory (186). The fact that, for the entire length of the novel, Beard's motivations remain thoroughly selfish and his submission to his desires continues uninterrupted, has led Kerridge to label the scientist as an "unsympathetic" variation of the "picaro"—a character archetype renowned for moving through an episodic series of misadventures without ever changing or developing ("Single Source" 157). McEwan signals the static qualities of his protagonist early in the novel, when we are told that Beard "did not believe in profound inner change" (66). Holding true to this view, Beard makes no attempt to address his vices, deciding instead that "he did not have it in him to eat and drink less, that exercise was a fantasy," (240). This attitude persists even as Beard's overconsumption brings on potentially fatal health concerns; his apathy toward his own wellbeing is perhaps most keenly expressed when he discovers a "reddish-brown blotch" on his wrist signalling melanoma—ironically, a skin cancer commonly caused by exposure to solar radiation (238). He shows no interest in having the operation and radiation therapy that

could save his life, but instead prioritises his appearance at the solar plant's opening so that he can give a triumphant speech before the press.

Crucially, *Solar* draws direct parallels between Beard's apathy and a corresponding sense of apathy and defeatism present in the ways in which Western society responds to climate change. The filthy state of Beard's apartment serves as a useful bridge between the figure of Beard and the planetary damage wrought by consumerism: "There was so much to do to make the place tolerable that no single task seemed worth the trouble … Everywhere he looked in his apartment, made gloomier by unwashed windows, reflected some aspect of himself, his worst, fattest self, incapable of translating a decent plan into a course of action" (222). This image of Beard's apartment allegorically extends McEwan's critique of the scientist's apathy towards the issue of climate change to the wider population. Implicit in Beard's 'why bother?' attitude is the common real-world perception that there is no use in ordinary individuals acting against climate change because the situation is already far too dire—our planetary home is already too run-down to be fixed. Such widespread hopelessness contributes to Western society's own incapability to put a "decent plan" into action. With this in mind, Beard, endlessly self-indulgent and apathetic, emerges as a symbol of "the collective failing of wealthy consumers to change their behaviour" (Kerridge, "Single Source" 155). The novel suggests that, when it comes to climate change, Western society as a whole is just as "adept at avoiding inconvenient or troubling thoughts" as Beard (McEwan 238). McEwan makes this point explicit when Beard's girlfriend, Melissa, who "approved of" her boyfriend's campaign against climate change and "loyally read climate-change stories in the press," tells him that "to take the matter seriously would be to think about it all the time. Everything else shrank before it. And so, like everyone she knew, she could not take it seriously, not entirely. Daily life would not permit it" (165). This passage suggests that it is simply 'human nature' to avoid thinking too seriously or too often about the catastrophic

consequences of climate change. Just as Beard cannot bring himself to fully ponder or take action regarding his personal crises—his crippling addictions, his decaying apartment, his failing health—it appears only natural that we too shy away from the climate crisis.

Beard's overindulgence and apathy are paired neatly with his utter selfishness, a quality that allows McEwan to satirise the destructiveness of capitalist motivations, both personal and institutional. Yet here McEwan complicates any straightforwardly moralistic reading of his novel. Rather than consistently lampooning this selfish approach to the climate crisis—as might be expected in such a work of satire—McEwan leaves some room, at least momentarily, for the approach to be viewed as having saving potential. In a key moment of the novel, Beard delivers a speech at an "energy conference attended by institutional investors, pension-fund managers, solid types who would not easily be persuaded that the world, their world, was in danger and that they should align their investment patterns accordingly" (112). Knowing his audience's priorities well, Beard builds his speech around an appeal to selfishness. "Virtue is too passive," he says, "too narrow. Virtue can motivate individuals, but for groups, societies, a whole civilisation, it's a weak force … For humanity en masse, greed trumps virtue. So we have to welcome into our solutions the ordinary compulsions of self-interest, and also celebrate … the satisfaction of profit" (149). So, to appeal to these economic values, Beard asserts that the market of the solar revolution "will be even more lucrative than coal or oil … Colossal fortunes will be made" (154). To further elevate self-interest over virtue, Beard states that "solar will expand … [because] basic science, *the market,* and our grave situation will determine that this is the future – logic, not idealism, compels it" (154, my italics). With this argument, it seems that *Solar* steps away from its otherwise wholly derisive, satirical appraisal of Beard and the unconstrained human appetites he represents to genuinely endorse the notion that self-interest may in fact be useful—crucial, in fact—in our struggle to address climate change. Capitalism, the novel

seems to suggest, with all its qualities of consumerism that helped pump our atmosphere full of carbon emissions, might be the only viable tool to fix the very crisis it fuelled. In a sense, this suggestion, even as it depicts humanity as fundamentally selfish, could be seen as one of very few rays of hope where *Solar* allows the possibility that humanity might be equal to the task of defeating climate change.

However, it is important to remember that, during his pro-consumerism speech, Beard is fighting through a bout of extreme nausea as a result of his own self-indulgence; despite being only "pre-hungry," immediately prior to his speech, Beard ate nine salmon sandwiches (146). Consequently, as he addresses the investors, Beard is constantly distracted—which McEwan illustrates by interrupting the flow of his monologue with descriptions of the escalating effects of his nausea. "He was sweating coldly, he was aching and weak in his spine," the narrator observes: "He had to keep talking to distract himself" (152). After Beard concludes, "to the sound of respectable applause," he vomits as soon as he steps away behind the stage's curtain (156). Here, McEwan's satirical humour is in full effect, as the comically exaggerated nature of Beard's over-indulgence collides with the apparent sincerity of his pro-market argument that climate change might be successfully addressed. As Garrard puts it, the hope that "our economic self-interest … will save us" is "satirically undercut" as Beard vomits up "the evidence of his own irrational self-indulgence" ("Apocalypse Not" 130). Crucially, Beard shows us—in the case of his nine salmon sandwiches, and also in all his other misadventures—that self-interest is not always logical, and as such cannot simply be counted on to swap sides in the fight against climate change.

Beard's speech and its grotesque aftermath highlight one of the central aspects of *Solar* that critics have taken issue with: namely, the fact that the novel refuses to imagine any possibility of successfully addressing the climate crisis. Kerridge has criticised the novel for being "anti-heroic on a general scale," reasoning that, in McEwan's novel, "the [climate]

crisis doesn't bring the best out of anybody. No one rises to the occasion" ("Single Source" 156). This can be seen as a consequence of McEwan's choice of a genre that, by its nature, presents no heroes. As "a physicist who commands the education, the ability, and the institutional and financial means" to help address climate change but who instead invests in "over-consumption, adultery, and criminal activity," Beard contributes to a hopeless view of humanity and the climate crisis (Berndt 88). While this hopelessness avoids having paralysing effects on readers through the infusion of humour, this has done little to appease critics. Garrard, perhaps the critic most thoroughly disappointed by *Solar*, has argued that, built into his role as a "personification of human fallibility in general," Beard fails to also function as "a persuasive character of the kind McEwan usually writes" ("Apocalypse Not" 127). The suggestion here is that McEwan's crafting of Beard as a vehicle for satirical allegory renders the protagonist all but useless in persuading readers to act against climate change. This highlights another limitation of satire: in addition to having no capacity for heroic characters, the genre is ill-equipped to complement its informative and combative critique with encouragement for more positive action. While it succeeds in exposing the vices that define and debilitate our species' response to climate change, *Solar* has little interest in offering or endorsing alternatives. Simply put, satire is too inherently negative to imagine, let alone promote, any basis for positive change.

3. Science and Technology

Aside from critiquing humanity at large via its proxy, Michael Beard, *Solar* also directs its satire toward more specific cultural targets. As Johannes Wally has pointed out, McEwan's novel is deeply interested in the "two-culture-debate," a subject that has been "central to the intellectual climate of the UK over the last 60 years as well as to McEwan's oeuvre" (174). This theory, originating in C.P. Snow's influential *The Two Cultures and the Scientific*

Revolution (1959), maintains that knowledge in Western society is now "split up into two separate departments, 'science' and 'the humanities'" (Wally 174). True to its role as an unflinching work of satire, *Solar* is devoted to the task of attacking through ridicule both sides of this debate, and challenges beliefs that either side can contribute meaningfully to addressing climate change. Of the two schools of thought, science is certainly the one that receives the most attention in McEwan's novel, since its protagonist is a Nobel prize-winning physicist. As I will discuss throughout this section, *Solar* ultimately rejects much if not all hope in scientific and technological responses to climate change, depicting the field of science as a realm corrupted by economic reasoning and self-interest.

Solar works hard to dismantle any notions of science as a noble pursuit driven by altruistic motives. McEwan instead frames science "as an activity tied to socio-economic and individual interests" (Berndt 85). *Solar* suggests that the forces of money and renown are effectively eroding the potential of science, stripping it of its weapons of logic and reason. This can be seen when Beard, now an icon in the scientific world, receives a letter from "a consortium of power companies" effectively asking him to swap sides in the fight for clean energy, requesting that he "bring his 'wide experience of green technologies to the task of steering public policy in the direction of carbon-free nuclear energy'" (276). Naturally, Beard is offered "a salary well into six figures" along with a string of other perks (276). If there was any doubt as to Beard's priorities, free indirect discourse makes it clear how little he cares about truly clean energy sources and how tempted he is by monetary gain: "Well, of course," Beard thinks, "the argument could be made. The CO_2 levels went on rising and time was running out … Many respected environmentalists had come round to this view, that nuclear energy was the only way out, the lesser of two evils" (276). Here, we see self-interest clouding the judgement of a scientist who no doubt knows all too well the real consequences of nuclear energy—consequences Beard is willing to overlook in light of that six-figure

salary. The passage continues and McEwan's use of humour intensifies as Beard's free indirect discourse "mockingly paraphrase[s]" the proposal's attempted positive spin on the Chernobyl nuclear disaster (Berndt 91): "Was not the 28-kilometre exclusion zone around Chernobyl now the biologically richest and most diverse region of Central Europe, with mutation rates in all species of flora and fauna barely above the norm, if at all? Besides, wasn't radiation just another name for sunlight?" (McEwan 276). Here, we find what Berndt has called McEwan's work to expose "the discursive takeover of economic reasoning in science and society" (92). The rewriting of the Chernobyl disaster effectively demonstrates a complete substitution of scientific logic with economic reasoning. The former, backed by research, would tell us that flora and fauna in the Chernobyl area are indeed "thriving, but they are also radioactive" (Seymour 4). But the latter form of reasoning, concerned only with economic opportunities, ignores the need for research and presents matters in the most favourable light possible, even if that means trivialising one of the greatest environmental calamities in human history. And, almost bizarrely, it is this form of reasoning that seems to sway McEwan's scientist. Beard genuinely considers the nuclear power companies' argument and proposal, and never once ventures into a scientifically-informed counterargument mentioning the risks of nuclear power—instead he simply moves right along to his next email. Through this, McEwan effectively demonstrates how persuasive economic reasoning has become in modern capitalist society, showing this form of collective self-interest to dominate where scientific reasoning should be given precedence.

Solar's ridiculing of modern science serves a particular purpose in regard to climate change: namely, to challenge the assumption that we can be saved from the climate crisis solely by scientific and technological solutions. While this challenge is typically posed by the genre of science fiction via its depiction of the devastation caused by fictional future technologies (discussed in Chapter 1), *Solar* shows that satirical writing can make a similar

argument while targeting only present-day science and technology. The novel's incredulity toward salvation through science is signalled early on, when Beard bemoans the new complexities of modern quantum physics, which he calls "the borderland where mathematical rigour defeated common sense, and reason and fantasy irrationally merged. Here, the mystically inclined could find whatever they required, and claim science as their proof," imagining marvels such as an "engine that ran on virtually nothing, on virtual particles, that emitted no harm and would power the human enterprise as well as save it" (18-19). In this passage, such planet-saving innovations are stripped of their believability by Beard's sarcastic remarks, with the novel beginning to question whether it is sensible for our species to stake our hope on scientists' ability to cook up a miracle cure for climate change.

Solar continues this line of questioning by concentrating its satire on the character who best embodies a utopian faith in the sciences: Tom Aldous. Before his untimely death, Aldous has a habit of delivering impassioned monologues about the possibilities of solar technology, and as Berndt puts it, "the text ridicules Aldous's evangelical sense of mission through Beard's sarcastic indirect discourse, and the young researcher's ecstatic verbiage" (93). The former is injected into each one of Aldous' attempts to convince Beard (and the reader) of science's saving potential, always serving to distract from and undercut the young postdoc's message. For instance, mid-conversation, Beard becomes "intrigued by the way Aldous said 'loike' [instead of 'like']. It seemed to mock what he was trying to say" (25). In fact, McEwan deliberately provides no shortage of Aldous' qualities that invite mockery. The "ecstatic verbiage" mentioned by Berndt lends Aldous an air of fanaticism—for example, his arm-waving declaration on solar energy that "it's all out there, waiting for us to understand how to use it" is noticeably reminiscent of the oft-derided slogan of conspiracy theorists: "The truth is out there!" (25). As such, in spite of the ground-breaking results of his research (eventually perverted by Beard), the humorously exaggerated nature of Aldous' speech—

both his accent and his choice of words—makes it difficult to take Aldous seriously as a character. Consequently, the faith in science which he represents is shown as overzealousness, something to be ridiculed rather than admired.

Like its critique of 'human nature,' *Solar*'s ridiculing of science has also attracted criticism. Garrard argues that, in its consistent dressing-down of science, the novel "shows little interest in what might actually make scientific findings either credible or contestable. As a result, nothing and no one challenges the dangerous conflation of 'sound science' with naked self-interest" ("Apocalypse Not" 128). Again, this shortcoming is a product of McEwan's commitment to the form of satire. As his writing is concerned solely with the humorous criticism of 'bad science' it has no scope for including alternatives in the form of 'sound science' unfettered by self-interest. So, as Garrard suggests, *Solar* (unlike *Flight Behaviour,* which campaigns for a more emotive form of science) offers no indication of how science might be kept a credible and moral pursuit—it states problems, not solutions, leaving its depiction of scientific endeavours entirely negative. Ultimately, with its most promising champion reduced to the butt of Beard's jokes and subsequently killed off, and its potential shackled by greed and self-interest, science is assaulted from all sides in *Solar,* with no noble scientist characters arising to come to its defence. As such, science—typically viewed as our chief weapon against the threat of catastrophic climate change—is framed as a force wholly insufficient for the crisis we face.

4. The Humanities and Ecocriticism

Although the other side of the 'two-culture-debate' is granted less attention than the sciences, the humanities are addressed in several key instances throughout *Solar.* On each occasion, the humanities' value and potential to respond meaningfully to the climate crisis are questioned

and ultimately found lacking. In an extended analepsis, we are told of how Beard won the heart of his first wife, Maisie, who was at the time a student of English, by conducting a rather superficial study of the poetry of John Milton in order to impress her with quotations and opinions. Aside from the triumph of winning over Maisie, Beard also takes "great satisfaction" in masquerading as an expert in the arts, reasoning that "no third-year arts person, however bright, could have passed himself off, after a week's study, among the undergraduate mathematicians and physicists who were Beard's colleagues. The traffic was one-way" (201). In addition to convincing Beard of science's superiority as a discipline, his week of studying literature leads him to consider the humanities "a monstrous bluff" containing "nothing that could remotely be construed as an intellectual challenge" (201). As Wally has commented, this episode in Beard's life appears "a broadside fired at the humanities," as the field is framed as entirely frivolous (176). But, as Traub notes, there is a certain tension at play here: by presenting the 'thinking big' of the humanities as "sentimental fluff that lacks intellectual rigor," McEwan is "lampooning his own medium" (102). McEwan even goes as far as ridiculing the exact form of novel he is writing by "suggesting in numerous places the utter uselessness of 'narrative' approaches to the climate crisis" (Traub 102). An example of this can be seen in McEwan's derisive depiction of a "lecturer in urban studies and folklore" who attends Beard's speech and declares his interest in "the forms of narrative that climate science has generated" (147). "It's an epic story, of course," the man says, "with a million authors" (147). Such a pompous remark frames climate fiction (including McEwan's own writing) as deserving of ridicule.

Solar's critique of the humanities goes a step further during Beard's visit to the North Pole alongside a team of climate-conscious artists, where the notion that art can help avert the climate crisis is thoroughly ridiculed. The artists are shown to be "distrustful of technological fixes [to climate change], determined that what was required was a different way of life for

everyone, a lighter tread on the precious filigree of ecosystems, a near religious regard for new rules of human fulfilment in order to flourish beyond supermarkets, airports, concrete, traffic, even power stations" (76). Here, just as Aldous' overenthusiastic verbiage likens him to a conspiracy theorist, these artists are opened up to ridicule as Beard's ever-sarcastic focalisation details their beliefs in another form of perceived overzealousness, akin to the hippie counterculture of the 1960s. Of particular interest here is that although McEwan's satire is sceptical of technological fixes to climate change, it also mocks these artists for expressing the very same 'distrustfulness' toward science. This odd double standard seems to indicate that a fully-devoted work of satire like *Solar* is inherently drawn to ridiculing strong feelings of any kind toward the climate crisis—be they faith or scepticism. Beard determines these artists are all "seized by the same particular assumption, that it was art in its highest forms, poetry, sculpture, dance, abstract music, conceptual art, that would lift climate change as a subject, gild it, palpate it, reveal all the horror and lost beauty and awesome threat, and inspire the public to take thought, take action, or demand it of others" (77). The incredulity expressed here—evident in Beard's use of the word 'assumption' and the sardonic tone with which he lists the artists' hopes—suggests that such an idealisation of the arts is not to be taken seriously, but rather regarded with intense scepticism. Building on this impression, McEwan details the increasingly chaotic state of the 'boot room' in the North Pole lodge, where the visiting artists leave their gear upon returning from treks into the tundra: "the room had started out in orderly condition, with all gear hanging on or stowed below the numbered pegs. Finite resources, equally shared, in the golden age of not so long ago. Now it was a ruin" (78). Beard takes "perverse … pleasure" in noting the artists' failure to responsibly share the boot room and its resources, and remarks, "How were they ever to save the planet … when it was so much larger than the boot room?" (78). Ultimately, the boot room dilemma, which Beard frames as "a matter of human nature," asserts that artists, much like

the novel's scientists and indeed everyone else, are unable to operate altruistically or collectively, and therefore can hardly be expected to succeed as role models in the fight against climate change (79). While the novel never explicitly endorses Beard's cynical appraisals of art and artists, "it significantly fails to counter Beard's view," by never "providing any positive evidence to refute him" (Kerridge, "Single Source" 158). As a result, in spite of being a work of climate change art itself, *Solar* seems to campaign against climate fiction and other climate-conscious works of art rather than for them.

In its overtly cynical appraisal of artistic responses to climate change, *Solar* presents a critique that complicates its negative reception among ecocritics. As I mentioned in this chapter's introduction, *Solar* was largely regarded as a disappointment by critics—Garrard chief among them—who had hoped the novel would contribute greatly to the global climate change debate. Prior to *Solar*'s release, McEwan commented, "I don't think … [literature] can do much about climate change. I suppose it can reflect the problem and pose the problem in terms that might be useful to people" (Roberts qtd. in Zemanek 59). With this comment, it seems McEwan's faith that art can meaningfully combat climate change is about as great as Beard's. Furthermore, in an interview published the week before *Solar*'s initial release, McEwan remarked that "it is not the job of the novelist to save the world" (qtd. in Brown). This attitude, backed by Beard's insinuations that no artist of any kind could possibly ever contribute to saving the world, stands in bitter opposition to the hopes of ecocritics like Garrard, who later expressed his frustration by declaring *Solar* "so full of metafictional minimization of expectation [that] it ought to wear a badge: 'This novel will not save the planet'" ("Apocalypse Not" 126). Instead of attempting such a 'saving' effect, *Solar* avoids taking any persuasive moral stance, with McEwan explaining in an interview that "the thing that would have killed the book for me, I'm sure, is if I'd taken up any sort of moral position … I needed a get-out clause. And the get-out clause is, this is an investigation of human

nature, with some of the latitude thrown in by comedy" (qtd. in Brown). Some critics have accepted McEwan's approach, arguing it was "unrealistic" for Garrard to expect *"Solar* to deliver solutions to climate change in a relatively straightforward manner" and asserting that *"Solar* (or any other novel) couldn't possibly unravel the Gordian knot of climate change single-handedly" (Maughan 19, 23, 32). However, others have argued that a climate-conscious text like *Solar* ought to do more to address climate change, suggesting McEwan's novel shirks "the responsibility of promoting change" as a novelist (Zemanek 59). Through *Solar,* McEwan seems to argue that no such responsibility exists in respect to climate change—that novels and other art cannot be expected to wield any meaningful power in the face of the climate crisis. Leaving both sides of the 'two-cultures-debate' thoroughly discredited, *Solar* seems to endorse one of Beard's many musings: "leave nothing … to science or art, or idealism. Only good laws will save" humanity (80). But, of course, while it goes to great lengths to explain the faults in science, art, and idealism, *Solar* never elaborates on what Beard's 'good laws' might look like, and so no saving force ever takes shape in the novel.

5. Reading McEwan's Satire against the Grain?

Having detailed how McEwan's satire criticises 'human nature,' science and the humanities, I will now consider whether *Solar* might be read against the grain to yield a more transformative view of climate change. Perhaps the most hopeful appraisal of *Solar* and its characters has been offered by Chris Maughan, who argues Beard is to be seen not as representative of all humanity but instead only a specific subset of our species, and thus shifts the focus away from McEwan's central scientist—a protagonist built to represent the worst of humanity and who, through his sarcastic narration, highlights nothing but the worst in everything around him. To move away from Beard is a challenge, however, as every moment

in the text is filtered through his focalisation. Nevertheless, Maughan argues that, "far from being an indication of some universal truth about human nature, Beard's character flaws show dominant modes of thought and production to be both constructed and redundant" (30). In Maughan's view of *Solar,* Beard represents not all of humanity but only the privileged few who dominate scientific and political discourse. Here, it is important to reiterate that Beard is white, male, and a baby boomer, and thus potentially mistaken in his belief that he "share[s] all of humanity's faults" (171). Perhaps, instead, the novel is more subtly suggesting that Beard's faults—and in particular his economically-minded and wholly-unalarmed responses to climate change—are typical of people of his particular gender, race, and/or generation, rather than typical of humanity as a whole. But if this is indeed the point of Beard's characterisation, then one must wonder why the novel gives no sustained attention to voices from different demographic groups: no female or non-white characters offer any insight on the topic of the climate crisis, besides Melissa's single comment on how difficult it is to think about climate change (discussed in Section 2), while Aldous, the only younger person with much to say about climate change, is ridiculed and killed off early on.

Given how its narrative remains so completely dominated by Beard's voice—the voice of a privileged, white male—and how little space it gives to alternative voices, *Solar* seems to mirror—either intentionally or unintentionally—the silencing of unprivileged perspectives of climate change in the real world. In particular, the novel exemplifies how nations like the U.S. and the U.K. (the two settings of *Solar,* aside from the North Pole) dominate climate change discourse while, as Amitav Ghosh points out, "those at the margins are now the first to experience the future that awaits us all" but are comparatively silenced (69). Whether intended or not, McEwan's use of a very traditional form of narration—that of focalisation through a single protagonist—and the narrow focus it creates have the effect of highlighting just how much the global discussion of climate change will need to broaden if it

is to fully grasp who and what is at risk. In fact, Maughan argues that *Solar* is more aware of alternative modes of thinking than it appears. In addition to his argument that Beard's attitude is not to be considered representative of human nature, Maughan also asserts that *Solar*'s narrative does not stress the pervasiveness of such an attitude but rather the inevitability of its downfall: Beard's apparent heart attack, brought on by his various mismanagements, shows the protagonist's "anachronis[tic]" way of thinking perishing under the (literal) weight of its shortcomings, to be replaced by more modern, "emergent forms" of thinking (Maughan 30, 28). To support this view, Maughan argues that "alternatives to Beard's doomed thinking occur in the background" of the novel, in the supporting cast, and when ones considers these marginal characters, it becomes clear that, instead of representing all humanity, Beard is "in fact, the odd one out" (30, 31). In the remainder of this section, I will consider the alternative ways of thinking offered by *Solar*'s supporting cast in order to both respond to Maughan's argument and identify complications in the novel's appraisals of both sides of the 'two-culture-debate.'

It is not easy to find examples of human decency in *Solar* to counterbalance the rampant selfishness of McEwan's protagonist. No good and faithful companions can be found among Beard's workmates or in his vast array of ex-wives. It is only in Beard's lover, Melissa, and the daughter they have together, Catriona, that some of humanity's kinder traits can be found. As in many works of climate fiction (such as *Flight Behaviour,* discussed in Chapter 3), the protagonist's offspring is of particular interest because they represent the generation that will inherit the ever-intensifying consequences of climate change. Catriona, it seems, has inherited none of her father's complete inability to appreciate others' emotions: "she was an intimate, sociable girl of near-unbearable sensitivity" and she regards her neglectful father with "unconditional, uncritical love" (220). Catriona's mother is similarly "prepared to love unequally," committed to the task of melting the "nugget of ice" in Beard's

heart (221, 169). Maughan sees these two characters as symbols of "emotional sensitivity, openness … loyalty, forgiveness, and generosity" (30). The inclusion of such traits is notable, as it complicates the novel's allegorical depiction of humanity as inherently selfish. Beard considers himself "an average type, no crueller, no better or worse than most. If he was sometimes greedy, selfish, calculating, mendacious, when to be otherwise would embarrass him, then so was everyone else" (170). While much of *Solar* seems to support this view, Melissa and Catriona's virtues highlight a contrasting human capacity for selflessness. However, even Melissa is tainted by a streak of selfishness; knowing Beard will never agree to have children with her, she stops taking contraceptive pills without his knowledge to become pregnant with Catriona. As this act shows her to be just as capable of self-serving deception as Beard, it ultimately undercuts any argument that her character serves as a straightforward example of human love and devotion. As such, it seems natural to conclude that if any hidden hope in human goodness exists within *Solar*, it is half-hearted at best.

In the case of the sciences, a more generous reading—one that discards Beard's sarcastic narration and forgives Aldous his flair for melodramatic speech (discussed in Section 3)—might see the young postdoc as a redemptive counterbalance to Beard's obsessive ambitions. Maughan points out that he doesn't hesitate to share his intellectual property with Beard for the good of the planet, and suggests that he be seen as an "understated, emergent collective hero" (31). However, just as praising Melissa overlooks her deception, framing Aldous as a "hero" means disregarding key moments in the text where the young postdoc's moral conviction falls by the wayside—most notably, his affair with Beard's wife, which "endangered his scientific work through sexual risk-taking," thus reflecting the dominance of the same appetites that also define Beard's moral perspective (Kerridge, "Single Source" 156). However, even if Aldous himself offers little hope for a virtues-driven science, it can be argued that the success of his research imbues *Solar* with what Maughan

terms a "utopian impulse" (30). Garrard points out that Beard's fictional solar power plant, built using Aldous' ideas, is "completed around two decades ahead of any probable real ones," which suggests that, despite his satirical criticism of the sciences, McEwan harbours some "residual … optimism" regarding the potential of scientific innovations ("Apocalypse Not" 125). Significantly, the optimism that the station represents is not entirely ruined by the novel's conclusion. Though its opening is delayed by lawsuits and vandalism, the station's underlying scientific principles are apparently sound, and it outlives Beard, with McEwan including a hint that it may be turned over to the British government, who are "keen to … own the patents and show the taxpayer a decent return" (272). While this suggests the station's new handlers will be, like Beard, economically motivated, it leaves open the possibility that the fruits of Aldous' research and Beard's scheming "may yet have a saving potential in the hands of others, who will take the project forward for similarly self-serving reasons … The novel keeps alive – just about – the ironical possibility: that ignoble, clumsy, earthly vitality may be the saving of us, not idealism" (Kerridge, "Single Source" 156). As such, right at its ending, *Solar* seems to circle back to the 'self-interest will save us' message it presented (and subsequently ridiculed) through Beard's speech (and subsequent vomiting). Ultimately, the vague hope that self-interest may guide science down a productive path in the fight against climate change seems to be the most positive message *Solar* can muster in its closing pages.

Finally, if one hopes to find a counterpoint to McEwan's satire on the humanities and art's capabilities regarding the climate crisis, one must look beyond the content of *Solar*'s narrative—which holds no artists of even semi-heroic status—to the contribution to the climate change debate made by the novel as a whole. *Solar* resists its own protagonist's assertions about the uselessness of art by succeeding in performing a very useful function: exposing and opening to ridicule the forces that continue to exacerbate the climate crisis—

namely human greed and apathy, and the economic takeover of the scientific sphere. Granted, this function is not one that will save the world from climate change—criticism alone is not enough—but it is crucial nonetheless. With this in mind, *Solar*'s criticism of the humanities loses some of its edge. But ultimately, none of the three targets of McEwan's satire can be fully redeemed by a determinedly hopeful reading. The characters that represent human decency, science's potential, and the arts are all too deeply flawed to offer any significant counterbalance to Beard's dominant allegory of human selfishness. As such, I must conclude that there is insufficient textual evidence to support Maughan's view that *Solar* suggests Beard is intended to represent a 'doomed' and 'outnumbered' way of thinking rather than 'human nature' as a whole.

It seems that McEwan chose satire as a genre out of a certain degree of defeatism; his belief that literature cannot "do much about climate change" and his urge to avoid a "moral position" via a "get-out clause" led him to a form of writing that is designed to ridicule rather than advocate (Roberts 191; Brown). Through the example of *Solar*—a novel that tears down and anatomises 'human nature,' science and the arts—we see that satire can expose effectively the faults of humanity and certain follies in our attempts to save ourselves from climate change. However, the satire we find here is also deeply cynical and largely hopeless—its hopelessness is not expressed in an apocalyptic fall of humanity (like that found in the MaddAddam trilogy), but instead is bound up in an implicit argument that humanity is so utterly self-serving that it may not warrant saving. The humour of McEwan's satire prevents this hopelessness from being too daunting or paralysing: every potentially depressing moment in *Solar* is overwritten with comedy, whether that be Beard trying not to vomit in the middle of his speech or Aldous flailing like a cartoon character as he falls to his death. Regardless, the novel's hopelessness is still problematic, because it is never broken by the emergence of any possible alternatives. At no point does *Solar*'s satire on what we are

doing wrong as a species give way to any genuine argument for what we could do right instead. This, it seems, is the crucial limitation of satirical writing about climate change. The genre's attack-through-ridicule approach, while useful, only works as a single piece of a larger puzzle; alone, it is insufficient to bring about positive change. Perhaps some critics would have been more pleased if *Solar* had made a more powerful intervention in the climate change debate through taking up a moral position—if instead of devoting his novel entirely to satirical allegory, McEwan mixed in normative claims about how we ought to think about climate change. But the argument of this thesis has been that the complexity of life in the Anthropocene demands investigation through divergent genres, and in this light it is possible both to acknowledge the value of the critique of human vices offered in *Solar,* and to be reassured that other genres are better suited to offering more hopeful appraisals of our species.

Conclusion

In this thesis, I have contended that humanity's misuse of its new geological agency necessitates an incisive and innovative literary response. The texts considered have been highlighted as powerful examples of such a response, with the works of Kingsolver and McEwan serving as exemplars of how various writers are beginning to tackle the issue of climate change, while Jemisin and Atwood's stories about humanity's interference with other planetary systems demonstrate the potential of responding to the Anthropocene more generally. This thesis' analysis of Jemisin and Atwood's work in particular has highlighted that the value of critical discourse broadening its perspective from 'climate fiction' to 'Anthropocene fiction,' in order to address the root issue that is humanity's misuse of its power over the planet and nonhumans, rather than just discussing consequences of this dysfunction like climate change and species extinction.

As I noted in this thesis' introduction, Anthropocene fiction faces many obstacles, with some commentators expressing doubt as to whether literature can have any effect whatsoever on the climate crisis, while the subject itself poses daunting representational challenges. Specifically, the climate crisis is difficult to successfully discuss in fiction due to its sheer complexity and global scale, its largely invisible and undramatic form of violence, and the negative and often paralytic emotional responses it frequently evokes. While these factors are undeniably formidable obstacles for authors, my analysis of these texts has shown that they are not insurmountable. For instance, McEwan's infusion of comedy into *Solar* assuages the depressed and demobilised emotional responses the novel's scathing critique might otherwise generate, while Kingsolver makes the discreet and dull consequences of present-day climate change engrossing and affecting by weaving into her realist narrative a story of the beauty and tragedy of refugee butterflies. My analysis of Kingsolver's novel in

particular has led me to refute the notion that the novel "may not be the most appropriate form to convey what climate change, in its subtler, everyday manifestations, feels like now" (Tuhus-Dubrow). Furthermore, although no single novel can address the complexity and global scale of climate change alone, Jemisin succeeds in stressing the planetary nature of the Anthropocene by giving the earth itself a voice in her narrative. Ultimately, this thesis has shown that, while they face certain disadvantages, novels remain a powerful tool for addressing the climate crisis.

Writers of climate fiction also face a unique challenge when they come to composing the endings of their stories: they are forced to decide how much—or how little—hope to instil in their closing pages. As climate change is a potentially apocalyptic crisis with no solution in sight, one could argue that works of climate fiction are bound to bleak endings. In contrast with the successes outlined above, my analysis has also noted a common failing in the novels considered: it seems that, regardless of their genre, writers of Anthropocene novels often struggle to end their narratives in a manner that is consistent with the way they bring the issues of the new era to light through their plots. The MaddAddam trilogy largely sheds its dystopian vision in its final pages to install an unconvincing semi-posthuman utopia. The Broken Earth trilogy loses sight of its insistence upon the agency of nonhumans as the fate of its world is ultimately decided by a conflict between a human mother and daughter. Kingsolver's *Flight Behaviour* partially undermines its own call for action to save endangered species when its butterflies miraculously survive without assistance to migrate peacefully in the last chapter. All three of these endings are curiously hopeful: *MaddAddam*'s human survivors live in peace with the Crakers and pigoons; Nassun uses the Plutonic Engine to save humanity and win a truce with Father Earth; and the butterflies take flight, mirroring Dellarobia's own escape from her unhappy marriage. These abrupt and problematic shifts toward regeneration, it seems, are generated by both a need for narrative closure and a desire

to avoid the grim prognosis of eventual extinction that climate change seems to warrant. After all, a conclusion where humanity is doomed (an especially likely alternative ending for Atwood and Jemisin's trilogies) is liable to dishearten any reader. The ending of *Solar* is an entirely different beast; rather than striving for narrative closure or an uplifting note to end on, McEwan cuts down his protagonist mid-meal and renders the consequences of his solar energy research unclear, leaving readers unsure exactly how much stock the novel puts in scientific endeavours against climate change. As such, we are left with three text that prioritise narrative closure over their consistent treatment of the Anthropocene, and a final text that gives no closure to its discussion of climate change whatsoever. My analysis suggests it is exceedingly difficult for Anthropocene fiction to unflinchingly acknowledge the catastrophic future consequences of climate change without leaving readers disheartened upon reaching a novel's final pages.

The primary focus of this thesis has been to determine how different genres can navigate the plethora of complications that authors must face when attempting to write about the Anthropocene. The four genres I have considered have each shown certain weaknesses in this regard: science fiction, while uniquely capable of dramatizing climate change's consequences, often fails to weave the climate crisis into its narratives (largely because the genre's stories take place in a future where the battle against climate change is already lost); fantasy is at a disadvantage because its otherworldly settings are inherently set apart from the concerns and crises of our real world; realism struggles because climate change, unpredictable and unknowable, actively resists its criteria of plausibility and relatability; satire, being fundamentally negative in its critique, is unable to endorse or advocate for any positive alternatives to the harmful practices and attitudes it lampoons. However, my analysis has also found unique opportunities present in each genre: science fiction has the power to build future worlds based on our real present and thereby interrogate the ways in which our

species uses science and technology to subjugate nonhuman life; fantasy can conduct thought experiments that unsettle assumptions about our relationship with our own planet; realism can tell deeply personal stories about life in our present day, when climate change is still a nebulous and largely invisible threat; satire is well-equipped to attack via ridicule the forces and attitudes that empower fossil fuel emissions and stall attempts at innovating against climate change. The sheer variety of these different opportunities illustrates how important it is that a wide range of genres are deployed against the threat of the Anthropocene—and that the work of each genre is taken seriously by literary critics. In light of my findings, I concur with Adam Trexler and Adeline Johns-Putra's assertion that the critical conservation surrounding climate change literature ought to move beyond focusing solely on literary fiction and embrace genre fiction as well (see 189). Climate change is a crisis with countless dimensions, and so its complexities ought to be engaged by every field of literature.

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